Academic Affairs

194 Interdisciplinary Group Studies UGRD 1-5
Study of special or interdisciplinary topics at an introductory level.
Prereq: Open to students who meet instructors stated prerequisites. This course is graded S/U.

Accounting and Management Information Systems

211 Introduction to Accounting UGRD 5
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.
Su, Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq or concur: Econ 200 or equiv. Not open to students with credit for 201 or 310 or equiv. This course is available for EM credit.

211H Honors Introduction to Accounting I UGRD 5
Structure of accounting information; role of accounting and auditing in markets and organizations; preparation and use of accounting reports. Uses distinctive instructor-authored materials and writing assignments, and emphasizes oral class participation.
Au Qtr. 2.2-hr cl. Prereq: Permission of Honors Accounting Director.

212 Introduction to Accounting UGRD 5
The uses of accounting reports in management decisions and in control of business operations; focus is on the internal use of accounting information.
Su, Au, Wi, Sp Qtrs. 2.2-hr cl + online lecture materials. Prereq: 211 or equiv; and Econ 200 or equiv. Not open to students with credit for 201 or 310 or equiv. This course is available for EM credit.

212H Honors Introduction to Accounting II UGRD 5
Cost measurement, estimation, control; managerial decision making and evaluation. Emphasizes analytical skill development and relationship of accounting to the economic theory of the firm.
Wi Qtr. 2.2-cl. Prereq: B or better in H211 or permission of Honors Accounting Director.

310 Foundations of Accounting UGRD 5
A survey of accounting for non-business students; financial statements and analysis; accounting for assets, liabilities and owners equity; and elements of managerial accounting.
Su, Au, Wi, Sp Qtrs. 1.2-hr cl. Prereq: Match 130; Econ 200 and CS&E 100 or equivalents. Not open to students with credit for Acct&MIS 201, 211 or 212 or to students enrolled in the BSBA program. Credit does not count toward the BSBA degree.

493 Individual Studies UGRD 1-10
Individual study projects in selected areas in accounting and management information systems.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

494 Group Studies UGRD 1-10
Group study projects in selected areas in accounting and management information systems.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

501 Accounting and Cost Analysis UGRD 3
An introduction to financial statement analysis and cost planning for decision making, and control.
Au, Sp Qtrs. 2.15-hr cl. Prereq: ISE 500 and 504 or permission of instructor.

519H Honors Intermediate Accounting UGRD 5
Introduction to intermediate financial accounting topics.
Sp Qtr. 3 cl. Prereq: B or better in H212 or permission of Honors Accounting Director.

520H Honors Intermediate Accounting II UGRD 5
Au Qtr. 3 cl. Prereq: B or better in H519 or permission of Honors Accounting Director. Not open to students with credit for 521, 522, or 523.

521 Financial Accounting I UGRD 3
Introduction to financial accounting theory and practice; determination of asset and liability valuation and income measurement and its relation to market frictions.
Su, Au, Wi, Sp Qtrs. 2.1.5-hr cl. Prereq: 212 and Bus-Mgt 330 and 331; or permission of instructor.

522 Financial Accounting II UGRD 3
Application of accounting techniques and theory to recording and reporting of financial data; emphasis on collection, summarization, and reporting of data in accordance with generally accepted accounting principles.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 521, Bus Adm 499.

523 Financial Accounting III UGRD 3
Application of accounting theory in complex situations; emphasis on cash flows, leases, error corrections and shareholder's equity.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 522.

525 Cost Accounting UGRD 5
Managerial decision making in organizations with an emphasis on the use of financial data; theory and practice of management control.
Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: 212 and Math 132 or 152 and Bus-Mgt 330 and 331 and Bus Adm 499.

525H Honors Cost Accounting UGRD 5
Role of accounting in business planning and control; activity costing; strategic cost management.
Wi Qtr. 2.2-hr cl. Prereq: B or better in H520; and Bus-Mgt 330 and 331 or permission of Honors Accounting Director.

532 Foundations of Business Information Systems UGRD 5
Technical foundation in programming interactive business information systems.
Wi Qtr. 2.2-hr cl. Prereq: 212 and CSE 214 and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor.

624 Advanced Accounting UGRD 4
Advanced topics in financial reporting including accounting for multi-corporate business entities, international operations, and government and not-for-profit organizations.
Su, Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: 523 or equiv.

624H Advanced Accounting UGRD 4
Advanced topics in financial reporting including accounting for multi-corporate business entities, international operations, and government and not-for-profit organizations.
Su, Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: 523 or equiv; Honors program or permission of department or instructor.

626 Tax Accounting I UGRD 4
Fundamentals of the federal income tax, and how it influences taxpayer decisions. Emphasis is on individuals and businesses organized as proprietorships, but the rules generally applicable to all taxpayers are covered.
Su, Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: 521 or equiv and Bus Adm 499.

627 Auditing Principles and Procedures UGRD 4
Basic concepts and standards of auditing; audit procedures and working papers; internal and external audit reports.
Su, Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: 523 or equiv.

628H Accounting Research and Practice UGRD 4
Researching accounting concepts and standards underlying corporate and noncorporate financial statements including consideration of typical accounting problems.
^ 4 cl. Prereq: Sr standing and be enrolled in an Honors Program or permission of instructor.

631 Introduction to Accounting Information Systems UGRD 5
The design and control of computer-based accounting information processing systems.
Su, Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: 212 and CSE 200 and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor. Not open to students with credit for 531.

631H Introduction to Accounting Information Systems UGRD 5
The design and control of computer-based accounting information processing systems.
Su, Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: 212 and CSE 200 and Bus-Mgt 330 and 331 and Bus Adm 499. Not open to students with credit for 531.

634 Topics in Financial Accounting UGRD 4
Contemporary topics in financial accounting and analysis. Topics may vary.
Sp Qtr. Prereq: 522.

636 Tax Accounting II UGRD 4
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.
Au, Sp Qtrs. 2.2-hr cl. Prereq: 522 and 626 or equiv.

646 Tax Research Seminar UGRD 3
Case studies requiring an in-depth examination of the tax aspects of situations frequently encountered by businesses and individuals.
^ 3 cl. Prereq: 626 and permission of instructor.

651 Analysis and Design of Management Information Systems UGRD 4
Investigation and application, through real-world projects, of concepts and tools used in the analysis and design of management information systems.
^ 2.2-hr cl. Prereq: CSE 516 and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor.
653 Business Data Communications UGRD 4
Study of technological, economic, and organizational issues concerning computer-based networks for business data communications.
Sp, Au Qtr. 2-hr cl. Prereq: Jr or Sr standing as an Information Systems major in BUS and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor.

657 Decision Support and Expert Systems UGRD 4
Study of computer-based systems designed to support decision-making within the organization.
Sp Qtr. 2-hr cl. Prereq: CS&E 616 and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor.

658 Electronic Commerce UGRD 4
Examination of technical, managerial, and strategic issues that surround the emergence of electronic commerce on the internet.
Sp Qtr. 2-hr cl. Prereq: CSE 616 and Bus-Mgt 330 and 331 and Bus Adm 499.

659 Information Systems Planning and Management UGRD 4
Planning and management of the information system function in business organization with emphasis on the problems involved.
Su, Au Qtr. 2-hr cl. Prereq: CS&E 200 and 214, Sr or grad standing, and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor.

693 Individual Studies UGRD 1-10
Individual study projects in selected areas of accounting and management information systems.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694.01 Group Studies UGRD 1-10
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

694.02 Group Studies UGRD 1-10
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

694.03 Group Studies UGRD 1-10
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

694.04 Group Studies UGRD 1-10
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

694.05 Group Studies UGRD 1-10
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

783H Honors Research UGRD 1-5
Special topics research in accounting and/or management information systems; research evaluated through papers, thesis, and/or special examinations.
Su, Au, Wi, Sp Qtrs. Prereq: Jr or Sr standing in business, 3.40 cumulative gpa, and permission of instructor. Repeatable to a maximum of 15 cr hrs.

803 Foundations of Accounting GRAD 5
Fundamental accounting concepts and theory; emphasis on information content approach by examining the structure, language and comparative advantage of accounting reports as an information source.
Wi Qtr. 2-hr cl. Prereq: Enrollment in Master of Accounting Program or permission of instructor.

804 Professional Research in Accounting GRAD 5
Research and communication skills in a professional accounting context; learn to use various accounting information resources; enhance communication and teamwork skills through collaborative exercises.
Au Qtr. 2-hr cl. Prereq: Enrollment in Master of Accounting Program or permission of instructor.

821 Accounting and Legal Environments Facing Corporations GRAD 4
Applications to accounting, corporate finance, business strategy, statistics, and securities law theory to issues and problems in corporate governance.
Sp Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

822 Assurance Services and Information Quality GRAD 5
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.
Wi, Sp Qtrs. 2-hr cl. Prereq: Enrollment in the Master of Accounting program and completion of 627 or equiv., or permission of instructor.

823 Managerial Accounting for Decision Making GRAD 4
Cost systems with emphasis on the appropriate application of system outputs to management decisions.
Sp Qtr. 2-hr cl. Prereq: MBA 801 or 802 or permission of instructor.

824 Corporate Financial Reporting GRAD 4
An examination of major aspects of corporate financial reporting by management under generally accepted accounting principles including coverage of disclosures required for traded securities.
Au Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

825 Accounting Information in Markets and Organizations GRAD 5
A conceptual approach to the use of accounting information and management controls in markets and decentralized organizations. Integration of practice and theory.
Wi Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

826 Tax Planning for Managerial Decision Making GRAD 4
Examination of the impact of taxes on several important business decisions; recognition of tax problems and planning opportunities.
Wi Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

827 Information, Incentives, and Control System Design GRAD 4
Aspects of organizations impacting the design, implementation, and revision of management control systems for private and public enterprises including discussion of responsibility centers, transfer pricing, planning, budgetary reporting, incentive compensation, operational auditing, and the impact of taxation on decision-making.
Sp Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

828 Financial Information and Valuation GRAD 4
Valuation of securities, companies and debt using accounting based models of valuation such as price-to-book models, price-to-earnings models, earnings forecasts and EVA.
2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

829 Financial Accounting Analysis GRAD 4
Analyze the ability of accrual accounting to provide relevant statistics in an uncertain economic environment.
Wi Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

834 Corporate Information Systems Management GRAD 4
Case studies of the impacts of information technology on business organizations and its effective planning and control.
Au Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

835 Systems Analysis and Design for Managers GRAD 4
Practical experience in software development for managers of business systems.
Sp Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

837 Management of Corporate Data Resources GRAD 4
Investigation of concepts and techniques for data management with emphasis on planning and administrative issues and on the linkages between data and corporate strategy.
Sp Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

838 Emerging Technologies and Electronic Commerce GRAD 4
Provide an understanding of the opportunities, potential threats and important issues surrounding electronic commerce and emerging technologies.
Sp Qtr. 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

841 Accounting for Mergers and Acquisitions GRAD 4
Study of complex financial transactions including business combinations, impairment of acquisition-related intangibles, restructuring, special purpose entities, foreign operations, derivatives and hedges.
Sp Qtr. Prereq: MBA 800 or enrollment in Master of Accounting program or permission of instructor.

842 Financial Statement Analysis GRAD 4
Analysis of financial statement information for purposes of valuing a company.
Wi Qtr. Prereq: 804 or (prereq: MBA 800 and prereq or concurrent: MBA 810) or permission of instructor.
845 Controllership GRAD 3
The accounting executive's role in the management of an enterprise; accounting data for planning, coordination, control, and protection.
Sp Qtr. 3 cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor.

846 Business Taxation and Tax Planning GRAD 4
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.
Au, Wi Qtrs. 2 2-hr cl. Prereq: 626, 826, enrollment in Master of Accounting program, or permission of instructor.

847 Securities Law for Graduate Accounting GRAD 4
Students
Aspects of law related to financial reporting and the practice of accounting.
Wi Qtr. Prereq: Enrollment in Master of Accounting program or permission of instructor.

848 Financial Instruments, Derivatives, and Hedging GRAD 4
Accounting and management aspects of derivative financial instruments including options, forwards and futures.
Sp Qtr. 2 2-hr cl. Prereq: Enrollment in Master of Accounting Program or permission of instructor.

849 International Accounting GRAD 4
Financial reporting and accounting for businesses in international capital markets.
Sp Qtr. Prereq: Enrollment in Master of Accounting Program or permission of instructor.

852 Governmental and Non-Profit Accounting GRAD 4
The application of accounting principles to governments and other not-for-profit entities; problems relating to funds, appropriations, and budgetary controls.
Au Qtr. 2 2-hr cl. Prereq: MBA 800 or 800N or enrollment in Master of Accounting program or permission of instructor. Not open to students with credit for PubPol&M 852. Cross-listed in Public Policy and Management.

856 Professional Research in Taxation GRAD 4
In-depth examination of the tax aspects of situations frequently encountered by businesses and individuals.
Sp Qtr. 2 2-hr cl. Prereq: 846 or written permission of instructor.

861 Fraud Examination GRAD 4
Study of individual business fraud, weaknesses in business controls, and mechanisms to prevent, detect, and respond to business fraud.
Wi Qtr. Prereq: Enrollment in Master of Accounting program or permission of instructor.

862 Financial Fraud Detection GRAD 4
Techniques for detecting financial statement fraud including detection of asset misappropriation and fraudulent financial reporting.
Sp Qtr. Prereq: Enrollment in Master of Accounting program or permission of instructor.

866 Advanced Topics in Taxation GRAD 1-4
Examination of tax effects on business transactions. Topics include international and state/local taxation, exempt entities, family tax planning, conglomerates, and choice of tax entity.
Wi, Sp Qtrs. Prereq: 846 or permission of instructor. Repeatable to a maximum of 4 cr hrs.

876 Case Studies in Taxation GRAD 1-4
Analysis of case studies from a tax perspective: choice of entity, international transactions, financial and succession planning.
Su, Sp Qtrs. Prereq: 846 and 856, or permission of instructor. Repeatable to a maximum of 4 cr hrs.

893 Individual Studies GRAD 1-6
Individual study projects in related areas in Accounting and Information Systems.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Open only to graduate students. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

894.20 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.21 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.22 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.23 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.24 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.26 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.28 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.29 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.30 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.31 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.32 Group Studies GRAD 1-5
Group study projects in selected areas of accounting and management information systems.
Prereq: Written permission of instructor. Repeatable.

894.40 Introduction to Business Performance Management GRAD 2
A basic understanding of the BPM value proposition and the importance of BPM in a career path.
Wi Qtr.

900 Seminar in Accounting GRAD 5
Examination of theoretical and empirical research in accounting and management information systems.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Intended for students enrolled in a PhD program. Repeatable to a maximum of 16 cr hrs.

998 Research in Accounting: Thesis GRAD 1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

999 Research in Accounting: Dissertation GRAD 1-18
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

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Aeronautical and Astronautical Engineering

200 Introduction to Aerospace Engineering I UGRD 5
Introduction to aerospace design, with emphasis on aerodynamics and aircraft performance.
Au Qtr. 4 cl, 1 2-hr lab. Prereq or concur: Math 152, Physics 131, and a minimum cumulative pt-hr ratio of 2.00. This course is available for EM credit.

201 Introduction to Aerospace Engineering II UGRD 5
Introduction to aircraft stability; propulsion integration; introduction to astronautics.
Wi Qtr. 4 cl, 1 2-hr lab. Prereq: 200 and a minimum cumulative pt-hr ratio of 2.00. This course is available for EM credit.

405 Thermodynamics UGRD 4
Introduction to the properties and behavior of aerodynamic fluids from microscopic and macroscopic points of view.
Sp Qtr. 4 cl. Prereq: 201.

501 Sounding Rocket Design UGRD 1
Wi Qtr. Prereq: 201. Math and Natural Sciences Admis Cond course.
510.01 Aerospace Laboratory I UGRD 2 Laboratory demonstrations and experiments in aerodynamics, aeroelasticity, propulsion, and structures of flight vehicles: structures, dynamics and control. Au Qtr. Prereq: 542, 581 and a second writing course. Open only to Aero Eng majors.
510.02 Aerospace Laboratory II UGRD 2 Laboratory demonstrations and experiments in aerodynamics, aeroelasticity, propulsion, and structures of flight vehicles: gas dynamics and propulsion. Wi Qtr. Prereq: 530, 550, 560 and a second writing course. Open only to Aero Eng majors.
510.03 Aerospace Laboratory III UGRD 2 Laboratory demonstrations and experiments in aerodynamics, aeroelasticity, propulsion, and structures of flight vehicles: data acquisition, signal processing and aerodynamics. Sp Qtr. Prereq: 560, 581 and a second writing course. Open only to Aero Eng majors.
512 Systems Integration I UGRD 1 Integration of material from structures, fluids and dynamics courses by means of industrially relevant design projects. Au Qtr. 1-2 hr lab. Concur: 520, 530, 540.
513 Systems Integration II UGRD 1 Integration of material from structures, fluids and dynamics courses by means of industrially relevant design projects. Au Qtr. 1-2 hr lab. Concur: 543, 560.
514 Systems Integration III UGRD 1 Integration of material from heat transfer and propulsion courses by means of industrially relevant design projects. Sp Qtr. 1-2 hr lab. Concur: 550, 570, 581, Elec Eng 300.
515.01 Preliminary Design of Atmospheric Flight Vehicles I UGRD 3 Beginnings of preliminary design, methodology, case studies, introduction of design software, group planning for subsequent design effort: design of atmospheric flight vehicles and components. Prereq: 521, 543, 550, 560. Not open to students with credit for 515.
515.02 Preliminary Design of Space Flight Vehicles UGRD 3 I Beginnings of preliminary design, methodology, case studies, introduction of design software, group planning for subsequent design effort: design of space flight vehicles, systems and components. Prereq: 521, 543, 550, 560. Not open to students with credit for 515.
516.01 Preliminary Design of Atmospheric Flight Vehicles II UGRD 3 Continuation of preliminary design from 515. Students learn to utilize CAD and other computational tools as a part of the design process: design of a vehicle for atmospheric flight. Prereq: 515.01. Not open to students with credit for 516.
516.02 Preliminary Design of Space Flight Vehicles UGRD 3 II Continuation of preliminary design from 515. Students learn to utilize CAD and other computational tools as a part of the design process: design of space flight vehicles, systems and components. Prereq: 515.02. Not open to students with credit for 516.
517.01 Detailed Design of Atmospheric Flight Vehicles UGRD 2 Detailed design of aerospace vehicle components: design of a vehicle for atmospheric flight. Prereq: 516.01. Not open to students with credit for 517.
517.02 Detailed Design of Space Flight Vehicles UGRD 2 Detailed design of aerospace vehicle components: design of space flight vehicles, systems and components. Prereq: 516.02. Not open to students with credit for 517.
521 Linear Systems Engineering UGRD 4 Analysis of a flight vehicle from a systems point of view. Free and forced response. Introduction to closed-loop and open-loop systems. Sp Qtr. 4 cl. Prereq: 520, 581, Elec Eng 300, Elec Eng 309.
530 One-Dimensional Gasdynamics UGRD 4 One-dimensional gasdynamics, including flow with friction and heat conduction, but with an introduction to oblique shocks and Prandtl-Meyer flows. Au Qtr. 4 cl. Prereq: 201, 405.
542 Flight Vehicle Structures I UGRD 4 Load distributions, temperature distributions, and allowable stresses for flight vehicle structures; derivations of basic equations for analysis of flight vehicle structural components. Au Qtr. 4 cl. Prereq: Mech Eng 410, MatSci&En 205, concur: 581.
543 Flight Vehicle Structures II UGRD 4 Stress analysis of flight vehicle structures. Wi Qtr. 4 cl. Prereq: 542.
550 Principles of Flight Vehicle Propulsion UGRD 4 Fundamentals of aerospace propulsion including engine cycles and analysis of various air-breathing engines and rocket engines. Sp Qtr. 4 cl. Prereq: 530.
580 Analytical Methods in Aeronautical and Astronautical Engineering UGRD 4 Application of selected topics in mathematics to analysis in the field of aeronautical and astronautical engineering. Sp Qtr. 4 cl. Prereq: 201 and Math 415.
581 Numerical Methods in Aerospace Engineering UGRD 3 Application of numerical methods to selected topics in the field of aerospace engineering. Au Qtr. 3 cl. Prereq: En Graph 167, 580.
612 Aircraft Flight Test Engineering UGRD 4 A determination of the performance, stability, controllability, and handling qualities of general aviation aircraft through flight tests. Sp Qtr. 3 cl, 1-2 hr lab. Prereq: 520 and 560, or equivs with permission of instructor.
615 Introduction to Computational Aerodynamics UGRD 4 Introduction to computational methods used in aerodynamic flow problems; applications to airflow analysis and design. Wi Qtr. 4 cl. Prereq: 560, 581 and En Graph 167, or equivs.
616 Advanced Aerospace Vehicle Design UGRD 3 Configuration formulation, performance analysis, propulsion system design and integration, material selection, structural efficiency, CAD/CAM, computer simulation. Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 518, 516 or permission of instructor. Repeatable to a maximum of 9 cr hrs.
620 Automatic Control of Aerospace Vehicles I UGRD 3 Control theory as applied to analysis and design of flight control systems; components of automatic flight control systems. Wi Qtr. 3 cl. Prereq: 521 and Elec Eng 300.
621 Aircraft and Spacecraft Automatic Control Systems II UGRD 4 Control theory as applied to analysis and design of control systems for complex flight vehicles; interaction between structural flexibility and control systems. Wi Qtr. 4 cl. Prereq: 521.
626 Orbital Mechanics UGRD 3 Satellite orbit analysis and interplanetary missions. Au Qtr. 3 cl. Prereq: 201, 520, Mech Eng 430.
661 Advanced Aerodynamics UGRD 3 Advanced elements of aerodynamics in low- and high-speed flow. Au Qtr. 3 cl. Prereq: 560. Not open to students with credit for 561.
693 Individual Studies in Advanced Aerospace Engineering UGRD 2-10 Individual studies on advanced topics in aerospace engineering. Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
720 Stability and Control of Flight Vehicles UGRD 4
Wi Qtr. 4 cl. Prereq: 521.

745 Aerelasticity I UGRD 4
Dynamic loads analysis of elastic flight vehicles subjected to unsteady airloads.
* Sp Qtr. 4 cl. Prereq: 521, 543 and 560.

751 Advanced Propulsion UGRD 4
Characteristics and performance of air breathing flight vehicle power plants and their components (inlets, turbo-machinery, combustors, and expansion nozzles).
* Au Qtr. 4 cl. Prereq: 550.

752 Rocket Propulsion UGRD 3
A discussion of all propulsion types for space flight: liquid, solid, hybrid, nuclear and electric. Emphasizes fundamentals of each technique, and trade-offs in engine selection and design.
Sp Qtr. 3-1 hr cl. Prereq: 550.

760 Advanced Compressible Flow UGRD 4
Two-dimensional supersonic flow theories.
Sp Qtr. 4 cl. Prereq: 561 or equiv.

771 Aerodynamics of Viscous Compressible Flows UGRD 4
Analysis of laminar boundary layers in high speed flows. Introduction to interacting boundary-layer theory and triple-deck theory, three-dimensional boundary layers.
Wi Qtr. 4 cl. Prereq: 570.

775 Hypersonic Flows I UGRD 4
Introduction to the analysis of inviscid hypersonic flow fields.
* Au Qtr. 4 cl. Prereq: 561.

783H Honors Research UGRD 1-5
Supervised research and project work arranged individually for honors students.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Sr, honors standing, permission of instructor. Repeatable to a maximum of 12 cr hrs. Limited to numbers of credit hours applicable toward degree are governed by departmental rules. This course is graded S/U.

800 Theory of Deformation and Flow GRAD 3
General treatment of the basic principles underlying the mechanics of deformable media from macroscopic point of view.
Au Qtr. 3 cl. Prereq: 543, 560, and 570 or equiv. Required of all first yr grad students.

801 Deformation of Aerospace Structures GRAD 3
Application of the unifying theories and principles of solid and fluid mechanics to vehicular structures with emphasis on aerospace structures.
Wi Qtr. 3 cl. Prereq: 800.

802 Analytical Methods in Engineering I GRAD 4
Advanced methods for solution of partial differential equations with applications to fluid dynamics and heat transfer; topics include Green's function, integral transforms and asymptotic solutions.
Wi Qtr. 4 cl. Prereq: 560, 414 or equivs.

803 Analytical Methods in Engineering II GRAD 3
Continuation of 802 with emphasis on the solution of singular perturbation problems.
Sp Qtr. 3 cl. Prereq: 802.

805 Aerodynamics of Chemically Reacting Fluids GRAD 3
The aerodynamics of one-dimensional compressible flow with chemical reactions and wave propagation.
Au Qtr. 3 cl. Prereq: 800.

810 Flight Vehicle Performance Analysis GRAD 3
Analysis of flight vehicle performance in planetary atmospheres.
Au Qtr. 3 cl. Prereq: 550 and 761.

820 Advanced Flight Vehicle Stability and Control GRAD 3
Advanced studies in stability of systems, non-linear systems, Liapunov method, dynamics in extra-terrestrial atmospheres, new control methods.
Wi Qtr. 3 cl. Prereq: 720.

842 Advanced Structures for Flight Vehicles GRAD 3
Advanced analysis and design of aircraft structures and/or structural components including thermal, inelastic, and buckling effects.
* Sp Qtr. 3 cl. Prereq: 543, 800.

844 Optimal Aerospace Structural Design GRAD 3
Optimal design of aircraft and spacecraft structural components; emphasis on the issues of mathematical modeling of design problems for optimization and solution search techniques.
Sp Qtr. 2.1-5 hr cl. Prereq: 542, 543, and 801. Not open to students with credit for 842 given in Spring Qtrs 1990-94.

850 Non-Equilibrium Flow Dynamics GRAD 3
Relaxation, dissociation, waves (sound, shock) nozzle flow and design collisional energy transfer in gases.
Sp Qtr. 3 cl. Prereq: 530 or equiv.

851 Advanced Propulsion Problems GRAD 3
Course will emphasize a detailed discussion of current problems in the field of air breathing propulsion. Major emphasis on technical papers from current archival literature.
Wi Qtr. Prereq: 751 or MechEng 727 or permission. Not available to students with credit for MechEng 827. Cross-listed in MechEng 827.

860 Advanced Topics in Aerodynamics GRAD 3
Topics to include unsteady aerodynamics, transient wave phenomena, interactive and separated flow, transonic flows.
* Au Qtr. 3 cl. Prereq: 760. Repeatable to a maximum of 6 cr hrs.

862 Internal Flows in Turbomachinery GRAD 4
Designed to give graduate students a detailed understanding of the swirling, rotating, compressible, and unsteady internal flows typical of turbomachinery.
Wi Qtr. Prereq: Aero Eng 570 or Mech Eng 705 or equivalent foundation in fundamental fluid mechanics and boundary layers; Aero Eng 751 or Mech Eng 627 or equivalent foundation in turbomachinery.

865 Advanced Viscous Flow Theory GRAD 3
Three-dimensional viscous flow at low and high Reynolds number; stability theory; statistical theories of turbulence.
* Wi Qtr. 3 cl. Prereq: 771 and 800.

866 Hydrodynamic Stability of Fluid Motions GRAD 4
Instability of inviscid and viscous parallel flows; thermal and centrifugal instability boundary-layer transition; and concepts of linear, nonlinear, and secondarily instability analysis.
* Sp Qtr. 4 cl. Prereq: 570, 800 or equiv., or permission of instructor. Not open to students with credit for Mech Eng 866.

868 Molecular Theory of Gas Flows GRAD 3
Theory of gas flows from molecular points of view.
Au Qtr. 3 cl. Prereq: 800 concur.

873 Computational Fluid Dynamics GRAD 4
Advanced numerical methods for solving Navier-Stokes equations as well as equations for inviscid and boundary layer flows.
* Sp Qtr. 4 cl. Prereq: 615 or MechEng 707.

875 Introduction to Turbulence GRAD 3
Turbulence theory fundamentals and tools used to understand the physical mechanism involved and their application to modeling and experiment.
Sp Qtr. 3 cl. Prereq: 560, 570, 800 or permission of instructor. Not open to students with credit for Mech Eng 813 and Chem Eng 815.09. Cross-listed with Mech Eng 813 and Chem Eng 815.09.

880 Seminar GRAD 1
Seminar
Au, Wi, Sp Qtrs. 1 2-hr cl. Repeatable to a maximum of 15 cr hrs. Required of all grad students in aero eng. This course is graded S/U.

889 Advanced Topics in Aeronautical and Astronautical Engineering GRAD 2-5
Advanced Topics in Aeronautical and Astronautical Engineering.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

894 Group Studies in Aeronautical and Astronautical Engineering GRAD 1-15
Group Studies in Aeronautical and Astronautical Engineering.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs.

999 Research in Aeronautical and Astronautical Engineering GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

African American and African Studies

101 Introduction to African-American and African Studies UGRD 5
Introduction to scholarly study of Black experience from the 15th century to the present, focusing on patterns of resistance, adaptation and cultural diversity.
Au, Wi, Sp Qtrs. Prereq: English 110. Not open to students with credit for 201. GEC soc sci individuals and groups course.

121 African Civilizations to 1870 UGRD 5
Exploration of the political, social, and economic history of precolonial African civilizations, using a variety of interdisciplinary approaches and materials.
Au, Wi, Sp Qtrs. Prereq: English 110 or 111 or equiv. Not open to students with credit for History 121. Cross-listed in History. GEC historical survey course.
122 African Civilizations, 1870 to the Present UGRD 5
Exploration of the political, social, and economic history of colonial and independent African countries, using a variety of interdisciplinary approaches and materials. Au, Wi, Sp Qtr. Prereq: 121 or History 121. Not open to students with credit for History 122. Cross-listed in History. GEC cultural history course.

154 Introduction to African American Literature UGRD 5
Survey of the literature of African descendants in the United States from 1750 to 1915 GEC arts and humanities course.

208.20 African Performing Ensemble UGRD 1
African Performing Ensemble. 1 2-hr cl. Prereq: Admission by audition and permission of instructor. Repeatabe to a maximum of 18 cr hrs. VPA Admin Cond course. Including 199.20, and Music 199.20 and 208.20. Cross-listed in Music.

218 Black Urban Experience UGRD 5
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. GEC social sciences and groups course.

230 The Black Woman: Her Role in the Liberation Struggle UGRD 5
The political role of the black woman in the struggle for black freedom; examination of changing laws and customs affecting the status of black women. GEC social diversity course.

243 Interdisciplinary Approaches to Race and Ethnicity in the Americas UGRD 5
Introduction to race and ethnicity in the U.S.: how race and ethnicity have shaped American culture social thought, social institutions and inter-group relations. Prereq: English 110 or equiv. Not open to students with credit for Comp Std 243. Cross-listed in Comparative Studies. GEC social diversity course.

244 Survey of African and African-Derived Music in the Western World UGRD 3
An introduction to traditional African music and its role in the history and development of African-American music with its concomitant socio-political milieu. Not open to students with credit for Music 244. Cross-listed in Music. VPA Admin Cond course.

251 Introduction to African Literature UGRD 5
An assessment of the oral prose tradition and written prose of African literature; specific emphasis placed on student reading from primary sources. GEC arts and humanities course.

254 Themes in African-American Literature UGRD 5
Survey of themes in the literature of African descendants in the United States from 1915 to present. GEC arts and humanities course.

261 Black-White Behavior UGRD 5
A survey of the social significance of important behavioral elements affecting black-white relations. SS Admin Cond course.

271 Contemporary Black Drama UGRD 5
A literary analysis and discussion of plays by black playwrights in recent times. GEC arts and humanities course. VPA Admin Cond course.

288 Bebop to Doowop to Hiphop: The Rhythm and Blues Tradition UGRD 5
Examines the aesthetic and historical evolution of Rhythm and Blues: Black music tradition including Bebop, Rock and Roll and Hiphop redefining American popular culture post-WWII. 2-2 hr cl. Not open to students with credit for Music 288. Cross-listed in Music. GEC arts and humanities course.

290 Black Youth UGRD 5
Examines how differences of race, class, gender, nation and migration influence identity and experience of Black youth. Not open to students with credit for 690.

291 The Black Family UGRD 5
Study of culturally and structurally diverse forms of Black family life through historical times and geographic space. Not open to students with credit for 691.

294 Group Studies UGRD 1-5
Groups of students are given an opportunity to pursue special studies not otherwise offered. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

303 Language, Race and Ethnicity in the U.S. UGRD 5
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 110 or 110.01 or 110.02 or 110.03. Not open to students with credit for 305 or Linguist 303 or 305. Cross-listed in Linguistics. GEC cultures and ideas and social diversity course.

310 Global Perspectives on the African Diaspora UGRD 5
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.

323.01 History of African-Americans in the Age of Slavery UGRD 5
Examination of dynamics of nation-building in African countries in transition from colonial dependencies to modern nation-states.

324 Music, Religion, and Ritual in Africa UGRD 5
Survey of variety and interaction of musical and religious expressions in selective African societies, focusing on traditional contexts and contemporary Christian and Islamic examples. Prereq: H342: Wi Qtr. Prereq: 101 or Music 140 or permission of instructor. Assigned/guided fieldwork projects in Columbia Metropolitan Area. GEC arts and humanities course.

342H Music, Religion, and Ritual in Africa UGRD 5
Survey of variety and interaction of musical and religious expressions in selective African societies, focusing on traditional contexts and contemporary Christian and Islamic examples. H342: Prereq: 101 or Music 140; Honors program or permission of department or instructor. Assigned/guided fieldwork projects in Columbia Metropolitan Area. GEC arts and humanities course.

345 African American Thinkers UGRD 5
Designed to acquaint students with race, gender, class, nationality, and other ideologies embedded in American political and social institutions. Prereq: English 110. Not open to students with credit for 545. GEC arts and humanities course.

350 History of Modern Africa UGRD 5
General survey of political, economic, and social developments in colonial and post-independence Africa. Prereq: One 10-hr GEC historical survey sequence or permission of instructor. Not open to students with credit for History 350. Cross-listed in History.

351 Caribbean Literature in English UGRD 5
A consideration of prose, poetry, and drama written by Caribbean authors focusing on Caribbean literature in English within the framework of black literature. Sp Qtr. 5 cl.

361 Psychology of the Black Experience UGRD 5
An analysis of personality theories commonly applied to black Americans and the black experience.

367.02 African-American Theatre History UGRD 5
Examination of the aesthetic and sociological evolution in America of African-American theatre and its literature. Prereq: English 110 or 111 or equiv, and soph standing. Not open to students with credit for Theatre 367.02. GEC second writing and social diversity courses. Cross-listed in Theatre.

367.03 African-American Voices in U.S. Literature UGRD 5
Discussion, analysis, and writing about issues presented through the diverse voices of African-American literature. Prereq: English 110 or 111 or equiv, and soph standing. Not open to students with credit for English 367.03. GEC second writing and social diversity courses. Cross-listed in English.
367.04 Black Women Writers: Text and Context  UGRD  5  
Writing and analysis of black women's literary representations of issues in United States social history.  
Prereq: English 110 or 111 or equiv, and soph standing. Not open to students with credit for Wom Stds 215 or 367.04. GEC second writing and social diversity courses. Cross-listed in Women's Studies.

376 African-American Art  UGRD  5  
A topic or period approach to the works of African American visual artists and art movements.  
2 2-hr cl. GEC arts and humanities visual and performing arts and social diversity in the US course.

378 History of Jazz I  UGRD  5  
An in-depth study of the periods, trends, major performers/composers, styles and influences of jazz from its beginnings through the Swing era.

379 History of Jazz II  UGRD  5  
Continuation of 378 from Bop through current styles.

451 Black Experience in Caribbean, African, and African-American Literatures  UGRD  5  
Exploration of themes, attitudes, and parallels in black literatures of Africa, the United States, and the Caribbean; emphasis on negritude and Pan-Africanism.  
^ Prereq: Jr or sr standing.

460 Political Thought in African Literature  UGRD  5  
A study of political thought of selected African novelists in the 20th century.

485.01 Southern Africa Society and Culture  UGRD  5  
A study of the social and cultural developments in Southern Africa, and the environment.  
Sp Qtr. 2 2-hr cl. Prereq: Enrollment or credit for English 110, and 2-quarter status. Not open to students with credit for 385.01. GEC arts and humanities cultures and ideas course.

485.02 Southern African Study Tour  UGRD  8  
A study tour of Southern Africa to accompany 485.01.  
Su Qtr. Arr 3-week study tour of Southern Africa. Prereq: 485.01, enrollment or credit for English 110, and 2-quarter status. Not open to students with credit for 385.02. Students will pay all travel and subsistence costs.

485.03 West Africa: Culture and Society  UGRD  5  
A chronological and interdisciplinary exploration into the cultures and societies of West Africa with a particular focus on the Gold Coast/Ghana.  
Sp Qtr. 2 2-hr cl. Prereq: Enrollment or credit for English 110, and 2-quarter status.

485.04 Study/Travel Abroad to West Africa  UGRD  8  
This course examines conflicts arising from West Africa's role in the slave trade and its post-colonial condition and discourse.  
Su Qtr. Arr 3-week study tour of West Africa. Prereq: 485.03, enrollment or credit for English 110, and 2-quarter status.

493 Individual Studies  UGRD  1-5  
Exploration of relevant subject as individually designed by student and professor.  
Prereq: 20 cr hrs of AfAm&ASi course work, permission of instructor, and permission of dept chair. Repeatable to a maximum of 10 cr hrs. Including cr hrs earned in 293. This course is graded S/U.

495 Community Development in Urban African-American Districts: Field Research and Seminar  UGRD  5  
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.  
1 2-hr cl per qtr and 30 hrs at a service learning site per qtr. Prereq: 101 or 201 and permission of course coordinator. Repeatable to a maximum of 10 cr hrs.

504 Black Politics  UGRD  5  
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.  
Not open to students with credit for Politi Sc 208 or 504. Cross-listed in Political Science.

505 Language and the Black Experience  UGRD  5  
Introduction to the structure, history, and use of distinctive varieties of English used by and among many African Americans in the U.S.  
Prereq: English 110 or 111 or 110.01 or 110.02 or 110.03. Not open to students with credit for English 505 or Linguist 505. Cross-listed in English and Linguistics.

505S Language and the Black Experience  UGRD  5  
Introduction to the structure, history, and use of distinctive varieties of English used by and among many African Americans in the U.S.  
^ Prereq: English 110 or 111 or 110.01 or 110.02 or 110.03. Not open to students with credit for Linguist 505S or English 505S. Cross-listed in English and Linguist. Service Learning course.

515 Ethnicity, Development and the State in Sub-Saharan Africa  UGRD  5  
Course takes a theoretical and comparative historical approach to analyzing problems of development, ethnicity and conflict in Sub-Saharan Africa.  
2 2-hr cl. Prereq: Rank 2 or higher or permission of instructor. Not open to students with credit for INTSTDs 515. Cross-listed with INTSTDs 515.

527 Pan-Africanism and Nationalism  UGRD  5  
Modern nationalist and Pan-Africanists movements in Africa and the Black Diaspora; parallels and contrasts between African political and social class protests within postcolonial black states.

530 African Political Systems: A Comparative Analysis  UGRD  5  
A comparative examination of the problems of nation-building and national integration faced by selected African nations in the postcolonial period.

541 History of Islam in Africa  UGRD  5  
An examination of the history and spread of Islam in Africa and its impact on African social, economic, and political institutions.  
Prereq: 121 or 122, or History 121 or 122; or grad standing. Not open to students with credit for 643 or History 541.02 or 643. Cross-listed with History 541.02.

545 Intersections: Approaches to Race, Gender, Class, and Sexuality  UGRD  5  
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 afam&ast or comp std or wom stds or grad standing. Not open to students with credit for Comp Std 545 or Wom Stds 545. Cross-listed in Comparative Studies and Women's Studies.

551 Selected Topics in African-American and Related Literatures  UGRD  5  
Topics selected will relate to specific interests of enrolled students, who will develop an intensive analysis of the topic of their choice.  
Prereq: 251 or 351. GEC arts and humanities courses.

555.01 Topics in African-American History I  UGRD  5  
Selected topics in African-American history from the origins of African-American culture and slavery to emancipation.  
^ Prereq: One 10-hr GEC historical survey course sequence and jr or sr standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs, including cr hrs earned in History 555.01 and 555.02. Cross-listed in History.

555.02 Topics in African-American History II  UGRD  5  
Selected topics in African-American history from emancipation through segregation, and the Civil Rights Movement to the present.  
^ Prereq: One 10-hr GEC historical survey course sequence and jr or sr standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs.

561 Topics in African American Psychology  UGRD  5  
The study of different dimensions of African and African American psychology; topic vary.  
Prereq: 261, or 361 or grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

565 Slavery in the Atlantic World  UGRD  5  
This course will investigate the dispersion of Africans in the Americas and will examine systems of unfree labor and slave trading throughout the Atlantic World.

571 Images of Black People in Film and Popular Media  UGRD  5  
Historical and theoretical study of black representation in film and popular culture in the US.  
Wu Qtr. Prereq: Jr or sr standing. GEC social diversity in the US and visual and performing arts.

575 History of South Africa  UGRD  5  
An examination of the political and social developments in South Africa from the nineteenth century to the present.  
Au, Wu, Sp Qtrs. 2 2-hr cl. Not open to students with credit for 675 or 537 or History 675 or 552. Cross-listed with History 552.

582 Studies in African-American Literature  UGRD  5  
Topics vary; examples: Neo-slave narratives; the Harlem Renaissance; literature by African-American women.  
^ Prereq: English 110 or 111 or equiv. Repeatable to a maximum of 10 cr hrs. Including cr hrs earned in English 582. Cross-listed in English.

584H Literature and Modern Experience in Africa  UGRD  5  
A comprehensive view of the dominant thematic directions of African literature in the European languages, and their formalization in aesthetic and symbolic terms.  
Prereq: Any GEC second writing course (367) and enrollment in an honors program.
595 Theorizing Race UGRD 5
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.
2 2-hr cl. Prereq: GEC second writing course or Philos 230 or jr level or above class standing or permission of instructor. Not open to students with credit for Philos 595. Cross-listed in Philosophy.

605 An Introduction to African-American English GRAD 5
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 at 500-level or above. Not open to students with credit for Linguist 605. Cross-listed in Linguistics.

693 Individual Studies UGRD 1-5
Individual reading or research projects by special agreement between instructor and student.
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-5
Group Studies.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

705.01 Graduate Seminar in Southern African Society and Culture GRAD 5
A critical examination of the historical, cultural, economic and socio-political realities of Southern Africa and their impact on the contemporary landscape and the environment.
Sp Qtr. 2 2-hr cl. Prereq: Grad standing. Repeatable to a maximum of 10 cr hrs.

705.02 Study Abroad to Southern Africa GRAD 8
A three-week study tour of selected sites of historical, cultural, economic and socio-political importance in the contemporary Southern African region.
Sp Qtr. Prereq: 705.01 and grad standing. Repeatable to a maximum of 16 cr hrs.

705.03 Graduate Seminar in West African Society and Culture GRAD 5
A critical examination of the historical, cultural, economic and socio-political realities of West Africa and their impact on the contemporary landscape and environment.
Sp Qtr. 2 2-hr cl. Prereq: Grad standing. Repeatable to a maximum of 10 cr hrs.

705.04 Study Abroad to Western Africa GRAD 8
A critical examination of the historical, cultural, economic and socio-political realities of West Africa and their impact on the contemporary landscape and environment.
Su Qtr. Arr. Prereq: 705.03 and grad standing. Repeatable to a maximum of 10 cr hrs.

710.01 Practicum: Community Service GRAD 5
First of a two-part course in experiential learning, seeking to prepare students with the types of training and experience that go beyond the traditional coursework and classroom. This course involves practical work with a community based organization.
† Prereq: 756, 710.01. This course is graded S/U.

710.02 Practicum: Grant Proposal Writing GRAD 5
Second of a two-part course in experiential learning, seeking to prepare students with the types of training and experience that go beyond the traditional coursework and classroom. Individual instruction on grant proposal writing for a specific project identified by a community agency and the student during the first part of the course.
† Prereq: 756, 710.01. This course is graded S/U.

717 African American Political Leadership GRAD 5
An intensive reading course that examines Black people's struggle to acquire power.
Wi Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor. Not open to students with credit for 694 (W108) or Politi Sc 719. Cross-listed with Politi Sc 719.

718 Citizen Participation UGRD 5
Assessment and application of techniques of organization and action in the black community. Repeatable to a maximum of 15 cr hrs.

725 Political Development of Sub-Saharan Africa UGRD 5
The processes and problems of political change in Sub-Saharan Africa.

730 Black Political Movements and Organizations GRAD 5
Analysis of black political movements and organizations from slavery to contemporar times.
Prereq: Grad standing or permission of instructor.

732 Law, Politics and Human Rights in Africa GRAD 5
An examination of the interplay of law and politics in contemporary Africa, and the place of human rights in the emerging order.
Prereq: Grad standing or permission of instructor. Not open to students with credit for 632.

734.01 Topics in Race and the American Legal System: Affirmative Action GRAD 5
An examination of the changes over time in selected areas of American law and the consequences of those changes on the status of Black Americans: a study of the concept of Affirmative Action including a critical examination of the arguments for and against it.
Prereq: Grad standing or permission of instructor.

734.02 Topics in Race and the American Legal System: Race and Employment GRAD 5
An examination of the changes over time in selected areas of American law and the consequences of those changes on the status of Black Americans: an examination of the significance of race and the application of the concept of Affirmative Action in employment.
Prereq: Grad standing or permission of instructor.

742 African Historiography and Methodology GRAD 5
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 15 cr hrs. Including cr hrs earned in History 742. Cross-listed in History.

743 Studies in African History GRAD 5
The study of the historical literature of Africa and various aspects of African history; topics vary.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs. Including cr hrs earned in History 743. Cross-listed in History.

748 Contemporary Art Music Traditions of Africa and the Diaspora GRAD 5
An examination of selected published and unpublished musical works by contemporary composers of sub-Saharan Africa and of African descent.
Prereq: Jr or sr or grad standing. Not open to students with credit for Music 748. Cross-listed in Music.

750 Language and Society in Africa GRAD 5
A survey of the interplay between language and society in the African context.
Prereq: Grad standing or permission of instructor. Not open to students with credit for 650.

751 Introduction to Graduate Studies in African Literature GRAD 5
A broad survey of the development of African literature, its variations, genres and themes.
Prereq: Grad standing or permission of instructor.

752 Readings in African-American History UGRD 5
Readings in the evolution of black culture, economics and family life, race relations, and the emergence of class stratification within the black community.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs. Including cr hrs earned in History 752. Cross-listed in History.

753 Graduate Survey in African-American and African Studies GRAD 5
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.

754 Methodological Perspectives in African-American and African Studies GRAD 5
A critical and interdisciplinary examination of methodological approaches employed in the study of the black experience in its convergent and divergent manifestations across the world.
Prereq: Grad standing.

756 Theorizing Race and Ethnicity GRAD 5
Examination of the ideas and theories of race and its intersection with ethnicity.
Prereq: Grad standing or permission of instructor.

757.01 Introduction to Graduate Studies in African-American Literature, 1746-1900 GRAD 5
A survey of creative texts and critical interpretations representing and reflecting black culture and literary expression in the United States from 1746 to 1900.
Not open to students with credit for English 757.01. Cross-listed in English.

757.02 Introduction to Graduate Studies in African-American Literature, 1900 to Present GRAD 5
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.
Not open to students with credit for English 757.02. Cross-listed with English.
758.01 Comparative History of the African Diaspora: Enslavement and Emancipation
First of a two-part course on the history and evolution of the African Diaspora worldwide, from ancient times to the present. 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 or permission of instructor. Not open to students with credit for History 758.01. Cross-listed in History.

758.02 Comparative History of the African Diaspora: Post-Enslavement, Colonial and Post-Colonial Realities
Second of a two-part course on the 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, from the period of the emancipation to the beginning of the 21st century.
Prereq: Grad standing and 758.01 or History 758.01; or permission of instructor. Not open to students with credit for History 758.02. Cross-listed in History.

759 Topics in African Diaspora Studies
A multi-disciplinary and critical examination of the origins, dimensions, and legacies of the African Diaspora. Topics will vary each term.
Sp Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

760 African Pop Culture
Examination and critique of various theories and genres of popular culture as they relate to the African situation.
Sp Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor.

765 African Social Movements in the Age of Globalization
Development of social movement politics in Africa in the context of globalization and structural adjustment.
Sp Qtr. 1 5-hr cl. Prereq: Grad standing.

774 Africa Before Colonial Rule
An examination of pre-colonial political, economic, and social systems, including material culture and agriculture.
Prereq: Grad standing or permission of instructor. Not open to students with credit for 674.

780.20 African Performing Ensemble
Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs. Including cr hrs earned in Music 780.20. Cross-listed in Music.

781 Topics in African Political Philosophy
Post-colonial African conceptions of power, freedom, alienation, and cultural identity.
Prereq: Grad standing or written permission of instructor. Repeatable to a maximum of 10 cr hrs.

782 Modern Black Political Thought
The historical development of black political thought from the 19th century to the present.

783H Honors Research
A program of individual study for undergraduate honor students: may include individual conferences and reports; requires presentation and oral defense of an honor thesis.
Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing and 40 cr hrs in soc sci or hum including 20 cr hrs in AFAm&AS1 with an average of B+ in AFAm&AS1 courses. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

789 Performance Practices in Sub-Saharan African Music
An examination of compositional choices and performance conventions in selected musical traditions from sub-Saharan Africa.
5 cl. Prereq: Grad standing, upper undergraduate with permission of instructor. Not open to students with credit for Music 789. Cross-listed in Music.

792 Interdepartmental Studies in the Humanities
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 15 cr hrs with permission of dept.

810 Topics in Black Feminist Theory
Theoretical analysis of the politics and perceptions of womanhood in the black community.
2 2-hr cl. Prereq: Grad standing in Wom Stds or permission of instructor. Cross-listed in Women's Studies.

833 Seminar in U.S./Africa Relations
A critical analysis of selected theories of American foreign policy, with special emphasis on Africa. Repeatable to a maximum of 10 cr hrs.
420 Program Development in Extension UGRD 3
Understanding the history, philosophy, and development of extension programs in agriculture, home economics, 4-H/Youth development, community development and international settings.
Au Qtr. 1 2.5-hr cl. Prereq: 230.

442 Leadership in Teams and Community Organizations UGRD 5
Principles and practices of leadership within teams and organizations.
Sp Qtrs. 3 1.5-hr cl. Prereq: 342.

480 Field Experience UGRD 3
Students intensively engage in experiential learning in off campus environments.

489 Internship in Agricultural Occupations UGRD 1-5
Participation in agricultural employment experiences.
Su, Au, Wi, Sp Qtr. Open only to department majors. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

530.01 Methods of Teaching in Non-formal Learning Environments UGRD 5
Examining the teaching and learning process with emphasis on planning and deliverin agricultural instruction for agribusiness, extension, and non-formal learning environments.
Wi Qtr. 2 2-hr cl, 1 2-hr lab. Prereq: Extension specialization: 230 and 280. Ag Ed minors: 230. General Studies specialization (non teachers licensing) 230. Not open to students with credit for 530.

530.02 Methods of Teaching in Agricultural Education UGRD 5
Examining the teaching and learning process with emphasis on planning and deliverin of agricultural instruction in public schools.
Sp Qtr. 2 2-hr cl, 1 2-hr lab. Prereq: 230 and 280.

531 Experiential Education in Public Schools UGRD 3
Examines the use of supervised agricultural experience programs and FFA activities a experiential education components of a comprehensive secondary agricultural education program.
Sp Qtr. 2 1.5-hr cl. Prereq or concur: 530. Not open to students with credit for Agr Ed 641.

532 Instructional Media and Technology UGRD 3
Theory and practice in developing and using instructional media and technologies in the teaching and learning process.
Sp Qtr. 1 2.5-hr cl. Prereq or concur: 530.

560.01 Field Experience in Extension I UGRD 5
Supervised participation in professional activities of extension personnel.
Prereq: 530, minimum CPRH 2.50. Concur: 560.02, 560.03 Application required at least two quarters prior to enrollment.

560.02 Field Experience in Extension II UGRD 5
Clinical analysis of professional extension activities in conferences and seminars.
Prereq: 530, minimum CPRH 2.50. Concur: 560.01, 560.03 Application required at least two quarters prior to enrollment.

560.03 Field Experience in Extension III UGRD 5
Written assignments, lesson plans, and documentation of professional extension activities.
Prereq: 530, minimum CPRH 2.50. Concur: 560.01, 560.02 Application required at least two quarters prior to enrollment.

580.01 Field Experience in Public Schools I UGRD 5
Supervised participation in teaching and other professional responsibilities of teachers in agriculture in public schools.
Prereq: 530, minimum CPRH 2.50. Concur: 580.02, 580.03, 585. Application requires at least two quarters prior to enrollment.

580.02 Field Experience in Public Schools II UGRD 5
Clinical analysis of teaching agriculture in the public schools in conferences and seminars.
Prereq: 530, minimum CPRH 2.50. Concur: 580.01, 580.03, 585. Application requires at least two quarters prior to enrollment.

580.03 Field Experience in Public Schools III UGRD 5
Written assignments, lesson plans, and documentation of teaching agriculture in the public schools.
Prereq: 530, minimum CPRH 2.50. Concur: 580.01, 580.02, 585. Application requires at least two quarters prior to enrollment.

585 Program Development in Public Schools UGRD 3
Principles and procedures used in planning and conducting programs of agricultural education.
Au Qtr. 5 7-hr cl last week of quarter. Prereq: 530; concur 580.

594 Group Studies UGRD 3
Group studies for students in specialized programs.
Su, Au, Wi, Sp Qtr. Arr. Repeatable to a maximum of 15 cr hrs.

622 Continuing Education in Agricultural and Extension Education UGRD 3
Principles and practices involved in developing vocational, technical, and extension programs for out-of-school youth and adults.
Wi Qtr. 1 2.5-hr cl.

630 Senior Seminar in Agricultural and Extension Education UGRD 5
Debate, consideration, and integration of agricultural education from a wider agricultural perspective; including international awareness, problem solving, and ethical decision-making.
Wi Qtr. 2 2-hr cl. Prereq: Sr standing and second writing course and 530.01 or 530.02 (or concur). Not open to students with credit for 600. GEC third writing course.

640 Instructional Media in Teaching Agriculture UGRD 3
Theory and practice in developing and using instructional media and equipment at the secondary, technical, and college levels.
Sp Qtr. 1 2.5-hr cl.

641 Occupational Experience in Agricultural Education UGRD 3
Principles and procedures used in selecting, planning, conducting, and evaluating occupational experience programs for students.
^ Su Qtr. 1 2.5-hr cl.

642 Youth Organizations UGRD 3
An analysis of youth organizations in vocational and extension education with emphasis on planning and conducting such programs.
^ Su, Sp Qtrs. 1 2.5-hr cl.

643 Youth Program Management in Non-School Settings UGRD 5
Principles, theories, and practices involved in conducting, supervising, and managing youth program.
^ Sp Qtr. 3 cl.

655 Internship in Agricultural and Extension Education UGRD 1-15
Guided participation to further enhance professional and/or technical competency in selected areas.
Su, Au, Wi, Sp Qtr. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

683H Honors Projects UGRD 1-10
Conducting and reporting the honors project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Agr H590.01, enrollment in honors program, and permission of honors project supervisor. Repeatable to a maximum of 10 cr hrs. Repeatable as H683 or in combination with 293, 593, H593, H599, 693, or H693. This course is graded S/U.

693 Individual Studies UGRD 1-5
Planning, conducting, and reporting a special study appropriate to the needs of the student.
Su, Au, Wi, Sp Qtrs. Prereq: 2.50 cumulative p-hr ratio and written permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 25 cr hrs. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

700 Foundations of Agricultural and Extension Education GRAD 3
Comparative examination of the mission, purpose, and historical foundations of agricultural and extension education in America.
^ Su Qtr. 3-hr cl. Not open to students with credit for 810.

723 Strategic Planning in Agricultural and Extension Education GRAD 3
Strategic planning, implementation, and management of education, extension, and training programs in community settings.
* Au Qtr. 1 2-hr cl. Prereq: 823 or permission of instructor. Not open to students with credit for 843.

735 Methods of Teaching Agricultural and Extension Education GRAD 3
Theory, principles, and procedures associated with effective teaching in agricultural and extension education at the secondary, technical, and post-secondary levels.
Sp Qtr. 1 3-hr cl. Not open to students with credit for 631. This course is graded S/U.

750 Grant Proposal Writing GRAD 3
Course covers preparation of grant proposals for teaching, research, or outreach programs. Emphasis on proposal development, identifying funding sources, and the proposal review process.
Sp Qtr. Prereq: Grad standing.
principles, and skills needed to be a successful supervisor.

789 Survey Research Practicum \( \text{GRAD} \ 5 \)  
Hands-on applications for students interested in the planning, implementation, and analysis of a scientific sample survey.  
\( \text{Sp Qtr.} \ 1 \ 3\text{-hr cl.} \) \( * \) \( \text{Prereq:} \) Admission to grad interdisciplinary specialization in survey research or permission of instructor. Not open to students with credit for 789 in AED Econ, Bus-Mktg, Econ, Edu P&L, Geog, J Com, Politi Sc, Psych, Pub Hlth, PubPol&M, Rurf Soc, Sociol, or Stat. Cross-listed in AED Econ, Bus-Mktg, Econ, Edu P&L, Geog, J Com, Politi Sc, Psych, Pub Hlth, PubPol&M, Rurf Soc, Sociol, and Stat.

790 Workshop in Agricultural and Extension GRAD 1-5  
Education

Intensive study of selected programs, practices, and skills with an emphasis on applications in agricultural and extension education.  
\( \text{Su, Au, Wi, Sp Qtr.} \) \( \text{Minimum of 3 wks.} \) \( \text{Prereq:} \) Teaching or extension experience. Repeatable to a maximum of 24 cr hrs.

795.01 Seminar: Contemporary Problems \( \text{GRAD} \ 1-3 \)  
\( \text{Au Qtr.} \) \( \text{Prereq:} \) Written permission of instructor. A maximum of 15 cr hrs may be earned with not more than 6 hours in any one decimal subdivision. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

795.02 Seminar: Problems and Issues \( \text{GRAD} \ 1-3 \)  
\( \text{Wi Qtr.} \) \( \text{Prereq:} \) Written permission of instructor. Repeatable to a maximum of 6 cr hrs. A maximum of 15 cr hrs may be earned with not more than 6 hours in any one decimal subdivision.

795.03 Seminar: Leadership Development \( \text{GRAD} \ 1-3 \)  
\( \text{Su (1st term) Qtr.} \) \( \text{Prereq:} \) Written permission of instructor. Repeatable to a maximum of 6 cr hrs. A maximum of 15 cr hrs may be earned with not more than 6 hours in any one decimal subdivision.

795.04 Seminar: Program Development \( \text{GRAD} \ 1-3 \)  
\( \text{Au Qtr.} \) \( \text{Prereq:} \) Written permission of instructor. Repeatable to a maximum of 6 cr hrs. A maximum of 15 cr hrs may be earned with not more than 6 hours in any one decimal subdivision.

795.05 Seminar: Research and Evaluation \( \text{GRAD} \ 1-3 \)  
\( \text{Au Qtr.} \ 2 \text{-hr cl.} \) \( \text{Prereq:} \) Written permission of instructor. A maximum of 15 cr hrs may be earned with not more than 6 hours in any one decimal subdivision. This course is graded S/U.

795.07 Seminar: Graduate Student Orientation \( \text{GRAD} \ 1-3 \)  
Graduate seminar designed to establish a "culture of scholarship" among graduate students in Agricultural and Extension Education and related areas. Repeatable to a maximum of 6 cr hrs. Sequence with 795.08 & 795.09. This course is graded S/U.

795.08 Seminar: Research Scholarship \( \text{GRAD} \ 1-3 \)  
Graduate seminar designed to establish a "culture of scholarship" among graduate students in Agricultural and Extension Education and related areas. Repeatable to a maximum of 6 cr hrs. Sequence with 795.07 & 795.09. This course is graded S/U.

795.09 Seminar: Scholarship Dissemination \( \text{GRAD} \ 1-3 \)  
Graduate student seminar designed to establish a "culture of scholarship" among graduate students in Agricultural and Extension Education and related areas. Repeatable to a maximum of 6 cr hrs. Sequence with 795.07 & 795.08. This course is graded S/U.

800 History and Philosophy of Agricultural and Extension GRAD 3  
Education

Historical and philosophical concepts of agricultural and extension education which have established the traditions from which modern programs have evolved.  
\( \text{*} \) \( \text{Au Qtr.} \ 1 \ 3\text{-hr cl.} \)  
821 Administrative Practices in Vocational Education \( \text{GRAD} \ 3 \)  
A study of the concepts of vocational education program administration, including management skills, policy development, staff management, finance, and program evaluation.  
\( \text{**} \) \( \text{Sp Qtr.} \ 1 \ 3\text{-hr cl.} \) \( \text{Not open to students with credit for 811 or Ed-Voces 821.} \) \( \text{Cross-listed in Edu PAES 828.} \)
367 Agricultural Issues in Contemporary American Society UGRD 5
Development of skills in reading, writing, speaking, listening, critical thinking, and appreciation of diversity in agriculture and the United States society.

Au, Wi, Sp Qtr. 1.5-hr lec. Prereq: English 110 or 111 or equiv., soph standing; or permission of instructor. GEC second writing and social diversity course.

390 Oral Expression in Agriculture UGRD 5
Oral expression theory and practice in an agricultural environment.

Au, Wi, Sp Qtr. 2.2-hr cl, 1.2-hr lab. Prereq: Second writing course.

489 Agricultural Communication Internship UGRD 2-5
Coordinated and supervised experience in agricultural communication including reporting, writing, editing, photography, graphics, broadcasting, advertising, and public relations.

Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Limited to majors in ag comm. Repeatable to a maximum of 9 cr hrs. A final written report and an evaluation from the supervisor must be submitted to the instructor. This course is graded S/U.

500 Agricultural Feature Writing UGRD 5
Principles and practice in feature writing. Laboratory experience in writing, editing, design, photography, and advertising.

Sp Qtr. 2.2-5-hr cl. Prereq: Comm 422 or permission of instructor. Repeatable to a maximum of 10 cr hrs. GEC course.

510 Campaign Design and Management in Agricultural Organizations UGRD 5
Case studies, plans, and practices in public relations campaigns.

Wi Qtr. 2.2-5-hr cl. Prereq: Jr standing in agr comm or permission of instructor.

590 Senior Seminar in Agricultural Communication UGRD 5
Capstone course addressing communication issues of the contemporary world as related to agricultural and natural resource industries.

Sp Qtr. 3.1-5-hr cl. Prereq: Sr standing in agr comm or permission of instructor, and second writing course. GEC course.

593 Individual Studies UGRD 1-5
Students plan, conduct, and report on a special problem in agricultural communication not included in regular course work.

Su, Au, Wi, Sp Qtrs. Arr. Prereq: 2.50 cum pt-hr ratio and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

600 Legal and Ethical Issues in Agricultural Communication UGRD 5
Examination and discussion of complex legal and ethical situations affecting socially responsible communication of food, agricultural and environmental topics.

Sp Qtr. Prereq: Sr standing in agr comm or permission of instructor. 600E may be available for honors embedded experience.

600E Legal and Ethical Issues in Agricultural Communication UGRD 5
Examination and discussion of complex legal and ethical situations affecting socially responsible communication of food, agricultural and environmental topics.

Sp Qtr. Prereq: Sr standing in AgrComm or permission of instructor. 600E may be available for honors embedded experience.

650 Communication Strategies for Change and Development UGRD 5
Examines communication competencies needed by development and social change practitioners.

Su, Au Qtr. 2.2-5-hr cl. Prereq: Jr standing or written permission from instructor.

683H Honors Project UGRD 1-10
Conducting and reporting the honors project.

Su, Au, Wi, Sp Qtrs. Arr. Prereq: Agr H590.01, enrollment in honors program, and permission of honors project supervisor. Repeatable as H683 or in combination with 293, 593, H593, H599, 693, or H694. This course is graded S/U.

694 Group Studies UGRD 1-5
Selected topics in agricultural communication.

Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 10 cr hrs.

Agricultural Systems Management UGRD 4

232 Small Air-Cooled Engines
Principles of operation, maintenance, and repair of small air-cooled engines.

Au, Wi, Sp Qtrs. 2 cl, 2.2-hr labs.

240 Basic Metal Fabrication for Agriculture
A study of the principles and practices in basic metal fabrication using current metallurgical and welding processes required in the agricultural industry.

Au Qtr. 3 cl, 2.2-hr labs. Prereq: Survey class (FAES 100, Engineer 100, USAS 100, etc). Not open to students with credit for ConSysMgt 240.

241 Building Materials and Construction in Agriculture UGRD 4
Principles and techniques in the fabrication of wood, concrete, and masonry materials used in ag-business and agricultural applications.

Wi Qtr. 2 cl, 2.2-hr labs. Not open to students with credit for ConSysMgt 241.

293 Individual Studies UGRD 1-5
Work on problems not in regular courses; practice in development, organization, solution, and reporting on such problems.

Su, Au, Wi, Sp Qtrs. Prereq: 2.50 cumulative pt-hr ratio and written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

294 Group Studies UGRD 1-5
Basic group studies in agricultural systems management.

Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

300 Engineering Technologies in Agriculture I UGRD 3
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.

Au Qtr. 2 cl, 1.3-hr lab, 1.1-hr recitation. Prereq: Math 130 or 148; Physics 103 or 111 or 131. Not open to students majoring in AgSysMgt, or a major in ENG and students with credit for AgSysMgt, 320 and 370.

301 Engineering Technologies in Agriculture II UGRD 3
Continuation of 300.

Wi Qtr. 2 cl, 1.2-hr lab. Prereq: Math 148, Physics 103 or (preferred) Physics 111 or 131; or permission of the instructor. Not open to students with credit for ConSysMgt.

305 Professional Development I UGRD 4
Business communications and professional development in Agricultural Systems Management including informative and persuasive writing, academic planning, project management, research techniques, teaming, report writing and presentations.

Au, Wi, Sp Qtrs. 4 cl. Prereq: English 110. Not open to students with credit for ConSysMgt.

310 Electric Power for Ag and Residential Applications UGRD 3
Principles and applications of systems and components essential for distribution and control of electricity for power, heat, and illumination in residences and agricultural structures.

Wi Qtr. 2 cl, 1.3-hr lab, 1.1-hr recitation. Prereq: 300. Not open to students majoring in AgSysMgt, or a major in ENG and students with credit for AgSysMgt.

315 Facilities for Agricultural and Greenhouse Production UGRD 5
Buildings and equipment for livestock, crop, and greenhouse production; selection an specification of ventilation systems, waste management alternatives, and construction materials.

Wi Qtr. 4 cl, 1.3-hr lab. Prereq: Math 148; Physics 103 or (preferred) Physics 111 or 131; or permission of instructor.

360 Agricultural Machinery UGRD 5
Basic principles of operation, selection and management of agricultural machinery, including power requirements, performance evaluation, calibration, adjustment, costs of operation and optimum size.

Sp Qtr. 2.2-hr cl, 1.3-hr lab. Prereq: Math 148, Physics 103 or (preferred) Physics 111 or 131, or permission of instructor. Not open to students with credit for AgSysMgt.

370 Principles of Hydrology UGRD 3
Principles of hydrology applied to agricultural and forest watersheds, including applications in drainage, erosion, irrigation, water supply, and water quality.

Au Qtr. 2.5-hr cl. Prereq: Math 148, Physics 103 or (preferred) Physics 111 or 131; or permission of instructor.

371 Land Surveying for Agricultural and Environmental Systems UGRD 2
Principles of land surveying applied to soil and water management on agricultural and environmental areas.

Sp Qtr. 1.1-hr cl, 1.3-hr lab. Prereq: Math 148; prereq or concur: Physics 103 or (preferred) Physics 111 or 131; or permission of instructor.

489 Internship in Agricultural Systems Management UGRD 3
A pre-approved internship of planned and supervised experiences which provide professional and technical growth in agricultural and related industries.

Su, Au, Wi, Sp Qtrs. Prereq: AgSysMgt major, 15 cr hrs in AgSysMgt and permission of instructor. Not open to students with 5 or more hours of ConSysMgt 489 or Ag&ConSM 489. Repeatable to a maximum of 6 cr hrs. Quarter of enrollment will be assigned by internship coordinator in consultation with student.
533 Laboratory Pedagogy and Management  UGRD  3
Develops the pedagogical and management skills required to efficiently utilize educational laboratory facilities at the secondary school level for teaching agricultural mechanics and sciences.
Sp Qtr. 2 cl, 1-3 hr lab. Prereq: Agricultural education major.

550 Pollution Control and Waste Utilization  UGRD  3
Management and utilization of animal wastes, fertilizers, pesticides, crop residues, milk and food processing, and farmstead and urban solid wastes to abate environmental pollution at the urban-rural interface.
Sp Qtr. 3 cl. Not open for grad cr to students majoring in Food, Agricultural, and Biological Engineering.

560 Fluid Power and Electronics in Agricultural Machinery  UGRD  4
Principles of operation, maintenance and selection of basic fluid power, electrohydraulic, electronic and computer controlled systems found on agricultural agricultural construction machinery.
Wi Qtr. 2 cl, 2-2 hr labs. Prereq: 360 or permission of instructor.

575 Soil and Water Systems  UGRD  3
Planning and managing drainage, irrigation, erosion prevention, and water storage systems.
Sp Qtr. 2 cl, 1-2 hr lab. Prereq: 370 and 371, or Consysm 440, or permission of instructor. Not open to students majoring in Food, Agricultural, and Biological Engineering or Civil Engineering.

576 Water Management in the Landscape Environment  UGRD  4
Planning, evaluation, and management of soil and water systems (drainage, irrigation, erosion control, water use, supply, quality) for landscape and container nursery plants.
Sp Qtr. 2-2.5 hr cl. Prereq: 370, 371, H&CS 300, Soil Sci 300.01, and 300.02 or ENR 300.01 and 300.02, or permission of instructor.

580 Precision Agriculture  UGRD  3
Introduction to the principles and technologies of precision agriculture including GPS, GIS, sensors to measure soil and plant parameters and crop yields; variable rate technology.
Au Qtr. 1-2 hr cl. 1.5-3.5 hr lab.

591.01 General  UGRD  1-5
In-depth study of selected area of agricultural mechanization with emphasis on application of principles, objectives, methods, and equipment to organization, management, and teaching of agricultural mechanics.
General.
Prereq: Teaching or extension experience or permission of instructor. Repeatable to a maximum of 10 cr hrs.

600 Agricultural Safety and Health  UGRD  3
Agricultural safety and health practices, strategies and methods for the management of safety and health programs.
Wi Qtr. 2 cl, 1-2 hr lab. Prereq: Second writing course, Agr Comm 390 or Comm 321 or Jcom 321; or permission of instructor. Not open to students with credit for Consysm 600. Agrsysmg 600 and 605 together fulfill GEC third writing course requirement.

605 Professional Development II  UGRD  2
Initiating and pursuing career plans, academic program review, strategies for seeking employment, professional growth and furthering interpersonal relationships are documented in a career/professional portfolio.
Au, Wi, Sp Qtrs. 2-3 hr cl, 1 hr rec. Prereq: 305, second writing course, Agr Comm 390 or Comm 321 or Jcom 321; or permission of instructor. Not open to students with credit for Consysm 600, 605 together fulfill requirement.

683H Honors Project  UGRD  1-10
Conducting and reporting the honors project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: FAES 590.01, enrollment in honors program, and permission of honors project supervisor. Repeatable to a maximum of 10 cr hrs. Repeatable as H863 or in combination with 293 or 693. This course is graded S/U.

693 Individual Studies  UGRD  1-5
Problems not included in regular courses; practice in development, organization, solution, and reporting on such problems.
Su, Au, Wi, Sp Qtrs. Prereq: 2.50 cumulative pt-hr ratio and written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies  UGRD  1-5
Advanced group studies in agricultural systems management.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

200 Principles of Food and Resource Economics  UGRD  5
Microeconomic principles applied to allocation issues in the production, distribution, and consumption of food and natural resource use.
Au, Wi, Sp Qtrs. 5 cl. Not open to students with credit for H200, or Econ 200. This course available for EM credit. BER/GE/CLAR course. SS Admins Cond course.

200H Principles of Food and Resource Economics  UGRD  5
Microeconomic principles applied to allocation issues in the production, distribution, and consumption of food and natural resource use.
Wi Qtr. 5 cl. Not open to students with credit for 200 or Econ 200 or H200. BER/GE/CLAR course. SS Admins Cond course.

205 Data Analysis for Agribusiness and Applied Economics  UGRD  5
Introductory course in data analysis, stressing computer applications of probability and statistics, problems of data gathering, presentation, and interpretation in economics and business.
Au, Wi, Sp Qtrs. 1.5-2 hr cl. 1.5-4 hr lab. Prereq: Math 130 or 131 or 148 or 150 or 151. Not open to students with credit for Agr Educ 387 or AEE 387, H&CS 260, Anim Sci 260, Stat 133 or 135 or 145. GEC course.

280 Feast or Famine: The Global Business of Food  UGRD  5
Global and regional trends in food consumption and production are surveyed. Trade, technological change, and other responses to food scarcity are analyzed.
Wi Qtr. 2.5-3 hr cl. Not open to students with credit for 335 or Int Stds 280. Cross-listed in International Studies. GEC soci hum, econ, and nat resources and global diversity course.

401 Principles of Agribusiness Management  UGRD  5
Introduction to agribusiness management principles and skills in the context of the four functions of management: planning, organizing, directing, and controlling.
Au, Wi, Sp Qtrs. 2-2.5 hr cl and 1-1 hr rec. Prereq: 200 or 200H or Econ 200 or 200H and prerequisite or concur: AEDECON 412 or ACCTMIS 211.

402 Principles of Agribusiness Marketing  UGRD  5
Study of specific problems of marketing food and fiber products with emphasis on structures and institutions facing agribusinesses in domestic and international markets.
Au, Wi, Sp Qtrs. 2-2 hr cl, 1.5-3 hr lab. Prereq: 200, 200H, Econ 200 or 200H.

403 Principles of Agribusiness Finance  UGRD  5
Financial management of agribusinesses: financial system, time value of money, security valuation, capital budgeting, capital structure, portfolio analysis, financial institutions, futures and options contracts.
Au, Wi, Sp Qtrs. Prereq: 200 or H200 or Econ 200 or Econ H200 and 412 or Acctmis 211 and 205 or Agr Educ 387 or AEE 387 or H&CS 260 or Anim Sci 260 or Stat 133 or 135 or 145.

410 Farm Business Management  UGRD  5
Analysis of resource control and detailed application of economic and management principles to the organization, operation, and administration of farm businesses.
Wi Qtr. 2-2 hr cl. Prereq: 401. Not open to students with credit for 510.

412 Managerial Records and Analysis  UGRD  5
Nature and need for business records, analysis and interpretation of essential records from manager/owner viewpoint; their use in small business practices.
Au, Wi, Sp Qtr. 2-2 hr cl, 1-2 hr lab. Prereq: 200 or 200H or Econ 200. Not open to students with credit for Acctmis 211 or 212.

421 Salesmanship in Agriculture  UGRD  3
Principles and techniques of selling to agribusiness buyers.
Au Qtr. 2-1.5 hr cl. Prereq: 200, H200 or Econ 200 or H200; jr standing. Not open to students with credit for 521.

422 Economics of the Livestock-Meat Industry  UGRD  3
Principles and practices involved in marketing livestock and meat; institutions and agencies concerned in pricing and product flows; industry organization and performance, public regulation; future trends.
Wi Qtr. 2.5-3 hr cl. Prereq: 402. Not open to students with credit for 522. Offered in cooperation with Animal Science.

423 Grain Marketing  UGRD  3
Principles and practices involved in grain and feed marketing and the theory of grain pricing; economics of grain marketing.
Au Qtr. 3 cl. Prereq: 200, H200 or Econ 200 or H200. Not open to students with credit for 523.

426 Dairy Marketing and Pricing  UGRD  3
Sp Qtr. 2 cl, 1-2 hr lab. Prereq: 200 or H200 or Econ 200 or Econ H200.

428 Marketing Fruits and Vegetables  UGRD  3
Principles involved in the marketing of fresh and processed fruits and vegetables and the institutions and agencies concerned in pricing and product flows from producer to consumer.
Sp Qtr. 2-1.5 hr cl. Prereq: 200 or H200 or Econ 200 or H200. Not open to students with credit for 528.
441 Agricultural Cooperatives UGRD 3
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. Wi Qtr. 2 1.5-hr cl. Prereq: 401 or equiv. Not open to students with credit for 541.

460 Human Resource Management in Small Businesses UGRD 3
Human resource planning, job analysis, organizational structure, recruitment and selection, training, motivation, leadership, communication, compensation, and evaluating employee performance in context of small businesses. Au, Sp Qtr. 1.5-hr cl. Prereq: Jr. standing. Not open to students with credit for 560.

470 Agricultural Law UGRD 4
A study of the legal system and selected areas of law that affect agriculture, including civil liabilities, property law, business law and regulatory law. Wi Qtr. 2 2-hr cl. Prereq: 200 or H200 or Econ 200 or H200. Not open to students with credit for 670.

488 Professional Development in AED UGRD 1
Economics
Participation in structured co-curricular programs leading to professional development. Su, Au, Wi, Sp Qtrs. Prereq: 2.0 cumulative gpa and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

489 Internship in Agribusiness and Applied Economics UGRD 3
Supervised experience with an approved firm or organization; pre-approved outline, oral presentation, and written comprehensive report required. Su, Au, Wi, Sp Qtrs. Prereq: 401 or 402 or 403 or 500 or Econ 501 and permission of instructor. Open only to dept majors. This course is graded S/U.

500 Managerial Economics for Agribusiness UGRD 5
Application of economic theory and methods to agribusiness decision making. Au, Sp Qtrs. Prereq: 200 (H200) or Econ 200 (H200); and Math 131 (WI 03 or thereafter) or 152.

501 Price Analysis UGRD 3
Forces that influence the behavior of agricultural prices; analytical techniques useful in predicting price changes or the consequences of price changes are introduced. \(^*\) Au, Sp Qtrs. Prereq: 2.1-5-hr cl. Prereq: Basic spreadsheet competency and 500 or Econ 501.02, Math 131 (WI 03 or thereafter) or 152, and one of the following: 205 or Stat 133 or 145, Agr Educ 387 or AEE 387, H&CS 260, Anim Sci 260.

502 Quantitative Economic Analysis UGRD 5
Quantitative models and methods and their application to agricultural, environmental, and development economics and agribusiness. Wi, Sp Qtrs. Prereq: 205 or Agr Educ 387 or AEE 387, H&CS 260, Anim Sci 260 or Stat 133 or 145 and 500 or Econ 501.02 (may be taken concurrently).

503 Economics of Public Policy Analysis UGRD 5
Understanding of economic tools and concepts for analyzing public policies important to the food industry, agriculture and natural resources. Au, Sp Qtrs. 2 1.5-hr cl, 1 1-hr rec. Prereq: 500 or Econ 501.02 (may be taken concurrently).

531 Environmental and Natural Resources Economics UGRD 5
Economic analysis of the use and management of natural resources and of environmental policy. Au, Sp Qtrs. 5 cl. Not open to students with credit for Nat Res 531. Cross-listed in Natural Resources.

532 Food Security and Globalization UGRD 5
Examination of the causes of and solutions for food insecurity. Global and local factors that affect access to food are also considered. Au Qtr. 2 2-hr cl. Prereq: 200 or Econ 200 or permission of instructor. Not open to students with credit for 435 or Int Stds 434, 532. Cross-listed in International Studies.

535 Economic Development Processes in Developing Countries UGRD 5
Study of major Third World problems using principles of development economics. Examines poverty, inequality, unemployment, population growth, resource use and rural development. Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 200 or Econ 200. Not open to students with credit for 435 or Int Stds 435, 535. Cross-listed in International Studies.

536 Economic Development in Sub-Saharan Africa UGRD 5
Africa
Issues shaping economic development and stagnation in contemporary Africa such as population growth, agricultural development, industrialization, trade, structural adjustment and environmental issues. Au Qtr. 2 2-hr cl. Prereq: 200 or Econ 200. Not open to students with credit for 435 or Int Stds 436, 536. Cross-listed in International Studies.

537 Middle Eastern Economic Development UGRD 5
Economic conditions, problems, integrations and potentials of Middle Eastern economies using principles of economic development and growth models. Sp, Wi Qtrs. 2 2-2.5-hr cl. Prereq: 200 or Econ 200. Not open to students with credit for 437, Econ 537, or Int Stds 437, 537. Cross-listed in Economics and International Studies.

538 Latin American Economic Development UGRD 5
Public policy and other factors influencing economic growth in Latin America are examined. Sp Qtr. 2 2.5-hr cl. Prereq: 200 or Econ 200 or permission of instructor. Not open to students with credit for 438 or Int Stds 438, 538. Cross-listed in International Studies.

539 China's Economic Reforms and Globalization UGRD 5
An introductory survey course of economic reforms and globalization in China with emphasis on economic and social transformation, and its integration into the global economy. Sp Qtr. 2 2-hr cl. Prereq: 200 or Econ 200 or permission of instructor. Not open to students with credit for 439 or Int Stds 439, 539. Cross-listed in International Studies.

540 International Commerce and the World Economy UGRD 5
Application of trade theory and policies to world trade that impacts global business. Wi Qtr. Prereq: 200 or H200 or Econ 200 or H200 or permission of instructor. Not open to students with credit for Int Stds 540. Cross-listed in International Studies.

553 Consumer and Food Economics UGRD 4
Applications of economic and statistical tools to analyze consumption behavior, demand for food and nutrition, food safety, market structure, and fast food industry. Sp Qtr. 2 2-hr cl. Prereq: 200 or Econ 200 and knowledge of elementary statistics and basic spreadsheet competency or permission of instructor.

565 Global Climate Change: Economic Implications and Opportunities UGRD 5
This course examines the economics of implications of climate change and climate change policies for society, including discussion of major state, federal, and international legislation. Au Qtr. Prereq: 200 or Econ 200. Not open to students with credit for Int Stds 565. Cross-listed with Int Stds 565.

597.01 Problems and Policies in World Population, Food, and Environment Contemporary Issues UGRD 5
Problems related to world-wide population increases, food production, and associated environmental stress; policy options for lessening these problems, especially in low-income countries. Su, Au, Wi, Sp Qtrs. 2 1.5-hr cl, 1 2-hr rec. Prereq: Sr standing. Not open to students with credit for Int Stds 597.01. Cross-listed in Int Stds. GEC issues of contemp world course.

597.01H Problems and Policies in World Population, Food, and Environment Contemporary Issues UGRD 5
Problems related to world-wide population increases, food production, and associated environmental stress; policy options for lessening these problems, especially in low-income countries. Sp Qtr. Prereq: Sr standing. Honors program or permission of department or instructor. Not open to students with credit for Int Stds 597.01H. Cross-listed in Int Stds. GEC issues of contemp world course.

601 Strategic Management UGRD 5
A case-based course analyzing applied strategic management problems confronting agribusiness firms. Cases examine the economic complexities comprising the global food system. Au, Sp Qtrs. Prereq: 401, 403, and 500 and a second writing course. 503 may be taken concurrent.

625 Commodity Futures and Options Markets UGRD 5
Explores the institutional structure, price formation, and hedging uses of commodity futures and options markets. Wi Qtr. 4 cl. Prereq: 500 or Econ 501.02.

631 Benefit-Cost Analysis UGRD 5
Development and illustration of key benefit-cost concepts and estimation techniques through applications to agricultural, infrastructure, natural resource, and environment projects. Au Qtr. 2 2-hr cl, 1 1-hr cl. Prereq: 531 or minimum of 10 hrs of economic principles or permission of instructor.

680 The Economics of Urbanization and Sprawl UGRD 4
Changes in land use and population at the rural-urban fringe. Focus on economic factors driving changes, implications for rural and exurban communities, role of government. Wi Qtr. Prereq: 500 or Econ 501A or 501.02 or grad standing or permission of instructor.
683H Honors Project UGRD 1-10
Conducting and reporting the honors project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Agr 590.01, enrollment in honors program, and permission of honors project supervisor. Repeatable to a maximum of 10 cr hrs. Repeatable as H683 or in combination with 293, 593, H593, H599, 693, or H693. This course is graded S/U.

693.01 Agribusiness Management and Finance Individual Studies UGRD 2-3
Planning, conducting, and reporting a special problem in agricultural economics. Prereq: 2.50 cumulative pt/hr ratio, 401 or permission of instructor. Repeatable to a maximum of 6 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

693.02 Agricultural Marketing and Policy Individual Studies UGRD 2-3
Planning, conducting, and reporting a special problem in agricultural economics. Prereq: 2.50 cumulative pt/hr ratio, 401 or permission of instructor. Repeatable to a maximum of 6 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

693.03 Economic Development Individual Studies UGRD 2-3
Planning, conducting, and reporting a special problem in agricultural economics. Prereq: 2.50 cumulative pt/hr ratio, 401 or permission of instructor. Repeatable to a maximum of 6 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

693.04 Quantitative Methods in Agricultural Economics Individual Studies UGRD 2-3
Planning, conducting, and reporting a special problem in agricultural economics. Prereq: 2.50 cumulative pt/hr ratio, 401 or permission of instructor. Repeatable to a maximum of 6 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

693.05 Resource Economics Individual Studies UGRD 2-3
Planning, conducting, and reporting a special problem in agricultural economics. Prereq: 2.50 cumulative pt/hr ratio, 401 or permission of instructor. Repeatable to a maximum of 6 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

693.06 General Agricultural Economics Individual Studies UGRD 2-3
Planning, conducting, and reporting a special problem in agricultural economics. Prereq: 2.50 cumulative pt/hr ratio, 401 or permission of instructor. Repeatable to a maximum of 6 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

693.07 Consumption and Demand Individual Studies UGRD 2-3
Planning, conducting, and reporting a special problem in agricultural economics. Prereq: 2.50 cumulative pt/hr ratio, 401 or permission of instructor. Repeatable to a maximum of 6 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

693.08 Regional Economics Individual Studies UGRD 2-3
Planning, conducting, and reporting a special problem in agricultural economics. Prereq: 2.50 cumulative pt/hr ratio, 401 or permission of instructor. Repeatable to a maximum of 6 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

694.01 Agricultural Management and Finance Group Studies UGRD 2-5
Selected topics in agricultural economics to acquaint students with current economic conditions. Agricultural Management and Finance Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

694.02 Agricultural Marketing and Policy Group Studies UGRD 2-5
Selected topics in agricultural economics to acquaint students with current economic conditions. Agricultural Marketing and Policy Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

694.03 Economic Development Group Studies UGRD 2-5
Selected topics in agricultural economics to acquaint students with current economic conditions. Economic Development Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

694.04 Quantitative Methods in Agricultural Economics Group Studies UGRD 2-5
Selected topics in agricultural economics to acquaint students with current economic conditions. Quantitative Methods in Agricultural Economics Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

694.05 Resource Economics Group Studies UGRD 2-5
Selected topics in agricultural economics to acquaint students with current economic conditions. Resource Economics Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

694.06 General Agricultural Economics Group Studies UGRD 2-5
Selected topics in agricultural economics to acquaint students with current economic conditions. General Agricultural Economics Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

694.07 Consumption and Demand Group Studies UGRD 2-5
Selected topics in agricultural economics to acquaint students with current economic conditions. Consumption and Demand Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

694.08 Regional Economics Group Studies UGRD 2-5
Selected topics in agricultural economics to acquaint students with current economic conditions. Regional Economics Group Studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 25 cr hrs. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

701 Applied Data Analysis for Agricultural, Environmental, and Development Economics UGRD 4
Practical application of statistical and time series methods to the analysis of economic data in agricultural, environmental, and development economics.
Au Qtr. 2 2-hr cl. Prereq: 500 or Econ 501A or Econ 501.02 and Stat 133 or AED Econ 205 or grad standing. Not open to students with credit for Agr Econ 622 or AED Econ 622.

702 Introduction to Computational Economics UGRD 4
Practical application of linear and nonlinear programming methods to management problems in agricultural, environmental, consumer, and financial economics.
Sp Qtr. 2.15-hr cl, 1 1.5-hr lab. Prereq: Math 132, AED Econ 500 or Econ 501.02.

703 Economics of Consumption UGRD 4
Applications of economic theory to consumption analysis, new models of consumer choices, empirical studies of demand/consumption, and consumer issues in the market place.
^ Wi Qtr. 2.2-hr cl. Prereq: Econ 501.02 or Econ 501A or equiv.

711 Production and Consumption in Agricultural, Environmental, and Development Economics UGRD 4
Microeconomic theory principles and their application to the production, consumption and market exchange of agricultural and environmental goods and services. A student may take this course twice and receive credit for that work.

712 Finance and Risk Management for Agricultural, Environmental, and Development Economics UGRD 4
Managerial finance and risk management principles and their application to production, consumption, and investment problems in agricultural, environmental, and development economics.

713 Public Policy and Market Regulation in Agricultural, Environmental, and Development Economics UGRD 4
Theories of social welfare, market failure, and public goods and their application to policy and regulation issues in agricultural, environmental, and development economics.

734 Agricultural Trade Policy UGRD 4
International trade theory and its application to trade and policy issues in the food and agricultural sector.
Au Qtr. 2 2-hr cl. Prereq: Econ 501.02 and 502 or equiv.
800 Research Methods in Agricultural, Environmental, and Development Economics
Principles of scientific methods in agricultural, environmental, and development economics.
Wi Qtr. 2 1.5-hr cl. Prereq: 711 or 712 or Econ 804.

801 Applied Methods in Agricultural Economics Modeling
Principles and practice of applied econometrics to models in agriculture. Nonlinear and MLE estimation and hypothesis testing applied to systems of equations and censored models.
Wi Qtr. 2 2-hr cl. Prereq: Econ 741.

802 Advanced Computational Economics
Numerical analysis of stochastic dynamic models in economics and finance, emphasizing formulation, solution, and simulation of dynamic optimization, rational expectations, and arbitrage pricing models.
Au Qtr. 2 1.5-hr cl. 1 1.5-hr lab. Prereq: Econ 804 and 805 or permission of instructor

803 Applied Demand Analysis
Application of demand and consumption theory to the estimation of demand relationships and demand systems in agricultural and natural resource markets.
Sp Qtr. 2 2-hr cl. Prereq: 801 and Econ 804.

806 Economics of Agricultural Production
A further consideration of economic principles as they apply to production problems in agriculture.
Wi Qtr. 2 2-hr cl. Prereq: Econ 808.

807 Economic Analysis for Collective Choice
Develops and extends benefit cost, public choice and new institutional economics for consideration of efficiency, basic needs, income distribution and sustainability in collective choice issues.
Su Qtr. 2 2.5-hr cl. Prereq: 631 or 711 or Econ 501.02 and a course in regression analysis.

809 Applied Welfare Economics and Policy Analysis
Welfare economic theory and its application to public policy issues in agriculture and natural resources.
Sp Qtr. 2 2-hr cl. Prereq: 803, 806, and Econ 808.

810 Agricultural Firm Management
Examination of the operating and strategy problems confronting the managers of farm and nonfarm agribusiness firms, with emphasis on applying and integrating management concepts.
Sp Qtr. 2 1.5-hr cl. Prereq: Econ 501 or 501.02 or permission of instructor.

816 Financial Markets and Rural Development
Course provides conceptual framework for formulation and evaluation of financial policies in developing countries (for rural and microenterprise activities). Emphasizes role of the state in finance.
* Wi Qtr. 2 2-hr cl. Prereq: Econ 705 or permission of instructor.

820 Marketing Economics in Agriculture
A critical study of contemporary problems in agricultural marketing in the U.S. and world economics with emphasis on the theoretical and policy implications.
* Au Qtr. 3 cl. Prereq: 703 or Econ 501.02 or permission of instructor.

830 Agricultural, Environmental, and Development Policy
Application of welfare economics and institutional economics to problems and policies in agricultural, environmental, and development economics.
* Su Qtr. 4 cl. Prereq: Econ 501.02 and 502.

831 Resource Economics
Application of economic theory and decision-making frameworks to current issues of resource use, allocation, and control.
Wi Qtr. 3 cl. Prereq: Econ 501.02 or permission of instructor.

832 Seminar in Economic Development of Foreign Agriculture
Characteristic problems of developing countries, identification and analysis of limiting factors in underdevelopment, and techniques for stimulating economic development through growth in agriculture.
* Wi Qtr. Prereq: Econ 501 or 501A or permission of instructor. Repeatable to a maximum of 8 cr hrs.

833 Economic Development Theory and Policy
Applied development economics course with emphasis on policy formulation and evaluation; shows the power of economic theory for analysis of policies, markets and institutions.
* Wi Qtr. 2 2-hr cl. Prereq: 734 or Econ 665 and Econ 501 or permission of instructor. Not open to students with credit for Econ 850.

834 Political Economy of Trade, Development and Agricultural Policies
Analysis of policy making process of trade, development, and agricultural support policies in the food sector and its impact on economic welfare. Examines rent-seeking behavior.
* Sp Qtr. 2 2-hr cl. Prereq: 734 or Econ 665, and Econ 501A; or permission of instructor.

840 Regional Economic Growth: Theory and Measurement
Theories of economic growth and development at the sub-national level. Problems of rural regions are highlighted.
Sp Qtr. 2 2-hr cl. Prereq: Econ 655 or permission of instructor.

891 Field Survey in Agricultural, Environmental, and Development Economics
Seminar for PhD students to learn about the various fields in agricultural, environmental, and development economics.
Sp Qtr. 1 1.5-hr cl. Prereq: Enrolled in PhD program in AED Economics. Required for PhD in AED Econ. This course is graded S/U.

809 Agricultural Economics PhD Seminar
Seminar forum for PhD students to present and discuss their PhD dissertation research
Prereq: Satisfactory completion of the AED Economics Qualifier Exam. Permission of instructor. Required for PhD in AED Econ. Repeatable to a maximum of 10 cr hrs.
This course is graded S/U.

899.02 Environmental Economics PhD Seminar
Seminar forum for PhD students to present and discuss their PhD dissertation research
Prereq: Satisfactory completion of the AED Economics Qualifier Exam. Permission of instructor. Required for PhD in AED Econ. Repeatable to a maximum of 10 cr hrs.
This course is graded S/U.

899.03 Development Economics PhD Seminar
Seminar forum for PhD students to present and discuss their PhD dissertation research
Prereq: Satisfactory completion of the AED Economics Qualifier Exam. Permission of instructor. Required for PhD in AED Econ. Repeatable to a maximum of 10 cr hrs.
This course is graded S/U.

899.04 Quantitative Methods PhD Seminar
Seminar forum for PhD students to present and discuss their PhD dissertation research
Prereq: Satisfactory completion of the AED Economics Qualifier Exam. Permission of instructor. Required for PhD in AED Econ. Repeatable to a maximum of 10 cr hrs.
This course is graded S/U.

899.05 Agribusiness PhD Seminar
Seminar forum for PhD students to present and discuss their PhD dissertation research
Prereq: Satisfactory completion of the AED Economics Qualifier Exam. Permission of instructor. Required for PhD in AED Econ. Repeatable to a maximum of 10 cr hrs.
This course is graded S/U.

899.06 Regional Economics PhD Seminar
Seminar forum for PhD students to present and discuss their PhD dissertation research
Prereq: Satisfactory completion of the AED Economics Qualifier Exam. Permission of instructor. Required for PhD in AED Econ. Repeatable to a maximum of 10 cr hrs.
This course is graded S/U.

902 Computational General Equilibrium Analysis
Application of computable general equilibrium methods to analyze allocative and distributional effects of economic policies.
* Wi Qtr. 2 2-hr cl. Prereq: 711 or Econ 804 and 805.

993.01 Agricultural Management and Finance Individual Studies
Planning, conducting, and reporting a special problem in agricultural, environmental, and development economics fitting the needs of the student, under the guidance of an instructor.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

993.02 Agricultural Marketing and Policy Individual Studies
Planning, conducting, and reporting a special problem in agricultural, environmental, and development economics fitting the needs of the student, under the guidance of an instructor.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

993.03 Economic Development Individual Studies
Planning, conducting, and reporting a special problem in agricultural, environmental, and development economics fitting the needs of the student, under the guidance of an instructor.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.
993.04 Quantitative Methods in Agricultural Economics Individual Studies
Planning, conducting, and reporting a special problem in agricultural, environmental, and development economics fitting the needs of the student, under the guidance of an instructor.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

993.05 Resource Economics Individual Studies
Planning, conducting, and reporting a special problem in agricultural, environmental, and development economics fitting the needs of the student, under the guidance of an instructor.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

993.06 General Agricultural Economics Individual Studies
Planning, conducting, and reporting a special problem in agricultural, environmental, and development economics fitting the needs of the student, under the guidance of an instructor.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

993.07 Consumption and Demand Individual Studies
Planning, conducting, and reporting a special problem in agricultural, environmental, and development economics fitting the needs of the student, under the guidance of an instructor.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs in any or a combination of decimal subdivisions. This course is graded S/U.

995 Seminar
Seminar.

Wi, Sp Qtrs. Repeatable to a maximum of 10 cr hrs.

999 Research in Agricultural, Environmental, and Development Economics
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Air Force Aerospace Studies

101 Introduction to Air Force ROTC and Air Force Heritage
Introduction to the Air Force including Air Force organization, benefits, military customs and courtesies, dress and apperance and communication skills.
Au Qtr. 1 cl, 2 lab hrs.

102 Foundations of Officiership
Exploration of Air Force officership as a profession, core values and the oath of office.
Wi Qtr. 1 cl, 2 lab hrs.

103 Air Force Team Building and Communications Skills
Practical applications of interpersonal communications and team building skills.
Sp Qtr. 1 cl, 2 lab hrs.

201 The Evolution of USAF Air and Space Power from Inception to World War II
Issues of leadership, technological advances, and air power theory.
Au Qtr. 1 cl, 2 lab hrs.

202 The Evolution of USAF Air and Space Power from 1945 to 1989
The role of US air power from 1947 through the initial Cold War years and the Vietnam War.
Wi Qtr. 1 cl, 2 lab hrs.

203 The Evolution of USAF Air and Space Power from 1989 through Present Day
The role of US air power during the post-Vietnam era through 2025 with emphasis on regional conflicts and growing technological sophistication.
Sp Qtr. 1 cl, 2 lab hrs.

301 Air Force Leadership Authority and Responsibility
An overview of AF leadership responsibilities, problem solving, management functions and principles, team building techniques, motivation methods and conflict management.
Au Qtr. 3 cl, 2 lab hrs.

302 Leadership and Accountability
Leadership concepts and case studies, including professional/unprofessional relationships, the influence of power, effective supervision and leadership accountability.
Wi Qtr. 3 cl, 2 lab hrs. Prereq: 301 or permission of instructor.

303 Officer Development and Professionalism
Officer as a professional, topics include corrective supervision, counseling, leadership accountability, core values, and military ethics.
Sp Qtr. 3 cl, 2 lab hrs. Prereq: 302 or permission of instructor.

401 National Security and the Strategy Making Process
The roles of the Executive branch, Congress, and military in the national security process; exploration of the organization and the role of the Air Force.
Au Qtr. 3 cl, 2 lab hrs. Prereq: 303 or permission of instructor.

402 Regional Area Studies
A study of US interests in regions around the world.
Wi Qtr. 3 cl, 2 lab hrs. Prereq: 401 or permission of instructor.

403 Preparation for Active Duty
Preparation for active duty as an Air Force officer.
Sp Qtr. 3 cl, 2 lab hrs. Prereq: 402 or permission of instructor.

Allied Medicine

100 Allied Medical Professions Survey
Allied Medical Professions Survey.

100H Allied Medical Professions
Allied Medical Professions.
Prereq: Honors program or permission of department or instructor.

102 Introduction to Health Professions
An introduction to the allied health professions both graduate and undergraduate that contribute to the delivery of health care in America.
Su, Wi Qtrs. 1-2-hr cl. enrollment in health sciences.

200 CPR for the Health Care Provider
Knowledge, competencies, issues and concerns of health care providers regarding basic life support/cardiopulmonary resuscitation.
Wi Qtr. 1 cl, 1 1-hr lab. Prereq: Admission to the School of Allied Medical Professions or permission of instructor. Completion of course leads to American Heart Association certification Basic Life Support-Health Care Provider.

307 The Evolving Art and Science of Medicine
An analysis of the concepts of health and healing, coupled with an examination of historical developments that have impacted the art and science of medicine.
Au Qtr. 2 2.5-hr cl. GEC cultures and ideas course.

394 Group Studies
Supervised group studies of special topics within the allied health field.
Su, Au, Wi, Sp Qtrs. 1-5 arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

419 Electronic Principles in Medical Instrumentation
The physical and electronic principles of medical instrumentation.
Au Qtr. 3 cl, 2 2-hr labs. Prereq: Enrollment in Circulation Technology or permission of instructor.

425 Critical Phases in Life I
An examination of human’s development from conception to death and factors critical to continuing health.
Sp Qtr. 3 cl. Prereq: Biology 101 or equiv, and 5 hrs psych.

430 Nutrition for Fitness
Introduction to the basic principles of nutrition as they relate to exercise performance and body composition of athletes and the physically active.
Sp Qtr. 2 2-hr cl. Prereq: General chemistry, biology, or physiology.

500 Medical Terminology
Terminology pertaining to the treatment of disease, including standard abbreviations, anatomic, diagnostic, symptomatic, eponymic, laboratory, pathologic, radiology, anesthetic, operative, and drug terms.
Au, Wi, Sp Qtrs. 3 cl. Not open to students with credit for 500.01 or 500.02. Crosslisted in Health Information Management and Systems.

505 Principles of Disease I
Basic pathophysiology and its application to the organ systems.
Au Qtr. 3 cl. Prereq: Admission to the School of Allied Medical Professions and Physiol 312 or Zoology 232; or permission of instructor.

506 Principles of Disease II
A continuation of 505.
Wi Qtr. 3 cl. Prereq: 505.
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Type</th>
<th>Credits</th>
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<tr>
<td>520</td>
<td>Musculoskeletal Disease</td>
<td>UGRD</td>
<td>2-3</td>
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<tr>
<td>530</td>
<td>Neuromuscular Disease</td>
<td>UGRD</td>
<td>3</td>
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<td>591</td>
<td>Health Care Organization</td>
<td>UGRD</td>
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<tr>
<td>591H</td>
<td>Health Care Organization</td>
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<td>592</td>
<td>Interactions in Health Care</td>
<td>UGRD</td>
<td>3</td>
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<tr>
<td>594</td>
<td>Group Studies</td>
<td>UGRD</td>
<td>1-5</td>
</tr>
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<td>596</td>
<td>Career Exploration and Job Search Skills for Health Sciences</td>
<td>UGRD</td>
<td>1</td>
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<td>618</td>
<td>Death, Loss and Grief from Multiple Perspectives</td>
<td>UGRD</td>
<td>4</td>
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<td>604</td>
<td>Internship in Health Sciences</td>
<td>UGRD</td>
<td>3-5</td>
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<tr>
<td>608</td>
<td>Case Studies in Health Sciences</td>
<td>UGRD</td>
<td>4</td>
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<tr>
<td>609</td>
<td>Role of Integrative Medicine in Society</td>
<td>UGRD</td>
<td>5</td>
</tr>
<tr>
<td>622</td>
<td>Human Resource Management for Allied Health Professionals</td>
<td>UGRD</td>
<td>3</td>
</tr>
<tr>
<td>630</td>
<td>Management Principles for Health Professionals</td>
<td>UGRD</td>
<td>3</td>
</tr>
<tr>
<td>632</td>
<td>Diabetes Care and Management</td>
<td>UGRD</td>
<td>2</td>
</tr>
<tr>
<td>635</td>
<td>Allied Health Professional Clinical Interviewing</td>
<td>UGRD</td>
<td>3</td>
</tr>
<tr>
<td>640</td>
<td>Health Promotion and Disease Prevention</td>
<td>UGRD</td>
<td>4</td>
</tr>
<tr>
<td>641</td>
<td>Medical Communication with Latinos</td>
<td>UGRD</td>
<td>3</td>
</tr>
<tr>
<td>650</td>
<td>Health Care Information Systems</td>
<td>UGRD</td>
<td>3</td>
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<td>Healthcare Financial Management</td>
<td>UGRD</td>
<td>3</td>
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<tr>
<td>664</td>
<td>Health Promotion in Practice</td>
<td>UGRD</td>
<td>4</td>
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<tr>
<td>665</td>
<td>Individual Differences in Patient/Client Populations</td>
<td>UGRD</td>
<td>3</td>
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<tr>
<td>674</td>
<td>Human Resource Management for Allied Health Professionals</td>
<td>UGRD</td>
<td>3</td>
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<tr>
<td>675</td>
<td>Occupational Health and Safety</td>
<td>UGRD</td>
<td>3</td>
</tr>
<tr>
<td>676</td>
<td>Introduction to the Long Term Care Continuum</td>
<td>UGRD</td>
<td>3</td>
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<tr>
<td>677</td>
<td>Care of the Older Adult: Aging in Place and Community Care</td>
<td>UGRD</td>
<td>3</td>
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<tr>
<td>678</td>
<td>Understanding the Aging Process</td>
<td>UGRD</td>
<td>3</td>
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Prerequisites and descriptions not included in the table above.
667 Aging and Public Policy UGRD 3
Provides a framework to examine major policy issues of an aging society, overview of the legislative process, and a focus on citizen participation in the policy process. Sp Qtr. 1 3-hr cl. Prereq: Jnr level in Health Sciences/Geriatrics and Gerontology or by permission of instructor.

668 Prevention and Wellness in Aging for Health Professionals UGRD 3
Focuses on prevention, health promotion and wellness for older adults from the perspective of the allied health care professional. Sp Qtr. 2.1-3 hr cl. Prereq: Enrollment in the School of Allied Medical Professions or permission of instructor. Repeatable to a maximum of 6 cr hrs.

670 Teamwork and Leadership in Health and Wellness UGRD 4
Students will gain a better understanding of leadership and team-building through experience in health-related projects. Wi Qtr. 2.2-hr cl. Prereq: Sr standing in Health Sciences Program or permission of instructor.

672 Application of Ethical Decision Making in Health Care UGRD 3
Examination of ethical theories, bioethical principles, personal ethics, and ethical decision making using a six-step model for application in allied health professions. Au, Wi Qtrs. 2.1-5 hr cl. Prereq: Sr standing in the Health Sciences Program and Alli Med 591 or permission of instructor.

680.01 Research Design in Biomedical Sciences UGRD 3
Concepts related to initiating and conducting research; experimental design; use of computer graphics and statistics; and analysis of research reports. Au, Wi Qtrs. 2.1-5 hr cl.

680.01H Research Design in Biomedical Sciences UGRD 3
Concepts related to initiating and conducting research; experimental design; use of computer graphics and statistics; and analysis of research reports. Au, Wi Qtrs. 2.1-5 hr cl. Prereq: Eligible for honors program in allied health.

693 Individual Studies UGRD 1-5
Guided study of selected topics. Su, Au, Wi, Sp Qtrs. 1-5 cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

693H Individual Studies UGRD 1-5
Individual Studies. Su, Au, Wi, Sp Qtrs. Prereq: Honors program and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-5
Supervised group studies of special topics within the various professions of the allied health field. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

695 Senior Seminar in Geriatrics and Gerontology UGRD 3
Explanation, investigation, analysis of current geriatric/gerontology issues and trends focusing on integrating a variety of perspectives, application of concepts and creative problem solving. Sp Qtr. 1-3 hr cl. Prereq: 663 and sr level in Health Sciences/Geriatrics and Gerontology or permission of instructor.

696 Seminar in Program Assessment, Development and Evaluation for Health Sciences UGRD 3
Review of needs assessment theory, concepts of economic analysis, quality of life and clinical outcomes given scarce program resources and creation of a development and evaluation plan. Sp Qtr. 2.1-5 hr cl. Prereq: Jr standing in Health Sciences Program or permission of instructor.

700.01 Interprofessional Care Practice UGRD 3
Patients/care. Repeatable to a maximum of 6 cr hrs. Wi Qtr. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology (Columbus seminaries). Repeatable to a maximum of 6 cr hrs.

700.03 Ethical Issues UGRD 3
Ethical issues of concern to the professions and arising out of advanced technology: euthanasia, mind control, malpractice, social responsibility of the professions. Au Qtr. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology (Columbus seminaries). Repeatable to a maximum of 6 cr hrs.

700.04 Interprofessional Seminar in Clinical Practice UGRD 3
Interprofessional teamwork in clinical settings. Wi Qtr. Prereq: Permission of instructor. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology (Columbus seminaries). Repeatable to a maximum of 6 cr hrs.

710 Health Literacy PRAD 3
Examines the issues and challenges of low health literacy, including research; development and testing of information in plain language; health communication techniques; and organizational approaches to meet these challenges. Au Qtr. Not open to students with credit for Med Col 710, Nursing 710, Pharmacy 709 or Arts&Sci 709. Cross-listed with Med Col 710 and Nursing 710, Pharmacy 709 and Arts&Sci 709.

717.02 Interdisciplinary Perspectives on Autism UGRD 3
Spectrum Disorders
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Critical examination of the latest information on biomedical, psycho-social, educational, communication and language, family and sensory issues of autism spectrum disorders. Sp Qtr. 1-3 hr cl. Prereq: Permission of instructor. Not open to students with credit in 717.02 in any of the cross-listed areas. Cross-listed in Education: Physical Activity and Educational Services, Human Development and Family Science, Human Nutrition Nursing, Psychology, Social Work, and Speech and Hearing Science. Limit of 20 students.

719 Early Intervention Interdisciplinary Team Dynamics UGRD 3
Interdisciplinary team-taught course with a focus on early intervention/early childhood education services for children birth to three and their families. Au Qtr. 2.5-hr cl. Prereq: Permission of instructor. Not open to students with credit for Edu PAES 719, HDFS 719, Nursing 719, SpH&S 719. Cross-listed in Education: Physical Activity and Educational Services, Human Development and Family Science Nursing, and Speech and Hearing Science.

720 Aging and Design UGRD 3
Analysis and development of designs for products and environment related to residential spaces for older adults based on environmental adjustment theories. Au Qtr. 1-3 hr cl. Prereq: Grad standing or permission of instructor. Not open to students with credit for TIX&Clo 720 or CS TwU 720. Cross-listed in Consumer Sciences: Textiles and Clothing.

721 Practicum in Home Modifications UGRD 3
Universal Design
Provides service-learning experience for students to learn about universally designed home modifications. Students help conduct workshops and home assessments. Sp Qtr. 1.2-hr cl, 6 hr lab. Prereq: 720 or Fm Res M 720 or permission of instructor. Cross-listed with Fm Res M 694A Sp 2003.

730 Managerial Leadership in Allied Health UGRD 3
Application of managerial leadership principles for the development and administration of allied health departments in the health care system. Au Qtr. 1-3 hr cl. Prereq: Admission to AMP grad program or permission of instructor.

753 Teaching in the Allied Health Professions UGRD 3
Principles and practice of teaching in the allied health professions; focuses on various teaching roles and strategies of allied health professionals in academic and clinical settings. Sp Qtr. 1-3 hr cl. Prereq: Admission to the AMP graduate program or permission of instructor.

760 Service Learning in Global Health UGRD 3
Provides a service learning opportunity focusing on active student participation in an organized international health care experience. Wi Qtr. Prereq: Instructor permission only. Repeatable to a maximum of 15 cr hrs. Service Learning course. Application is required. Additional course fees and expenses must be paid by the student.

780 Introduction to High Risk Neonates and Neonatal Care Environments UGRD 3
Overview of key issues related to high risk neonates including demographics, vulnerabilities, care approaches, intensive care environments, equipment, and personnel. Au Qtr. 1-3 hr cl. Prereq: Grad standing or permission of instructor.

790 Introduction to Gerontology UGRD 3
Introduction to impact of physiological, psychological, and socio-economic condition associated with aging to provide foundation in gerontology. Au Qtr. 1.3-hr cl. Not open to students with credit for Dent 792.17. Open to sr level students with permission of instructor. Cross-listed in Social Work. Core course required for Graduates Specialization in Aging.

791 Case Studies in Clinical Gerontology UGRD 3
Interdisciplinary course for graduate and professional students using a team approach and case studies to work with older adults. Wi Qtr. 1.3-hr cl. Prereq: Dent 792.17 or permission of instructor.
Investigation of current topics of interest to allied health practitioners. 
Au, Wi, Sp Qtrs. Prereq: Permission of Instructor. Repeatable to a maximum of 15 cr hrs.

New and Emerging Assistive Technologies  
for Individuals with Disabilities  
Interdisciplinary course covering applications of technology to meet the functional needs of individuals in mobility, manipulation, communication, and cognition and learning.
Sp Qtr. Lec/lab. Not open to students with credit for Edu PAES 826. Cross-listed with Edu PAES 826.

Leadership and Policy in Allied Health  
Students develop leadership skills and learn to explain and discuss the laws and policies that influence allied health professions.
Wi Qtr. 1-3 hr cl. Prereq: Admission to the Health and Rehabilitation Sciences PhD program or permission of instructor.

Issues in Allied Health  
Discussion and critical examination of current issues in the allied health field and their impact on the health professions.
Wi Qtr. 1-3 hr cl.

Fundamentals of Curriculum in Allied Health Education  
Study of curriculum antecedents and issues in allied health: an orientation for health professionals which deals with the major curriculum forces which have, and are, shaping allied health education.
Su Qtr. 1-3 hr cl. Prereq: Admission to AMP graduate program or permission of instructor.

PhD Research Practicum  
Students gain practical, advanced skills in allied health research through structured research experiences. May focus on research techniques, methodologies, instrumentation, or data analysis.
Prereq: Admission to the Health and Rehabilitation Sciences PhD program or permission of instructor. Repeatable to maximum 18 hrs. This course is graded S/U.

PhD Teaching Practicum  
Students gain practical, advanced skills in allied health teaching through structured mentoring experiences.
Prereq: Admission to the Health and Rehabilitation Sciences PhD program or permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

Practicum: Educational  
Practical experience in an educational setting within the allied health fields.
This course is graded S/U.

Practicum: Administration  
Practical experience in an administrative setting within the allied health fields.
Prereq: IHISA 815 or equiv and written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

Practicum: Research  
Practical experience in a research setting within the allied health fields.
Prereq: 3 cr hrs in research design or permission of instructor. Repeatable to a maximum 10 cr hrs. This course is graded S/U.

Advanced Topics  
Students gain knowledge and skills in advanced topics related to the school faculty's health and rehabilitation research. Topics and faculty vary by quarter.
Au, Wi, Sp Qtrs. 1-3 hr cl. Prereq: Admission to the Health and Rehabilitation Sciences PhD program or permission of instructor. Repeatable to a maximum of 15 cr hrs.

Evidence Based Practice  
Students learn to apply evidenced based practice, identify the most valid and relevant research reports, analyze research using specificity and sensitivity measures, examine effect sizes.
Sp Qtr. 1-3 hr cl. Prereq: Admission to the Health and Rehabilitation Sciences PhD program or permission of instructor.

PhD Research Seminar  
Students develop skills in analyzing, discussing, and synthesizing health and rehabilitation research. Students present their own scholarship to other graduate students and faculty.
Su, Au, Wi, Sp Qtrs. 1-3 hr cl. Prereq: Admission to the Health and Rehabilitation Sciences PhD program or permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

PhD Teaching Seminar  
Prepares students to effectively develop learning objectives, plan instruction and learning activities, and develop refine teaching and student evaluation skills in allied health and rehabilitation professional programs.
Au Qtr. 1-2 hr cl. Prereq: Admission to the Health and Rehabilitation Sciences PhD program or permission of instructor. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

Research  
Research for thesis or dissertation.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

American Sign Language  
Introduction to American Sign Language (ASL) focuses on development of receptive (listening) and expressive (speaking) skills, American deaf culture and history. Instruction primarily in ASL.
Not open to native users or those with EM credit, or to students with 2 or more years of study of this language in high school.

Elementary American Sign Language I  
Further development of ASL skills. Focus on talking about self and others. Continued exploration of American deaf culture and history. Instruction primarily in ASL.
Not open to native users or those with credit for EDU T&L 111 or with EM credit for ASL 103 or equivalent. GEC for lang course.

Intermediate American Sign Language I  
More advanced development of ASL skills. Continuation of instruction primarily in ASL.
Further exploration of American deaf culture and history. Prereq: EDU T&L 111 or with EM credit for ASL 103 or equivalent. GEC for lang course.

Basic Human Anatomy  
The basics of human anatomy supplemented by computer-assisted instruction and demonstrations of human material.
Au, Wi, Sp Qtrs. Prereq: Health Sciences students in CED and ASC. Not open to students with credit for 200.

Basic Human Anatomy I  
The basics of human anatomy supplemented by computer-assisted instruction and demonstrations of human material.
Au, Wi, Sp Qtrs. Prereq: Biology 101 or 113; enrollment in pre-nursing, gpa 2.75. Not open to students with credit for 200.

Basic Human Anatomy II  
The basics of human anatomy supplemented by computer-assisted instruction and demonstrations of human material.
Wi, Sp Qtrs. Prereq: Biology 101 or 113; enrollment in pre-nursing, gpa 2.75. Not open to students with credit for 200.

Intermediate Anatomy  
The basics of human anatomy supplemented by computer-assisted instruction and demonstrations of human material.
Wi, Sp Qtrs. Prereq: Enrollment in DHIY only. Not open to students with credit for 200.

Introductory Anatomy  
Fundamental principles of human anatomy, supplemented by demonstrations of human material.
Au, Wi, Sp Qtrs. Prereq: 4 cl, 2-2 hr labs. Not open to students with credit for 199.

Introductory Human Anatomy for Engineers  
Introduction to human anatomy for engineering students using a systems approach through lectures, laboratory with prospected cadavers, and computer software.
Sp Qtr. 1-2 hr lect and 1-2 hr lab. Prereq: Bio 113 or 115 or equiv. Enrollment limited to undergraduate engineering students or permission of instructor.

Intermediate Human Anatomy  
To acquaint pre-professional students with a basic knowledge of Human Anatomy via sectional material.
Prereq: General Biology 113-114 or H115-116 or General Chemistry 121-122-123. The students must have these courses prior to considering Anatomy 400. Sectional Anatomy used in course.
600 Advanced Neuromuscular Anatomy GRAD 5
Neuromuscular anatomy of the human body through an in-depth dissection experience. Su Qtr. 2 1-hr cl, 2 3-hr labs. Prereq: 200 or equiv, permission of instructor.

601 Human Anatomy for Dental Students MED 7
Basic principles of embryology, anatomy, histology and neuroanatomy of the human body. Au Qtr. 3 cl, 3 3-hr labs. Prereq: Dent 1st yr standing.

602 Human Anatomy for Dental Students MED 4
A continuation of 601. Wi Qtr. 5 cl, 2-hr lab. Prereq: 601.

603 Human Anatomy for Dental Students MED 7
A continuation of 602. Sp Qtr. 3 cl, 3 3-hr labs. Prereq: 602.

693 Individual Studies in Anatomy GRAD 2-18
Designed to enable the student to pursue a minor investigation in some anatomical field of choice. Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs. 1 month, offered all months. This course is graded S/U.

700 Human Histology GRAD 6
A microscopic study of cells, tissues, and organs with particular emphasis on human; consideration of microscopic structure in relation to function of various organ systems. Sp Qtr. 3 cl, 3 2-hr labs. Prereq: Permission of instructor.

710 Human Embryology GRAD 3-5
Designed to acquaint the anatomy graduate student with a basic knowledge of human embryology. Au Qtr. Arr: Prereq: Permission of instructor.

712 Human Anatomy GRAD 12
Designed to acquaint a graduate student with a basic knowledge of human anatomy by regional dissection. Au Qtr. Arr. Prereq: Permission of instructor. Starts 3rd week in August; ends in mid-November.

716 Human Neurobiology GRAD 7
Designed to acquaint a graduate student with a basic knowledge of human neuroanatomy. Wi Qtr. Arr. Prereq: Permission of instructor. Not open to students with credit for Neuro Sc 716. Cross-listed in Neuroscience Department.

750 Radiologic Anatomy GRAD 2
Anatomy of specific regions or areas as it applies to the interpretation and understanding of diagnostic images. Sp Qtr. Arr. Prereq: Satisfactory completion of Med Coll 662, or Anatomy 712 or equiv and permission of instructor. Repeatable to a maximum of 8 cr hrs. Cross-listed with Radiology.

850 Seminar in Anatomy GRAD 1
Discussions of research in progress and reports from the literature of current anatomical problems. Wi, Sp Qtrs. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

911.02 Advanced Studies in Anatomy: Connective Tissue and Bone GRAD 3-5
Activities of fibrous connective tissues emphasizing formation and maintenance of fibers and ground substance; dynamics of the structure, chemistry, and metabolism of bone. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

911.03 Advanced Studies in Anatomy: Embryology GRAD 3-5
Mammalian embryological development emphasizing descriptive or experimental approach; metabolic aspects of development including enzymatic changes, hormonal effects, environmental factors, and teratogenic agents. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

911.10 Advanced Studies in Anatomy: Principles of Human Cytogenetics GRAD 3-5
Human cytogenetics as related to autosomal and sex chromosomes; technique of tissue culture for study of human chromosomes and karyotype analysis. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

911.13 Advanced Studies in Anatomy: Topographical Anatomy GRAD 3-5
Study of unmounted serial cross sections of selected regions of the human body emphasizing the inter-relationship of structures to one another in a three-dimensional perspective. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

911.14 Advanced Studies in Anatomy: Advanced Regional Dissections GRAD 3-5
Careful dissection of one or more regions of the body, supplemented with literature research. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.
299H Freshman Research Seminar: Contemporary Animal Biology Research
Exploration of prominent scientists and emerging issues in animal biology research.
Wi Qtr. 3 1-hr cl. Prereq: Enrolled in Honors or permission of instructor. Only available to students with 90 hours or fewer.

300 Livestock Selection and Evaluation
Laboratory exercises employing current standards of animal excellence including carcass value for the selection and improvement of farm livestock.
Wi Qtr. 4 2-hr lab-discussions. Prereq: 200 and jr standing.

301 Equine Selection and Evaluation
Understanding the relationship of form to function; evaluating conformation and performance, and orally defending that evaluation.
Sp Qtr. 3 2-hr labs. Prereq: 200 or 201. The student will pay a lab fee.

305 Meat Animal and Carcass Evaluation
The factors that influence the value of meat animals, carcasses, and wholesale cuts in accordance with recognized grading standards; laboratory practice.
Wi Qtr. 3 2-hr labs. Prereq: 200

306 Poultry Science Fundamentals
Describes classes of poultry and game birds, evaluation of poultry products, incubation, housing, anatomy, diseases, genetics, and nutrition. Laboratories include raising chickens for market.
Sp Qtr. 4 cl, 1 1-hr lab, 1hr arr. Prereq: 200 or Biology 101 or 113. This course is available for EM credit.

310 Principles of Animal Systems Physiology
Introductory course that surveys organs/systems within the body and relates the functional physiology of those systems to animal production.
Wi, Sp Qtrs. 5 1-hr cl. Prereq: Biology 101 or 113 or H115 or PCMB 101 or Plnt Bio 101. BER/GEC/LAR course.

310H Principles of Animal Systems Physiology
Introductory course that surveys organs/systems within the body and relates the functional physiology of those systems to animal production.
Wi, Sp Qtrs. 5 1-hr cl. Prereq: Honors program or permission of department or instructor; Biology 101 or 113 or H115 or PCMB 101 or Plnt Bio 101. BER/GEC/LAR course.

317 Milk Secretion
Introduction to mammary gland anatomy, milk synthesis, and factors affecting mammary health.
Sp Qtr. 2 1.5-hr cl. Prereq: Biology 101 or 113.

318 Introductory Reproductive Physiology
Introduction to anatomy and physiology of reproductive systems of various species with a focus on agricultural species.
Sp Qtr. Prereq: Biology 101 or 113 or 115H. Not open to students with credit for Animal Science 610.

320 Principles of Genetic Improvement
An introduction to the methods available for bringing about genetic change in farm animals.
Wi, Sp Qtrs. 5 cl. Prereq: 200; and 260 or Agr Econ 205 or AED Econ 205 or Agr Educ 387 or AEE 387 or H&CS 260 or Stat 145, and Biology 113 or 101.

330 Principles of Animal Nutrition
A study of nutrients needed by animals.
Au, Wi, Sp Qtrs. 4 cl, 1 1-hr lab. Prereq: Biology 101 or 113 or H115 or PCMB 101 or Plnt Bio 101.

331 Equine Feeds and Feeding
Nutrient needs of the horse; significance of supplements and feeds as they relate to the horse's nutrition and health.
Wi Qtr. 4 cl.

340 Management Intensive Grazing
The application of scientific principles of plant growth, animal nutrition and behavior to manage grazing systems for profitable, sustainable livestock enterprises.
Sp Qtr. 1 2-hr cl, 1 2-hr lab. Prereq: 200 or H&CS 200. Occasional Saturday field trips (2).

341 Equine Facilities, Marketing, and Management
Emphasis on the development and practical management of equine facilities. Topics include commercial and private training, boarding and show facilities.
Wi Qtr. 2 1-hr cl, 1 2-hr recitation. Prereq: 201 or 200.

347 Challenges and Opportunities for the Dairy Industry
Examination of the challenges and opportunities facing the dairy production and processing sectors in Ohio and the US.
Wi Qtr. Prereq: 200. Not open to students with less than 45 credit hours.

355.01 Principles of Meat Science
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.
Au, Wi Qtrs. 3 cl.

355.02 Meat Science Products Laboratory
Procedures and value factors involved in meat animal harvest, carcass evaluation, fresh meat processing, cured-processed meat production, and retail merchandising.
Wi Qtr. 2 3-hr labs. Prereq or concur: 355.01.

360 Global Food and Agriculture
The integration of food, agriculture, environment, resources, technology, culture and trade on a global scale.
Wi Qtr. 3 1.5-hr cl. Not open to students with credit for Animl Sc 375. E360 may be available for honors embodied experience.

400 Cellular Effects on Animal Growth and Development
To understand how the cell affects the formation and growth of tissues and organs important in domestic animal growth.
Au Qtr. 2 1.5-hr cl. Prereq: 310. Not open to students with credit for Animal Sc 460.

413 Principles of Animal Health
Introduction to infectious diseases, agents causing disease, and host defense systems.
Sp Qtr. 2 2.5-hr cl. Prereq: 200, 310; Biology 114 or H116.

488 Professional Development in Animal Sciences
Participation in structured co-curricular programs leading to professional development (e.g. Academic Quadrathlon, Livestock Selection and Evaluation Teams, etc.).
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 2.00 cumulative pt-hr ratio and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

489 Internship in Animal Science
Supervised preplanned employment experience and/or on-site problem solving study program: written comprehensive report required.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 15 cr hrs in Animal Sciences. Open only to dept majors. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

494 Group Studies
Special topic area group studies formally proposed for a specific quarter by an animal sciences faculty member.

541 Equine Production
The application of scientific principles to the production of horses. Includes farm design, reproductive management, genetics, nutrition, health, marketing and behavior of the horse.
Sp Qtr. Prereq: 200 or 201, and 330 or 331.

542 Beef Cattle Production and Management
The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of beef cattle.
Sp Qtr. 4 cl, 1 3-hr lab. Prereq: 310 and 320 and 330.

543 Swine Production
The application of science and basic principles of nutrition, physiology, genetics, health, economics, meats, and housing in integrated management systems for modern swine production.
Au Qtr. 3 cl, 1 3-hr lab. Prereq: 310 and 320 and 330.

544 Sheep Production and Management
The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of sheep.
Wi Qtr. 3 cl, 1 3-hr lab. Prereq: 310 and 320 and 330.

545 Companion Animal Biology and Behavior
Anatomy, genetics, nutrition, physiology and behavior of dogs and cats. Human-companion animal relationships.
Au Qtr. 2 2-hr cl, 1 1-hr lab. Prereq: 310, 320 or 330.

546 Poultry Management
Describes classes of poultry and game birds, incubation, housing, anatomy, diseases, genetics, and nutrition. Laboratories include raising chickens for market and egg production.
Wi Qtr. 4 cl, 1 1-hr lab and 1 hr arr. Prereq: 310, 320 and 330. Not open to students with credit for Poultry Sc 546.

547 Dairy Herd Management
Application of scientific principles to practical herd management, analyses of alternatives and decision making.
Au Qtr. 2 2.5-hr cl. Prereq: 310, 320 and 330. Not open to students with credit for 447.

555.02 Meat Processing
Fundamental changes in soft animal tissues resulting from comminution and application of chemicals and heat.
Au Qtr. 2 cl, 2 2-hr labs. Prereq: 355.01.

22
555.03 Branded Meat Products UGRD 4
Integration of multiple factors influencing value-added product development including raw material quality and procurement, processing, packaging, distribution, and complexity of market development in niche markets.
Su, Au, Wi, Sp Qtr. Prereq: 200; 355.01; AED Econ 200.

593 Individual Studies UGRD 2-5
Special assignments and elementary research; problems assigned after consultation with instructor in charge.
Su, Au, Wi, Sp Qtrs. Prereq: 2.50 cumulative pt-hr ratio and written permission of instructor. Repeatable to a maximum of 10 cr hrs. Repeatable cr hrs include cr hrs in Anim Sci 593. This course is graded S/U.

597 Issues Concerning Use of Animals by Humans UGRD 5
The historical, biological, ethical, nutritional, and economic issues of using animals to meet human needs.
Su, Au, Wi, Sp Qtr. 2.5-hr cl. Prereq: Jr or sr standing. Not available for major credit in Animal Sciences. GEC/LAR course. Contemporary issues course.

600 Capstone Course in Animal Sciences UGRD 5
Relationship of the animal sciences to the emerging and continuing issues facing society.
Au, Wi, Sp Qtr. 3-2 hr cl. Prereq: Sr standing, second writing course. Not open to freshmen or sophomores. GEC course.

605 Advanced Meat Science UGRD 3
Advanced antemortem and postmortem biochemical principles in skeletal muscle underlying meat quality.
Sp Qtr. 3 cl. Prereq: 355.01. Not open to students with credit for 555.01.

610 Physiology of Reproduction UGRD 5
Physiology and endocrinology of the reproductive systems; examination of basic mechanisms governing reproduction in various species.
Au Qtr. 3 cl, 1 hr recitation, 1 2-hr lab. Prereq: 310 and second writing course. GEC course.

616 Poultry Physiology UGRD 5
An organ system approach to avian physiology with particular emphasis on adaptation to modern production systems, animal care, growth, and reproduction.
Sp Qtr. 4 cl, 1-3 hr lab. Prereq: 310.

617 Physiology of Lactation UGRD 3
The physiological, endocrine, nutritional, and environmental factors influencing the synthesis and ejection of milk.
Wi Qtr. 2 1-hr cl, 1-2 hr lab. Prereq: 20 cr hrs Animal Sciences or vertebrate biology.

618 Molecular Events in Tissue Growth and Development UGRD 4
A molecular developmental approach to the study of tissue growth, structure, and function in animals and humans.
Sp Qtr. 2 2-hr cl. Prereq: 310, Biochem 511 or graduate standing or permission of instructor.

628 Genetic Applications to the Animal Industries UGRD 3
Application of genetic principles to beef, dairy, horse, poultry, sheep and swine industries. The approach is the study of populations through quantitative and molecular genetics.
Wi Qtr. 2 1.5-hr cl. Prereq: 320 or equiv or permission of instructor. Not open to students with credit for 522.

630.01 Advanced Animal Nutrition: Ruminant Nutrition UGRD 5
Principles of ruminant nutrition, metabolism and physiology. Computer formulations and feeding strategies for beef and dairy cattle will enhance application and problem solving.
Au Qtr. 3 1.5-hr cl. Prereq: 330 or grad standing.

630.02 Advanced Animal Nutrition: Non-Ruminant Nutrition UGRD 5
Principles of non-ruminant nutritional physiology, metabolism, and practical feeding programs.
Wi Qtr. 3 1.5-hr cl. Prereq: 330 or grad standing.

630.03 Advanced Animal Nutrition: Feeding Management and Records Analysis for Dairy Cattle UGRD 3
Feeding management of dairy cattle for the prevention of diseases and analysis of dairy records for production medicine decisions.
Wi Qtr. Prereq: 330.

638 Nutritional Immunology in Animal Systems UGRD 3
Understanding how nutrition can be applied to modify immune responses during and after an infection to increase animal production.
Sp Qtr. Prereq: 330 or permission of instructor.

647 Evaluation and Integration of Research for Dairy Operations UGRD 5
Integration of scientific principles to maximize efficiency in dairy farm operations.
Sp Qtr. 5 cl. Prereq: 310 Off campus field exp: 2 1-day field trips to established dairy operations.

650 Advanced Meat Technology UGRD 3
Evaluation of scientific contribution to meat products and processing.
Sp Qtr. 2 cl, 2 1-hr labs. Prereq: Permission of instructor. Not open to students with credit for Animal Sc 650.

655 Laboratory Analysis of Meat Products UGRD 5
Analysis of meat products by physical, chemical, and microbiological techniques.
Wi Qtr. 2 cl, 2 1-hr labs, 4 hrs arr. Prereq: Permission of instructor.

660 Quality Control Interpretation UGRD 3
Sampling, statistical plotting, and chart interpretation using examples drawn from the food area.
Sp Qtr. 3 cl.

668 Applied Biometrics UGRD 5
Study methods used in the quantification of biological processes and the integration of research results and knowledge into quantitative methods.
Sp Qtr. 5 1-hr cl. Prereq: Stat 528 and 529, or equiv.

683H Honors Projects UGRD 1-10
Conducting and reporting the honors project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: FAES H590.01, enrollment in honors program, and permission of honors supervisor. Repeatable to a maximum of 10 cr hrs. Repeatable at H683 or in combination with 593, H593, 693, or H693. This course is graded S/U.

690 Anaerobic Microbiology UGRD 5
Provides and understanding of fundamentals of anaerobic microbiology and applications to animal and human nutrition and bioenergy production.
Sp Qtr. Pre-q: Microbiol 520 and Biochem 511 or permission of instructor.

693 Individual Studies UGRD 3-5
Special assignments and advanced research; problems assigned after consultation with the instructor in charge.
Su, Au, Wi, Sp Qtrs. Prereq: 2.50 cumulative pt-hr ratio and written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies UGRD 3-5
Special topics area group studies finally proposed for a specific quarter by an animal science faculty member.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor.

697.01 Study at a Foreign Institution: Welfare of Agricultural and Recreational Animals UGRD 5
Role of animal welfare in production efficiency and in recreational animals. How animal welfare issues will impact the future of global food animal agriculture.
Wi Qtr. Prereq: 310, 320, 330. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as travel and subsistence costs. This is part of a 3 course sequence that will be required in the Animal Sciences Australia Study Abroad Program.

697.02 Study at a Foreign Institution: Animal Production Systems in the Diverse Environments of Australia UGRD 5
Animal production systems, comparing practices, economic issues and environmental constraints between Australia and the United States.
Wi Qtr. Prereq: 310, 320, 330. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as travel and subsistence costs. This is part of a 3 course sequence that will be required in the Animal Sciences Australia Study Abroad Program.

697.03 Study at a Foreign Institution: African Wild Dogs: Behavior and Ecology UGRD 4
This study abroad program will enable students to learn about instincts that guide behaviors of wild dogs by participating in field research in Africa.
Au Qtr. 20 hr lec, 60 hr lab. Prereq: Biology 114; preference given to students who have completed or are registered for Anim Sci 545; jr standing. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as travel and subsistence costs.

697.04 Study at a Foreign Institution: Dairy Industry Outside of the US UGRD 4
An opportunity for students to study the dairy industry of another country and to experience it by visiting the country studied.
Sp Qtr. Prereq. Open only to students accepted into Dairy Industry, Study Abroad Program and concurrently enrolled in Anim Sci 494 (Dairy Industry in the Netherlands). Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as travel and subsistence costs.
697.05 Study at a Foreign Institution: Human and Animal Interactions in Europe

Experience the beliefs and views of Irish culture on the use and involvements of animals as part of their daily lives.

Au Qtr. Prereq: Concurrent enrollment in 494 (Human and Animal Interactions in the United States) and permission of instructor. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as travel and subsistence costs.

697.06 Human and Animal Interactions in Australasia

Study abroad giving students an appreciation for cultural differences in the use and involvements of animals in society, comparing a Midwestern with an Australasian culture.

Au Qtr. Short term study abroad: 10 days after Au Qtr. Prereq or concur: 248 (Human and Animal Interactions in the United States), and permission of Instructor.

710 Advanced Reproductive Physiology

Recent advances in research in mammalian reproduction.

* Sp Qtr. 2 1/2 hr cl. Prereq: 610 and acceptable courses in physio, anat, and biochem.

720.01 Genetics of Animal Populations I

Parameters of static populations, genetic arrays and equilibria, and statistical measures; partitioning the phenotypic variance, mutation, migration, selection, and chance.

* Au Qtr. 3 cl. Prereq: 320 or Mol Gen 500, or equiv.

720.02 Genetics of Animal Populations II

Selection for polygenic characters, mating systems, and development of breeding plans.

* Au Qtr. 3 cl. Prereq: 720.01.

730 Advanced Topics in Ruminant Nutrition

Advanced aspects of microbial fermentation, digestive physiology, and metabolism by ruminants integrated into current research topics.

* Sp Qtr. Prereq: Biochem 511 or equiv, Anim Sci 630.01 or equiv, or permission of instructor. Not open to students with credit for 730.01.

761 Carbohydrate and Lipid Metabolism

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.

Wi Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv; Humn Ntr 610 or Anim Sci 630.01 OR grad standing or permission of instructor. Not open to students with credit for Fd Sc&Te 761 or Humn Ntr 761. Cross-listed in Food Science and Technology and Human Nutrition.

762 Principles of Nutrient Metabolism

In-depth examination of the cellular and molecular mechanisms responsible for regulation of nutrient transport and metabolism with focus on the utilization of dietary protein.

Au Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv; Humn Ntr 310 or Anim Sci 330 OR grad standing or permission of instructor. Not open to students with credit for Fd Sc&Te 762 or Humn Ntr 762. Cross-listed in Food Science and Technology and Human Nutrition.

763 Vitamin and Mineral Metabolism

In-depth treatment of biochemical functions, absorption, transport, utilization, interrelationships and nutritional requirements of the vitamins and minerals in humans and other higher animals.

Sp Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv; EEOB 232 or Anim Sci 310; Humn Ntr 610 or Anim Sci 630.01 or 630.02 or grad standing. Not open to students with credit for Fd Sc&Te 763 or Humn Ntr 763. Cross-listed in Food Science and Technology and Human Nutrition.

810.03 Immunology and Immunogenetics

Immunology and Immunogenetics.

Sp Qtr. Prereq: Written permission of instructor, acceptable courses in physiol, cbnkanat and biochem. Prereq: Written permission of instructor. Not open to students with credit for Animl Dairy or Phyte Sc 810.

830.01 Advanced Studies: Energy/Lipids

Advanced concepts in nutrition: Energy/Lipids.

* Wi Qtr. 5 cl. Prereq: 530 or Humn Ntr 610; 761 and 762 or Fd Sc&Te 761 and 762 or Humn Ntr 761 and 762; 10 grad cr hrs in physical. Prereq: 761 or Fd Sc&Te 761 or Humn Ntr 761. Not open to students with credit for Fd Sc&Te 830 or Humn Ntr 830. Cross-listed in Food Science and Technology, and Human Nutrition.

830.02 Vitamins/Minerals

Advanced concepts in nutrition. Vitamins/Minerals.

* Wi Qtr. 5 cl. Prereq: 530 or Humn Ntr 610; 761 and 762 or Fd Sc&Te 761 and 762 or Humn Ntr 761 and 762; 10 grad cr hrs in physical. Prereq: 761 or Humn Ntr 763 or Fd Sc&Te 761 or Humn Ntr 830. Not open to students with credit for Fd Sc&Te 830 or Humn Ntr 830. Cross-listed in Food Science and Technology, and Human Nutrition.

830.03 Proteins and Amino Acids

Advanced concepts in nutrition. Proteins and Amino Acids.

* Wi Qtr. Prereq: 530 or Humn Ntr 610; 761 and 762 or Fd Sc&Te 761 and 762 or Humn Ntr 761 and 762; 10 grad cr hrs in physical. Not open to students with credit for Fd Sc&Te 830 or Humn Ntr 830. Cross-listed in Food Science and Technology, and Human Nutrition.

830.07 Rumen Microbiology

Advanced concepts in nutrition. Rumen Microbiology.

* Su Qtr. Prereq: 530 or Humn Ntr 610; 761 and 762 or Fd Sc&Te 761 and 762 or Humn Ntr 761 and 762; 10 grad cr hrs in physical. Not open to students with credit for Fd Sc&Te 830 or Humn Ntr 830. Cross-listed in Food Science and Technology, and Human Nutrition.

830.08 Carbohydrates

Advanced concepts in nutrition. Carbohydrates.

* Au Qtr. Prereq: 530 or Humn Ntr 610; 761 and 762 or Fd Sc&Te 761 and 762 or Humn Ntr 761 and 762; 10 grad cr hrs in physical. Not open to students with credit for Fd Sc&Te 830 or Humn Ntr 830. Cross-listed in Food Science and Technology, and Human Nutrition.

830.09 Food and Nutritional Toxicology

Advanced concepts in nutrition. Basic principles in food and nutrition toxicology focused on interactions of nutrients and food toxins, role of diet in mutagenesis and carcinogenesis and safety assessment.

* Sp Qtr. Prereq: 530 or Humn Ntr 610; 761 and 762 or Fd Sc&Te 761 and 762 or Humn Ntr 761 and 762; 10 grad cr hrs in physical. Prereq: 761, 762 or Fd Sc&Te 761, 762 or Humn Ntr 761, 762, Humn Ntr 610 or Anim Sci 630.01 or 630.02 or permission of instructor. Not open to students with credit for Fd Sc&Te 830 or Humn Ntr 830. Cross-listed in Food Science and Technology, and Human Nutrition.

830.10 A Comprehensive Approach to Food Safety

Advanced concepts in nutrition. Course provides a comprehensive overview of food safety issues, challenges and solutions across the food chain from farm to table.

Wi Qtr. 1 3-hr cl. Prereq: 530 or Humn Ntr 610; 761 and 762 or Fd Sc&Te 761 and 762 or Humn Ntr 761 and 762; 10 grad cr hrs in physical. Prereq: Microb 509 and introductory level course in nutrition or food science or permission of instructor. Not open to students with credit for Fd Sc&Te 830 or Humn Ntr 830. Cross-listed in Food Science and Technology, and Human Nutrition.

830.11 Nutrition-Endocrine Interactions in Women's Health

Advanced concepts in nutrition. Examination of the historical and emerging research in the area of diet-endocrine interactions and women's health.

Sp Qtr. 2 2-hr cl. Prereq: 530 or Humn Ntr 610; 761 and 762 or Fd Sc&Te 761 and 762 or Humn Ntr 761 and 762; 10 grad cr hrs in physical. Prereq: 761, 762 or Fd Sc&Te 761, 762 or Humn Ntr 761, 762 or grad standing or permission of instructor. Not open to students with credit for Fd Sc&Te 830 or Humn Ntr 830. Cross-listed in Food Science and Technology, and Human Nutrition.

830.12 Diet, Nutrition and Cancer

Advanced concepts in nutrition. Analysis of linkages between diet, nutrition and cancer including dietary interactions with molecular and metabolic processes involved in carcinogenesis and current research methodologies.

Au Qtr. 2 2-hr cl. Prereq: 530 or Humn Ntr 610; 761 and 762 or Fd Sc&Te 761 and 762 or Humn Ntr 761 and 762; 10 grad cr hrs in physical. Prereq: Graduate standing or permission of instructor. Not open to students with credit for Fd Sc&Te 830 or Humn Ntr 830. Not open to students with credit for Fd Sc&Te 830.12 and Humn Ntr 830.12. Cross-listed in Food Science and Technology, and Human Nutrition. Cross-listed with Fd Sc&Te 830.12 and Humn Ntr 830.12.

850 Food in International Agriculture

A study of international food production, processing, and utilization.

* Su Qtr. 5 cl, 1 1-hr lab. Not open to students with credit for Animl Sc 856. Repeatable to a maximum of 6 cr hrs.

860 Scientific Philosophy and the Work of Scientists

Historical and future perspectives of research in the animal sciences, role of theory and evidence in developing scientific knowledge, and presentations of reports.

* Su Qtr. 2 1.5-hr cl. Prereq: Completed 30 cr hrs in grad studies, introductory statistics course. Not open to students with credit for Dairy Sc 885.

868 Molecular Biology Techniques

Combined lecture/labatory in the techniques of nucleic acid isolation, analysis, hybridization, sequencing, cloning, expression, and associated biotechnologies.

So Qtr. 5-hr cl, 5 3-hr labs. Prereq: Biochem 521 or 613 or equiv. Not open to students with credit for FdSc&Te 868. Cross-listed in Food Science and Technology.
890.01 General Seminar GRAD 1
Discussions of current animal science research.
Au, Wi, Sp Qtrs. Prereq: Grad standing Animal Sciences or permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

890.02 Nutrition Seminar GRAD 1
Discussions of current animal science research.
Sp Qtr. Prereq: Grad standing Animal Sciences or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

890.03 Physiology Seminar GRAD 1
Discussions of current animal science research.
Sp Qtr. Prereq: Grad standing Animal Sciences or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

890.04 Genetics Seminar GRAD 1
Discussions of current animal science research.
Sp Qtr. Prereq: Grad standing Animal Sciences or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

890.05 Quality and Safety of Animal Products Seminar
Discussions of current animal science research.
Sp Qtr. Prereq: Grad standing Animal Sciences or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

890.06 Interdisciplinary Seminar GRAD 1
Discussions of current animal science research.
Sp Qtr. Prereq: Grad standing Animal Sciences or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

898 Interdepartmental Seminar in Nutrition GRAD 1
A seminar in nutrition and related fields.
Sp Qtr. Repeatable to a maximum of 5 cr hrs. This course is graded S/U. Cross-listed in Food Science and Technology, and Human Nutrition.

993 Individual Studies GRAD 1-5
Exploratory research and advanced assignments; students elect problems after conference with the instructor in charge.
Su, Au, Wi, Sp Qtrs. This course is graded S/U.

999 Research GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Anthropology

200 Introduction to Physical Anthropology UGRD 5
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.
Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: Biology 101 or equiv. Not open to students with credit for 251. NS Admin Cond course. GEC bio sci course.

200H Introduction to Physical Anthropology UGRD 5
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.
Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: Honors program or permission of department or instructor; Biology 101 or equiv. Not open to students with credit for 251. NS Admin Cond course. GEC bio sci course.

201 World Prehistory: An Anthropological Perspective
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.
Su, Au, Wi, Sp Qtrs. 5 cl. 201H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for 261. GEC soc sci individuals and groups course. SS Admin Cond course. E201 may be available for honors embedded experience at the regional campuses.

201H World Prehistory: An Anthropological Perspective
World Prehistory: An Anthropological Perspective.

202 Peoples and Cultures: An introduction to UGRD 5
Comparative survey of traditional and contemporary peoples in the several world culture regions; culture concepts; study of selected topics.
Su, Au, Wi, Sp Qtrs. 5 cl. GEC soc sci individuals and groups course. SS Admin Cond course.

202H Peoples and Cultures: An introduction to Cultural Anthropology
Comparative survey of traditional and contemporary peoples in the several world culture regions; culture concepts; study of selected topics.
Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: Honors program or permission of department or instructor. GEC soc sci individuals and groups course. SS Admin Cond course.

241C The Culture and Cultures of the Middle East
Introduction to the culture of the Middle East as lived in its villages, towns, and cities.
Au, Sp Qtrs. Prereq: 2 2-hr cl. Not open to students with credit for NELC 241. Cross-listed in Near Eastern Languages and Cultures. GEC arts and hums cultures and ideas course.

294 Group Studies UGRD 2-5
Designed to give groups of students an opportunity to pursue special studies in topics not otherwise offered.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 10 cr hrs.

300 Human Origins UGRD 5
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.
Su, Wi, Sp Qtrs. 5 cl. Prereq: 200 or permission of instructor.

301 Modern Human Physical Variation UGRD 5
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.
Au, Wi, Sp Qtrs. 2 2-hr cl, 1 1-hr cl. Prereq: 200 or permission of instructor. Not open to students with credit for 535.

302 Introduction to Medical Anthropology UGRD 5
Relationship of anthropology to the art and science of medicine.
Au, Wi, Sp Qtrs. Prereq: 200 and 202, or permission of instructor.

304 The Living Primates UGRD 5
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.
Au Qtr. 2 2-hr cl. Prereq: 200.

305 Introduction to Forensic Anthropology UGRD 5
An introduction to the field of forensic anthropology in which students will be introduced to basic methods used to analyze unidentified human skeletal remains.
Sp Qtrs.

315 Evolution: Contemporary and Interdisciplinary Perspectives
Develop an understanding of the interplay among different disciplinary approaches to evolutionary studies.
Sp Qtr. 2 2-hr cl. Prereq: one biology, one anthropology or one earth sciences course. Not open to students with credit for EarthSci 315. Cross-listed in Earth Sciences.

350 Prehistoric Indians of the Ohio Valley UGRD 5
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.
Sp Qtrs. 3 cl, 3 weekend field trips. Prereq: 201 or permission of instructor.

400 Contemporary Views of the Ancient Near East: Orientalism, Archaeology and Nationalism
Examines the history and impacts of Western archaeological scholarship in the Near East and explores contemporary archaeological practice.
Wi Qtr.

401 Fundamentals of Archaeology UGRD 5
Introduction to basic archaeological theory and practice including fundamental field and laboratory, principles of survey, excavation, chronological analysis, typology, and palaeoethnography.
Au Qtr. 4 cl, 1 1-hr lab. Prereq: 201 or permission of instructor.

402.01 North American Indians UGRD 5
Description and analysis of simple and complex hereditary characteristics in order to evaluate origin, adaptions and affinities of populations in a world region.
North American Indians. Prereq: 200 or permission of instructor.

409 Primate Evolution UGRD 5
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.
Sp Qtr. 2 2-hr cl. Prereq: 200.

411 Human Ecological Adaptations UGRD 5
A study of the interactive relationships between humans and their environments, past and present, with a focus on human biology.
Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 200 or permission of instructor, Zoology or EEOB 400 recommended.
421.01 Regional Survey Course in Cultural Anthropology: China UGRD 5
A general survey of the traditional Chinese culture and society; family, kinship, and socio-political organizations; their transformations during the last century.
Not open to students with credit for 414.

421.05 Regional Survey Course in Cultural Anthropology: Anthropology of Africa UGRD 5
Overview of anthropological studies of traditional African societies, with themes of European colonialism, kinship, social organization, economics, and politics.
Sp Qtr.

421.06 Survey Course in Cultural Anthropology: Latin American Cultures and Migration in Global Per UGRD 5
An intensive ethnographic investigation of Latin American and Caribbean migration (Mexico, Ecuador, The Dominican Republic) including the history of migration; contemporary movement; and transnationalism.
Wi Qtr. 2-2 hr cl.

421.08 Regional Survey Course in Cultural Anthropology: Indians of North America UGRD 5
Development of culture change in North American Indians.
Not open to students with credit for 412. GEC soc sci individuals and groups course.

451 Archaeology of the Ancient Near East UGRD 5
Archaeology of the Levant, Mesopotamia and Egypt from human origins through the age of pyramids and ziggurats.
Au, Wi, Sp Qtrs. 2-2 hr cl, 1-1 hr cl.

452 Archaeology of the Pacific Islands UGRD 5
Introduces the prehistory of the Pacific Islands from an archaeological perspective. It emphasizes voyaging, colonization, and the emergence of cultural complexity.
Wi Qtr. 2-2 hr cl.

489 Internship in Anthropology UGRD 2-6
An opportunity for work experience and on-the-job learning in anthropology-related employment.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 2.5 CPRHR, anthrop major, and soph standing or above. Repeatable to a maximum of 12 cr hrs. Credit cannot be counted toward the anthrop major. This course is graded S/U.

500 Primate Sexuality UGRD 5
An evolutionary approach to the diversity of mating systems, morphologies, processes and behaviors among prosimians, monkeys, apes, and humans.
Sp Qtr. 2-2 hr cl. Prereq: 200.

525 History of Anthropological Theory UGRD 5
Major theoretical viewpoints in anthropology seen in their historical contest.
Au, Wi, Sp Qtrs. 5 cl. Prereq: 202 or permission of instructor.

553.01 New World Prehistory: Aztecs and their Predecessors UGRD 5
Detailed survey of native American prehistory: Examines the ancient civilizations of Mesoamerica, including the Olmecs, Zapotecs, Mixtecs, Aztecs, and Teotihuacan.
Au Qtr. 4 cl. Prereq: 201.

553.02 New World Prehistory: Prehistoric Indians of Eastern North America UGRD 5
Detailed survey of native American prehistory: Survey of the archaeology and cultural history of North America east of the Rocky Mountains.
Sp Qtr. 4 cl. Prereq: 201. Not open to students with credit for 550, 551, or 551.01.

553.04 New World Prehistory: Ancient Maya Civilization UGRD 5
Detailed survey of native American prehistory: recent archeological and epigraphic discoveries and examines the ancient Maya civilization of Mesoamerica.
Au Qtr. 2-2 hr cl. Prereq: 201.

570H Introduction to Quantitative Genetics in Anthropology UGRD 5
Introduction to the genetic basis and analysis of phenotypic variation and evolution with an emphasis on human populations and human characteristics.
Sp Qtr. 2-2 hr cl. Prereq: 200, Stat 529, Mol Gen 500, or permission of instructor. Open to jr or sr honors students.

597.01 Cultural Conflict in Developing Nations UGRD 5
Analysis of cultural conflict in developing nations resulting from rapid and extensive technological and social change.
Au, Sp Qtrs. 5 cl. Prereq: Jr or sr standing. Not open to students with credit for 450. GEC contemporary world courses.

597.02 Women, Culture, and Development UGRD 5
An analysis of the dramatic changes occurring in women's lives in response to development and modernization; developing and developed countries contrasted.
Au, Wi, Sp Qtrs. 5 cl. Prereq: Jr or sr standing. Not open to students with credit for 460. GEC contemporary world courses.

597.03H The Prehistory of Environment and Climate UGRD 5
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.
Wi Qtr. 2-2 hr cl.

597.04 The Molecular Revolution: Heredity, Genome Mapping, and Genomania UGRD 5
Interface of genetic technology, genome project, and health against background of societal tensions, genomania, and dilemmas of genetic testing, and repercussions of molecular revolution.
Su, Wi, Sp Qtrs. Prereq: Jr or sr standing. GEC contemporary world courses.

597.05H The Global Food Crisis UGRD 5
This multidisciplinary course explores the causes, consequences and potential solutions to the global food crisis.
Sp Qtr. Prereq: Honor status; Junior/Senior status. GEC contemp world course.

601.01 Medical Anthropology: Biosocial Aspects of Health UGRD 5
Biomedical and biosocial influences on problems of human health throughout the world, focusing upon the evolutionary implications of those problems.
Au, Wi, Sp Qtrs. 5 cl.

601.04 Medical Anthropology: Global Perspectives on Women's Health UGRD 5
A cross-cultural comparison of the political, economic, social, and biological issues surrounding women's health.
Wi Qtr. 2-2 hr cl. Prereq: 200 or permission of instructor.

602.01 Special Topics in Archaeology: Strategy of Archaeological Field Research UGRD 5
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.
Sp Qtr. 5 cl, 3 field trips arr. Prereq: 401. Not open to students with credit for 555, 556, or 556.02.

602.02 Special Topics in Archaeology: Archaeological Laboratory Methods UGRD 5
Practical experience in the laboratory analysis of archaeological materials with emphasis on stone, bone, and ceramic artifacts; preparation of reports on analytical procedures and results.
Wi Qtr. 5 cl, 6 lab hrs. Prereq: 401.

602.03 Special Topics in Archaeology: Environmental Archaeology UGRD 5
A survey of the principles, methods, and techniques of prehistoric environmental analysis; emphasis on understanding Pleistocene and Holocene environments as they relate to archaeology.
Au Qtr. 5 cl. Prereq: 401.

602.04 Special Topics in Archaeology: Who Owns the Past? UGRD 5
Examines key ethical and epistemological issues in archaeology, including changing cultural politics.
Sp Qtr. 2-2 hr cl. Prereq: 401. Prereq: 201.

603.01 Biological Anthropology of the Human Skeleton: Human Osteology UGRD 5
Study of human skeletal anatomy.
Au, Wi, Sp Qtrs. 5 cl. Prereq: 200 or permission of instructor. Not open to students with credit for 601.03.

603.02 Biological Anthropology of the Human Skeleton: Skeletal Biology UGRD 5
A survey of bone biology, including histogenesis, histomorphology, and physiology of bone; topics include bone structure, growth and development, physiology, and anthropological applications.
Au, Wi, Sp Qtrs. Prereq: 200, 603.01, or permission of instructor.

603.03 Biological Anthropology of the Human Skeleton: Dental Anthropology UGRD 5
Evolutionary anthropology of human and non-human primate teeth.
Au, Wi, Sp Qtrs. Prereq: 200 or equiv or permission of instructor. Not open to students with credit for 640.03.

603.04 Biological Anthropology of the Human Skeleton: Bioarchaeology UGRD 5
Study of human remains from archaeological settings, with emphasis on relationship between biology, culture, health, and behavior.
Au, Wi, Sp Qtrs. Prereq: 200 or permission of instructor.

610 Ethnobotany UGRD 5
Introduction to the anthropological study of human interactions with the plant world.
Sp Qtr. 2-2 hr cl. Prereq: One course in anthrop or plant bio at the 200 level or above, or permission of instructor.
611 Evolutionary Perspectives on Human Behavior
Advanced survey of contemporary evolutionary theories of human behavior and culture and their relevance to the broader discipline. 
Au, Wi, Sp Qtrs. 5 cr. Prereq: 200 and 202, plus 10 additional hours in anthropology, or by permission.

620.01 Special Topics in Cultural Anthropology: Hunters and Gatherers
Overview of anthropological studies of people who subsist primarily by hunting and gathering wild food. 
Sp Qtr. Prereq: 202 or equiv or permission of instructor.

620.02 Special Topics in Cultural Anthropology: The Anthropology of Women
Anthropology of women. 
Prereq: 202 or equiv or permission of instructor. Repeatable to a maximum of 16 cr hrs.

620.03 Special Topics in Cultural Anthropology: Peasant Society and Culture
Comparative study of the history, cultural practices, social organization and economic strategies of the rural proletariat throughout the world. 
Prereq: 202 or equiv or permission of instructor.

620.05 Special Topics in Cultural Anthropology: Cultural Ecology
Theory and ethnographic examples of human-environment interactions, focusing on the role of culture and behavior in environmental adaptation. 
Prereq: 202 or equiv or permission of instructor.

620.08 Special Topics in Cultural Anthropology: The Anthropology of Food: Culture, Society and Eating
Explores food traditions, global expansion of foods and the production/exchange of food in culture and society. 
Au Qtr. Prereq: 202 or equiv or permission of instructor. Prereq: 200, 201, 202 or permission of instructor.

620.11 Special Topics in Cultural Anthropology: Anthropology of Religion
World views of tribal and peasant cultures with an emphasis on religion; integration of religion with other aspects of culture. 
Prereq: 202 or equiv or permission of instructor. Repeatable to a maximum of 16 cr hrs. Not open to students with credit for 515.

620.15 Special Topics in Cultural Anthropology: Economic Anthropology
An analysis of economic rationality in non-market and market societies; resource allocation, work organization, product disposition, exchange, money, trade, and development. 
Wi, Sp Qtrs. Prereq: 202 or equiv or permission of instructor.

630 Language and Culture in Education
Examination of the problems of educating children of diverse cultural and linguistic backgrounds in the U.S. school system. 
Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 202 or equiv or grad standing.

640.01 Special Topics in Physical Anthropology: Primate Behavior
A broad survey of living primates, major taxonomic groups within the order, diet, group living, mating strategies, predation, intelligence. 
Prereq: 200 or equiv or permission of instructor.

640.02 Special Topics in Physical Anthropology: Growth and Development
Growth and development. 
Prereq: 200 or equiv or permission of instructor.

640.04 Special Topics in Physical Anthropology: Forensic Anthropology
Application of osteological and bioarchaeological methods in forensic science. 
Au Qtr. Prereq: 200 or equiv or permission of instructor. Prereq: 603.01 or equiv.

640.05 Special Topics in Physical Anthropology: Biology of Senescence
Biology of human senescence, aging, longevity, and chronic disease; evolutionary theories, mechanistic models, biocultural influences, cellular and physiological processes; biodemography, interventions, hormesis. 
Sp Qtr. 2-2 hr cl. Prereq: 200 or equiv or permission of instructor. Prereq: 200 or Biology 101 or Biology 113 or permission of instructor.

640.06 Special Topics in Physical Anthropology: Human Evolutionary Anatomy
An evolutionary approach to studying the human body through integrative anatomy, focusing on the functional anatomy of fossil and modern hominid skeletal evidence and primate comparative anatomy. 
Sp Qtr. Prereq: 200 or equiv or permission of instructor. Prereq: 300.

650 Research Design and Ethnographic Methods
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. 
Au Qtr. 2-2 cl hrs. Prereq: 202 or permission of instructor.

650H Research Design and Ethnographic Methods
Students learn to study anthropological problems through hands on experience with ethnographic methods, critical discussion of issues in ethnographic research and design an ethnographic study. 
Au Qtr.

651 Spatial Analysis for Anthropologists
Introduces the analysis of spatial data in anthropological research; data collection; analysis using GIS; theoretical and methodological issues pertaining to research design. 
Su Qtr. Prereq: Geography 607 (Undergraduates only) or permission of department.

685 Summer Field School in Archaeology
Practical experience in archaeological fieldwork including site survey, excavation, surveying and mapping, preservation, and other related methods and techniques of data recovery. 
Su Qtr. Full time in expedition camp. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs. Field school is conducted at a site within commuting distance of the Columbus campus.

686 Forensic Science, Forensic Anthropology and Forensic Archaeology Summer Field School
Intensive forensic science field course covering crime scene processing, evidence collection, and case development for testimony in court. 
Su Qtr 1. 15 days/8 hrs day.

693.01 Individual Studies: Theory
Prereq: Written permission of instructor. Repeatable. This course is graded S/U.

693.02 Individual Studies: History
Prereq: Written permission of instructor. Repeatable. This course is graded S/U.

693.03 Individual Studies: Anthropological Linguistics
Prereq: Written permission of instructor. Repeatable. This course is graded S/U.

693.04 Individual Studies: Research Methodology
Prereq: Written permission of instructor. Repeatable. This course is graded S/U.

693.05 Individual Studies: Prehistory
Prereq: Written permission of instructor. Repeatable. This course is graded S/U.

693.06 Individual Studies: Ethnography
Prereq: Written permission of instructor. Repeatable. This course is graded S/U.

693.07 Individual Studies: Physical Anthropology
Prereq: Written permission of instructor. Repeatable. This course is graded S/U.

694 Group Studies
Designed to give groups of students an opportunity to pursue special studies in topics not otherwise offered. 
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

697 Study at a Foreign Institution
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. 
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (‘P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

699 Undergraduate Research in Anthropology
Undergraduate research in variable topics. 
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
701.01 Advanced Topics in Physical Anthropology: UGRD 5
Modern Human Physical Variation
Discussion of advanced topics in human variation and hominin evolution; emphasis on critical analysis and evolution of theoretical topics in research design. Survey of modern human biological diversity; examination of the underlying evolution and adaptive mechanisms responsible; exploration of the interplay between biology and behavior in adaptation.
Not open to students with credit for 535 or 803.04.

701.02 Advanced Topics in Physical Anthropology: UGRD 5
Hominid Paleoanthropology
Discussion of advanced topics in human variation and hominin evolution; emphasis on critical analysis and evolution of theoretical topics in research design. A comprehensive study of the fossil hominids; fossils of "Homo Sapiens" and their relation to other fossil hominids.

702 Theories in Cultural Anthropology UGRD 5
Major theoretical orientations in cultural anthropology; the developmental histories of the major theoretical schools and examination of their respective philosophical foundations.
Au Qtr. 2 2-hr cl, arr. time.

703 Culture and Language UGRD 5
Development and range of anthropological concerns with language; emphasis on utility of linguistic approaches, methods, and theories to other subdisciplines of anthropology.
Au, Wi, Sp Qtrs. 2 2-hr cl.

750 Osteology and Odontology Laboratory UGRD 6
Advanced theoretical and practical study of an osteological or odontological problem from data collection through data analysis to the presentation of results. Wi, Sp Qtrs. 2 3-hr cl. Prereq: 603.01, 603.02, 603.03, and 603.04; or permission of instructor. Repeatable to a maximum of 18 cr hrs.

783H Honors Research UGRD 3-5
Honors Research.
Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing with a grade of A in at least half of the anthropology courses and an average of B in the remainder; permission of the instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee. At least 2 qtrs are required of candidates for the degree BA with distinction in anthropology. Failure to receive a mark of S in this course is a disqualification for special honors. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

801.01 Archaeology of Hunter-Gatherer Societies GRAD 5
Advanced study of hunter-gatherer band society from theoretical, ethnographic, and archaeological perspectives. Prereq: Admission to grad program.

801.02 Origins of Food Production GRAD 5
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 803.07.

801.03 The Archaeology of Complex Societies GRAD 5
Advanced theoretical and comparative study of the rise and fall of complex societies in antiquity in the Old and New Worlds. Wi Qtr. 1 3-hr cl. Prereq: Admission to grad program.

802 Issues in Archaeological Theory GRAD 5
Examination of the assumptions and concepts underlying analysis of archaeological data; methods of reconstructing cultural history, past lifeways, and explaining cultural change. Wi Qtr. 4 cl. Prereq: Admission to graduate program. Not open to students with credit for 656 or 556.01.

805.01 North America GRAD 3-5
North America.
Repeatable to a maximum of 10 cr hrs.

805.02 East Asia GRAD 3-5
East Asia.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 10 cr hrs.

810.01 Seminars in Cultural Anthropology: Nature of Culture GRAD 3-5
Nature of culture.
Repeatable to a maximum of 10 cr hrs.

810.05 Seminars in Cultural Anthropology: Acculturation, Change and Stability GRAD 3-5
Acculturation, change and stability.
Repeatable to a maximum of 10 cr hrs.

810.06 Seminars in Cultural Anthropology: Peasant Cultures GRAD 3-5
Peasant cultures.
Repeatable to a maximum of 10 cr hrs.

810.08 Seminars in Cultural Anthropology: Human Ecology GRAD 3-5
Human ecology.
Repeatable to a maximum of 10 cr hrs.

810.21 Seminars in Cultural Anthropology: Study Design and Data Analysis GRAD 3-5
Study design and data analysis.
Repeatable to a maximum of 10 cr hrs.

810.22 Seminars in Cultural Anthropology: Theory and Problems in Cultural Anthropology GRAD 3-5
Theory and problems in cultural anthropology.
Repeatable to a maximum of 10 cr hrs.

810.23 Seminars in Cultural Anthropology: Ethnographic Field Experience GRAD 3-5
Ethnographic field experience.
Repeatable to a maximum of 10 cr hrs.

820.01 Seminars in Physical Anthropology: Evolutionary Theory GRAD 3-5
Evolutionary theory.
Repeatable to a maximum of 10 cr hrs.

820.03 Seminars in Physical Anthropology: Non-human Primate Behavior GRAD 3-5
Non-human primate behavior.
Repeatable to a maximum of 10 cr hrs.

820.04 Seminars in Physical Anthropology: Human Growth and Development GRAD 3-5
Human growth and development.
Repeatable to a maximum of 10 cr hrs.

820.05 Seminars in Physical Anthropology: Population Genetics GRAD 3-5
Population genetics.
Repeatable to a maximum of 10 cr hrs.

820.06 Seminars in Physical Anthropology: Biological Distance GRAD 3-5
Biological distance.
Repeatable to a maximum of 10 cr hrs.

820.11 Seminars in Physical Anthropology: Biocultural Adaptations GRAD 3-5
Biocultural adaptations.
Repeatable to a maximum of 10 cr hrs.

820.12 Seminars in Physical Anthropology: Primate Anatomy GRAD 3-5
Primate anatomy.
Repeatable to a maximum of 10 cr hrs.

820.16 Seminars in Physical Anthropology: Biomedical Anthropology GRAD 3-5
Biomedical anthropology.
Repeatable to a maximum of 10 cr hrs.

820.17 Seminars in Physical Anthropology: Biocultural Medical Anthropology GRAD 5
Biocultural Medical Anthropology.
Explores human reproduction from a biocultural and ecological perspective.
Repeatable to a maximum of 45 cr hrs.

820.18 Seminars in Physical Anthropology: Research Issues in Gerontology GRAD 5
Research Issues in Gerontology.
Explores the interface between research and practice issues in gerontology and geriatrics. Sp Qtr. 1 3-hr cl. Prereq: Grad standing. One course in research design or statistics is recommended. Not open to students with credit for Soc Work 727. Repeatable to a maximum of 45 cr hrs. Cross-listed with Soc Work 727.

820.24 Seminars in Physical Anthropology: Quantitative Methods GRAD 3-5
Quantitative methods.
Repeatable to a maximum of 10 cr hrs.

820.25 Seminars in Physical Anthropology: Quantitative Methods II: Advanced GRAD 3-5
Quantitative Methods II: Advanced.
Repeatable to a maximum of 10 cr hrs.

28
820.30  Seminars in Physical Anthropology: Bioarchaeology  GRAD  5  
Seminar on the study of human remains from archaeological contexts; focus on health, 
disease, injury, biomechanics, diet, and population history. 1.3 hr cl. Repeatable to a maximum of 45 cr hrs.

827  Writing and Publishing in Anthropology  GRAD  5  
Advanced seminar in production and publication of professional literature in anthropology.
Au, Wi, Sp Qtr. 5 cl. Open only to students in anthrop grad program.

828  Writing Research Proposals in Anthropology  GRAD  5  
Advanced seminar in constructing and submitting proposals for funded research in anthropology.
Au, Wi, Sp Qtr. 5 cl. Open only to students in anthrop grad program.

830.01  Seminars in Prehistory: Archeology of High Civilization  GRAD  3-5  
Archeology of high civilizations.
Su, Au, Wi, Sp Qtr. Repeatable to a maximum of 10 cr hrs.

830.02  Seminars in Prehistory: Old World History  GRAD  3-5  
Old world history.
Repeatable to a maximum of 10 hours.

830.03  Seminars in Prehistory: North American Archaeology  GRAD  3-5  
North American archaeology.
Repeatable to a maximum of 10 hours.

830.04  Seminars in Prehistory: Seminar in the Archaeology of the Ancient Near East  GRAD  5  
Examines anthropological approaches to archaeological remains of 50,000 years of 
diverse cultures in the Near East from the first humans to the first empires.
Au Qtr. 2 1.5-hr lecture, 1.5-hr seminar. Repeatable to a maximum of 30 hours.

830.05  Seminars in Prehistory: Landscape in Anthropology  GRAD  3-5  
Landscape in anthropology.
Repeatable to a maximum of 30 hours.

830.06  Seminars in Prehistory: Paleodiet  GRAD  5  
Advanced survey of current archaeological research on past human diet, with 
emphasis on methods.
Wi Qtr. Provides graduate-level advanced study of human diet as revealed through the 
archeological record.

993.01  Individual Studies: Theory  GRAD  1-15  
Theory.
Permission of instructor. Repeatable. This course is graded S/U.

993.02  Individual Studies: History  GRAD  1-15  
History.
Permission of instructor. Repeatable. This course is graded S/U.

993.03  Individual Studies: Anthropological Linguistics  GRAD  1-15  
Anthropological Linguistics.
Permission of instructor. Repeatable. This course is graded S/U.

993.04  Individual Studies: Research Methods  GRAD  1-15  
Research Methods.
Permission of instructor. Repeatable. This course is graded S/U.

993.05  Individual Studies: Prehistory  GRAD  1-15  
Prehistory.
Permission of instructor. Repeatable. This course is graded S/U.

993.06  Individual Studies: Ethnology  GRAD  1-15  
Ethnology.
Permission of instructor. Repeatable. This course is graded S/U.

993.07  Individual Studies: Physical Anthropology  GRAD  1-15  
Physical anthropology.
Permission of instructor. Repeatable. This course is graded S/U.

993.08  Individual Studies: Unclassified  GRAD  1-15  
Unclassified.
Permission of instructor. Repeatable. This course is graded S/U.

993.09  Individual Studies: Cultural Anthropology  GRAD  1-15  
Cultural anthropology.
Permission of instructor. Repeatable. This course is graded S/U.

998  Research in Anthropology: Thesis  GRAD  1-18  
Research for thesis purposes only.
Su, Au, Wi, Sp Qtr. This course is graded S/U.

101.01  Elementary Modern Standard Arabic I  UGRD  5  
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.
5 cl. Not open 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. GEC for lang courses. FL Admis Cond courses. 
Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

101.51  Elementary Modern Standard Arabic I: Individualized Track  UGRD  1-5  
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.
Not open 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. GEC for lang courses. FL Admis Cond courses. 
Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 hrs before the end of the qtr may proceed to 102.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement.

102.01  Elementary Modern Standard Arabic II  UGRD  5  
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.
Au, Wi, Sp Qtr. Prereq: 101.01 or 5 cr hrs of 101.51. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

102.51  Elementary Modern Standard Arabic II: Individualized Track  UGRD  1-5  
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.
Su, Au, Wi, Sp Qtr. Prereq: Grade of B- or above in 101.01, or 5 cr hrs of 101.51, or permission of instructor. Repeatable to a maximum of 5 cr hrs. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. 
Students may register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 hrs before the end of the qtr may proceed to 103.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement.

103.01  Elementary Modern Standard Arabic III  UGRD  5  
Further language functions requiring the use of more complex structures; intensive on 
interaction with instructor and fellow students; reading practice in and out of class.
Au, Wi, Sp Qtr. 5 cl. Prereq: 102.01, or 5 cr hrs of 102.51, or 110. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. 
Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

103.51  Elementary Modern Standard Arabic III: Individualized Track  UGRD  1-5  
Further language functions requiring the use of more complex structures; intensive on 
interaction with instructor and fellow students; reading practice in and out of class.
Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

104.01  Intermediate Modern Standard Arabic I  UGRD  5  
Building on previously acquired functional abilities; using Arabic to express opinion 
and feelings; oral interaction in the classroom; reading authentic texts of various 
genres.
Su, Wi, Sp Qtr. 5 cl. Prereq: 103.01 or 5 cr hrs in 103.51. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. This course is available for EM credit.
104.51 Intermediate Modern Standard Arabic I: Individualized Track
Building on previously acquired functional abilities; using Arabic to express opinion and feelings; oral interaction in the classroom; reading authentic texts of various genres.
Su, Au, Wi, Sp Qtr. Prereq: Grade of B- or above in 103.01, or 5 cr hrs in 103.51, or permission of instructor. Repeatable to a maximum of 5 cr hrs. Not open to native speakers of this language through regular course enrollment or EN credit. GEC for language courses. Students complete from 1 to 5 cr hrs during the qtr. Progress sequential from one cr hr to the next, with 80% proficiency required for advancement.

151.51 Basic Colloquial Arabic: Individualized Track
Introduction to phonology and grammar of the spoken language of educated urbanites of the Eastern Arab world.
Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 5 cr hrs. Not open to students with credit for 106 or 151 or 201. Does not satisfy ASMC foreign language requirement.

200.01 Arabic Grammar I
Accelerated introduction to the structure of modern standard and classical Arabic: phonology, morphology, and syntax, with emphasis on development of reading comprehension skills.
Prereq: 104. Not open to students with credit for 402 or 400.01.

200.02 Arabic Grammar II
Continuation of 200.01 with emphasis on the grammatical analysis and comprehension of authentic texts selected from different periods and genres.
Prereq: 200.01 or permission of instructor. Not open to students with credit for 402.02.

205.01 Intermediate Modern Standard Arabic II
Initiating and sustaining communication; reading and understanding short authentic passages, and writing to express many language functions.
Prereq: 104.01 or 5 cr hrs of 104.51. Students must register for and complete 5 cr hrs during the qtr.

205.51 Intermediate Modern Standard Arabic II: Individualized Track
Initiating and sustaining communication; reading and understanding short authentic passages, and writing to express many language functions.
Su, Au, Wi, Sp Qtr. Prereq: Grade of B- or above in 104.01, or 5 cr hrs of 104.51, or permission of instructor. Repeatable to a maximum of 5 cr hrs. Students register for and complete 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement.

241 Culture of the Contemporary Arab World
A general survey and examination of the socio-cultural structure of the modern Arab world.
Taught in English. GEC arts and hums cultures and ideas and international issues global/non-western course.

241H Culture of the Contemporary Arab World
A general survey and examination of the socio-cultural structure of the modern Arab world.
Prereq: Honors program or permission of department or instructor. Taught in English. GEC arts and hums cultures and ideas and international issues global/non-western course.

293 Individual Studies
Individual Studies.
Su, Au, Wi, Sp Qtr. Prereq: Written permission of dept. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

294 Group Studies
Group Studies.
Su, Au, Wi, Sp Qtr. Prereq: Written permission of dept. Repeatable to a maximum of 30 cr hrs.

367 Issues in Arab-American Society, Culture, and Literature
Discussion, analysis, and writing about issues relating to Arab-American culture, society, and literature within the context of social diversity in the United States.
Prereq: English 110 or 111 or equiv, and soft, and languages or above. GEC second writing and social diversity course.

371 Classical and Medieval Arabic Literature in Translation
Reading and analysis of major works of Arabic literature from the 5th to the 17th centuries including classical poetry, the Qur'an, and the Arabian Nights. Not open to students with credit for 271 and 272. GEC arts and hums lit course.

372 Modern Arabic Literature in Translation
Reading and analysis of representative works of the 19th and 20th centuries; by contemporary women authors.
Prereq: English 110 or 111 or equiv. Not open to students with credit for 273 or Wom Stds 372. Cross-listed in Women's Studies. GEC arts and hums lit and international issues global/non-western course.

372H Modern Arabic Literature in Translation
Reading and analysis of representative works of the 19th and 20th centuries; by contemporary women authors.
Prereq: Honors program or permission of department or instructor; English 110 or 111 or equiv. Not open to students with credit for 273 or Wom Stds 372. Cross-listed in Women's Studies. GEC arts and hums lit and international issues global/non-western course.

375 The Arabian Nights
Readings from The Arabian Nights; the history of the text, translations and literary and cinematic adaptations.
Wi Qtr. Prereq: English 110. GEC arts and humanities literature course.

377 Contemporary Folklore in the Arab World
Study of contemporary folklore of the Arab world, including verbal art, material culture, visual self-presentation, and performance.
Prereq: English 110. Not open to students with credit for Comp Std 377. Cross-listed in Comparative Studies. GEC arts and hums cultures and ideas course.

401 Intermediate Literary Arabic Reading
Developing reading skills through reading adapted and authentic Arabic texts; selections reflect cultural and literary aspects of Arab-Islamic civilization.
Prereq: 205 or permission of instructor.

403 Intermediate Arabic Conversation and Composition
Practice in aural comprehension, conversation, and controlled compositions on various aspects of Arabic culture.
Prereq: 205. Not open to students with credit for 604.

411 Colloquial Arabic 1
Introduction to the phonology and grammar of the everyday spoken language used in the Eastern Arab world.
Wi Qtr. Prereq: 104.

412 Colloquial Arabic 2
Continued study of the phonology and grammar of the everyday spoken language use in the Eastern Arab world.
Sp Qtr. Prereq: 411.

501 Intermediate Literary Arabic 3
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.
Wi Qtr. Prereq: 401 or permission of instructor.

603 Advanced Arabic Conversation and Composition
Intensive practice in speaking and writing Arabic at an advanced level based on contemporary literary usage; conducted entirely in Arabic.
Prereq: 403 or permission of instructor. Not open to students with credit for 601.

608 Advanced Arabic Grammar and Stylistics
Advanced discussion of Arabic morphology and syntax, with readings from both modern and classical texts from various genres.
Wi Qtr. Prereq: 603 or permission of instructor.

610 Introduction to Arabic Linguistics
An introduction to the structure of the Arabic language, both spoken and written.
Prereq: 103 or 152, and Linguist 601, or permission of instructor.

611 History of the Arabic Language
Survey of the evolution of the Arabic language in its cultural and historical setting.
Prereq: Permission of instructor. GEC third writing course.

615 Translation: Theory and Practice
Examination of some general guidelines for translating from Arabic to English or from English to Arabic, depending on the first language of the student.
Prereq: Permission of instructor. Advanced reading proficiency in second language.

621 Origin and Development of Arabic-Islamic Concepts
An examination of Arabic-Islamic terminology.
Au, Wi, Sp Qtr. Prereq: 401 or permission of instructor.

626 Introduction to the Arabic Qur'an
A linguistic, literary, and cultural analysis of selected chapters from the Qur'an.
Prereq: 403.

627 Classical Arabic Poetry
Selected readings from classical and medieval Arabic poetry; Arabic metrics and literary theory.
Prereq: 403.

628 Classical Arabic Prose
Selected readings reflecting the evolution of Arabic prose literature from its origins to the late Abbasid period.
Prereq: 403.
651 Contemporary Arabic Prose Fiction UGRD 5
Reading and analysis of short stories and novels representative of major developments and trends of the 20th century.
Prereq: 403. Not open to students with credit for 622 or 625.

652 Contemporary Arabic Poetry and Drama UGRD 5
Reading and analysis of plays and poems representative of major developments and trends of the 20th century.
Prereq: 403. Not open to students with credit for 623 or 624.

671 The Qur’an in Translation UGRD 5
An introduction, in English, to the literary, religious, and cultural implications of the fundamental Book of Arabic literature and of Islamic civilization.

672 Arabic Folk Narrative in Translation UGRD 5
Literary and cultural aspects of 1001 Nights and other popular narratives (epics, legends, folktales) in the Arab world.

692 Workshop UGRD 1-9
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Su Qtr. Arr. Prereq: Teaching experience and written permission of workshop director. Repeatable to a maximum of 27 cr hrs. This course is graded S/U.

693 Individual Studies UGRD 1-5
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-15
Group Studies.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

710 Studies in Arabic Linguistics UGRD 5
Advanced analytical study of synchronic, diachronic, sociolinguistic, and dialectal topics and problems.
Prereq: 610 or 611 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

721 Studies in Arabic Poetry UGRD 5
Advanced study of specific poetic periods, figures, and/or topics involving extensive reading and discussion of appropriate primary and secondary source materials.
Prereq: 10 cr hrs of Arabic literature at the 600 level or equiv. Repeatable to a maximum of 15 cr hrs.

722 Studies in Arabic Prose UGRD 5
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: 10 cr hrs of Arabic literature at the 600 level or equiv. Repeatable to a maximum of 20 cr hrs.

783H Honors Research UGRD 3-5
Offers undergraduates with special aptitudes a greater opportunity to do independent study and research than is possible in normal course work.
Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing with a grade of A in at least half of the Arabic courses and an average of B in the remainder; permission of the instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee. Repeatable to a maximum of 15 cr hrs. At least 2 quarters are required of candidates for the degree BA with distinction in Arabic. Failure to receive a mark of S in this course is a disqualification for special honors. This course is graded S/U.

801 Teaching Arabic at the College Level GRAD 5
Methods and techniques for the teaching of Arabic at the college level.
Au Qtr. 2-wk intensive workshop followed by 1-2 hr cl weekly. Prereq: TA in NELC or permission of instructor. For students enrolled in this course, the minimum number of hrs required for graduation is increased by 5 cr hrs.

811 Seminar in Arabic Studies GRAD 5
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 20 cr hrs. Preparation of a major research paper is required.

998 Research in Arabic GRAD 1-25
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Architecture

100 Architecture Survey UGRD 1
Introduction to the University, the Knowlton School of Architecture and the professions of architecture, city and regional planning and landscape architecture. Au, Wi, Sp Qtrs. 2 cl. Cross-listed in Landscape Architecture.

100H Honors Architecture Survey UGRD 1
Honors introduction to the University, the Knowlton School of Architecture and the professions of architecture, city and regional planning and landscape architecture. Au, Wi, Sp Qtrs. 2 cl. Prereq: Honors program or permission of department or instructor.

200 Outlines of Architecture and Landscape Architecture UGRD 3
Introduction to the disciplines of architecture and landscape architecture with an emphasis upon the physical artifact and its formal and cultural context.
Su, Au, Wi, Sp Qtrs. 3 cl. Not open to students with credit for Larch 200. Cross-listed in Landscape Architecture. Required for students intending to major in arch. VPA Admis Cond course.

200H Honors Outlines of Architecture and Landscape Architecture UGRD 3
Honors introduction to the disciplines of architecture and landscape architecture with an emphasis upon the physical artifact and its formal and cultural context. Au, Wi, Sp Qtrs. 3 cl. Prereq: Honors program or permission of department or instructor. Not open to students with credit for Larch 200. Required for students intending to major in arch. VPA Admis Cond course.

201 Introduction to Architectural History UGRD 3
Introduction to architectural history, emphasis on three-dimensional qualities of complex architectural form and space as determined by cultural history.
Su, Wi, Sp Qtrs. 1 cl. Not open to 3rd and 4th year arch students. VPA Admis Cond course.

202 Introduction to Basic Design in Architecture and Landscape Architecture UGRD 5
Introduction to basic design: problem solving techniques; language of design; exploration of space and object through graphic exercises, drawings and models.
8 lab hrs. Not open to students with credit for Larch 151. Cross-listed in Landscape Architecture as 151. VPA Admis Cond course.

241 Architectural Design I UGRD 6
Introduction to architectural design including issues of human occupation and movement, space, structure, material and site, with an emphasis on developing representational and conceptual skills.
Su, Qtr, 2 cl, 10 lab hrs. Prereq: 200 and 202; concur 271; Math 150 and 117 or equiv; Physics 111 or equiv; Physics 112 recommended and submission of portfolio based or 202. Admission to AHR, who have completed 200, 202 with a 2.75 GPA and have earned a 2.75 GPA with at least 45 earned hrs; Admission is competitive.

242 Architectural Design II UGRD 6
Continuation of 241.
Wi Qtr. 2 cl, 10 lab hrs. Prereq: 241, 271; concur 272. Open only to students enrolled in arch.

243 Architectural Design III UGRD 6
Continuation of 242.
Sp Qtr. 2 cl, 10 lab hrs. Prereq: 242, 272; concur 273. Open only to students enrolled in arch.

271 Architectural Graphics I UGRD 3
Course sequence introducing techniques of representation, including freehand and constructed 3-D drawing, computer modeling and graphics for design.
Au Qtr. 2 cl, 6 lab hrs. Concur: 241. Open only to students enrolled in arch. GEC arts and hums VPA course.

272 Architectural Graphics II UGRD 3
Continuation of 271.
Wi Qtr. 2 cl, 6 lab hrs. Prereq: 271; concur 242. Open only to students enrolled in arch.

273 Architectural Graphics III UGRD 3
Continuation of 272.
Sp Qtr. 2 cl, 6 lab hrs. Prereq: 272; concur 243. Open only to students enrolled in arch.

293 Individual Studies in Architecture UGRD 1-5
Designed for students who desire to pursue, individually, special studies in the discipline.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

294 Group Studies in Architecture UGRD 1-5
Designed for students who desire to pursue, in a group, special studies in the discipline.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 15 cr hrs.
294H Group Studies UGRD 1-5
Designed for students who desire to pursue, in a group, special studies in the discipline.
Au, Su, Au, Wi, Sp Qtr. Prereq: Honors program and permission of dept. Repeatable to a maximum of 15 cr hrs.

341 Architectural Design IV UGRD 6
Continued development of architectural design skills through exploration and integration of site, program and construction in a series of design problems.
Au Qtr. 2 cl, 10 lab hrs. Prereq: 243; concur 626. Open only to students enrolled in arch.

342 Architectural Design V UGRD 6
Continuation of 341.
Wi Qtr. 2 cl, 10 lab hrs. Prereq: 341; concur 627. Open only to students enrolled in arch.

343 Architectural Design Options Studio UGRD 6
Studio explorations of architectural design and research. Topics vary.
Sp Qtr. 1 cl, 10 lab hrs. Prereq: 342 or permission of instructor. Open only to students enrolled in arch. Cross-listed with 443.

426 Introduction to Architectural Structures UGRD 4
Survey of statics and materials of structures; survey of structural systems with emphasis on integrated structural behavior and selection of the best structural system.

441 Architectural Design VI UGRD 6
Capstone studio: design of a complex building on an urban site; emphasis on historical, cultural, and social implications of architecture in addition to site, program, and building technology.
Au Qtr. 2 cl, 10 lab hrs. Prereq: 342. Open only to students enrolled in arch. 441 and 442 must be taken in sequence in the same year.

442 Architectural Design VII UGRD 6
Continuation of 441.
Wi Qtr. 1 cl, 10 lab hrs. Prereq: 441 or permission of UnderGrad Committee. Open only to students enrolled in arch. Arch 441 and 442 must be taken in sequence in the same year. Meets Capstone requirement with 441.

443 Architectural Design Options Studio UGRD 6
Studio explorations of architectural design and research. Topics vary.
Sp Qtr. 1 cl, 10 lab hrs. Prereq: 342 or 442 or permission instructor. Open only to students enrolled in arch. Cross-listed with Arch 343.

444H Special Honors Design Studies UGRD 6
Studio for group and/or individual design studies.
Au, Wi, Sp Qtrs. Arr. Prereq: 4th yr standing in arch with a minimum cumulative pt-lu ratio of 3.20, permission of instructor and Dept Honors Committee. Accepted students may substitute this course for 441, 442, or 443.

603 Topics in Architectural History and Theory UGRD 3
Investigation of topics in architectural history and theory.
3 cl. Prereq: Permission of instructor required. Repeatable to a maximum of 9 cr hrs. Open to majors and non-majors.

603H Honors Topics in Architectural History and Theory UGRD 3
Honors investigation of topics in architectural history and theory.
3 cl. Prereq: Honors program and permission of instructor. Repeatable to a maximum of 9 cr hrs. Open to majors and non-majors.

604 History and Preservation of 19th- and 20th-Century American Architecture UGRD 3
Investigation of 19th- and 20th-century American architecture with emphasis upon issues of preservation and conservation.
3 cl. Prereq: Grad standing or 4th yr standing in arch or permission of instructor.

605 Research Methods in Architectural History and Preservation UGRD 3
A survey of literary and physical research techniques in architectural history and preservation; identification and recording of historic buildings; field work in inventor techniques.
3 cl. Prereq: Grad standing or 4th yr standing in arch or permission of instructor.

606 Architectural Preservation: Administration and Practice UGRD 3
An outline of regulations, laws, economic incentives, funding sources, and technical/design guidelines as they affect architectural preservation.
3 cl. Prereq: 4th yr standing or grad standing in arch or permission of instructor.

609 Evolution of the English Architectural Environment UGRD 3
Survey of the development of the English architecture in response to the physical characteristics of the island and the changing social, political, and economic context.
3 cl. Not open to students with credit for 309. Open to majors and non-majors.

610 Introduction to Architectural Structures GRAD 3
Survey of statics and strength of materials; survey of structural systems with emphasis on integrated structural behavior and selection of best structural systems.

617 Wood and Steel Structure UGRD 3
Principles, elements, computations, detailing, and connections for structural wood and steel.
Wi Qtr. 3 cl. Prereq: 426 or 616. Not open to students with credit for 427.

618 Masonry and Concrete Structure UGRD 3
Principles, elements, computations, detailing, and connections for structural masonry and concrete.
Sp Qtr. 3 cl. Prereq: 427 or 618. Not open to students with credit for 428.

626 Introduction to Building Construction UGRD 3
Introduction to construction materials and method with an emphasis on wood light frame and timber construction.
Au Qtr. 3 cl, 2 hrs lab. Prereq: Arch 3rd yr or permission of instructor. Concur 341 (U only).

627 Building Construction I UGRD 3
Introduction to construction materials and method with an emphasis on masonry and concrete construction.
Wi Qtr. 3 cl, 2 hrs lab. Prereq: 626. Concur 342 (U only).

628 Building Construction II UGRD 3
Introduction to construction materials and method with an emphasis on glass, steel, and curtain wall construction.
Sp Qtr. 3 cl, 2 hrs lab. Prereq: 627.

630 Computer Graphics for Architectural Design UGRD 3
Introduction to computer-aided architectural design for studio uses; theory of architectural modeling and design applications using commercially available software.
3 cl. 1 2-hr cl, 1 2-hr lab. Prereq: Admission to School of Architecture Graduate Program or permission of instructor.

641 Accelerated Architectural Design I UGRD 6
Architectural analysis and problem solving for students in the 3+ Master of Architecture Program.
Au Qtr. Prereq: Admission to the 3+ Master of Architecture Program.
642 Accelerated Architectural Design II UGRD 6
Continuation of 641. Wi Qtr. Prereq: 641. Open only to students in the 3+ Master of Architecture Graduate Program.

643 Accelerated Architectural Design III UGRD 6
Continuation of 642. Sp Qtr. Prereq: 642. Open only to students in the 3+ Master of Architecture Graduate Program.

660 Topics in Computing for Architectural Design UGRD 4
Investigation of computer techniques and usage as they relate to architecture. Topics vary. Prereq: Arch 3rd yr and 273 or 630, and permission of instructor. Repeatable to a maximum of 12 cr hrs.

661 Environmental, Mechanical and Electrical Systems in Architecture I UGRD 3
Environmental, mechanical, electrical, lighting systems for architecture. Includes: heat loss/gain, heating/cooling, energy usage; acoustics/noise control, water, sanitary, storm water systems, fire protection; daylighting. Au Qtr. 3 cl. Prereq: Physics 112, enrollment in Graduate School, or permission of instructor. One of 3 courses sequenced with 662, 663.

662 Environmental, Mechanical and Electrical Systems in Architecture II UGRD 3
Environmental, mechanical, electrical, lighting systems for architecture. Includes: heat loss/gain, heating/cooling, energy usage; acoustics/noise control, water, sanitary, storm water systems, fire protection; daylighting. Wi Qtr. 3 cl. Prereq: Physics 112, enrollment in Architecture, or permission of instructor. One of 3 courses sequenced with 661, 663.

663 Environmental, Mechanical and Electrical Systems in Architecture III UGRD 3
Environmental, mechanical, electrical, lighting systems for architecture. Includes: heat loss/gain, heating/cooling, energy usage; acoustics/noise control, water, sanitary, storm water systems, fire protection; daylighting. Sp Qtr. 3 cl. Prereq: Physics 112, enrollment in Architecture, or permission of instructor. One of 3 courses sequenced with 661, 662.

671 Social and Psychological Influences on Architecture UGRD 3
Survey of the relationships between human-made surroundings and selected social/psychological processes basic to human functions; the application of this material to programming, design, and evaluations of settings for human use. 3 cl. Prereq: Arch 3rd yr standing or above.

672 Economic Influences on Architecture UGRD 3
Survey of economic issues and methods relevant to practice of architecture including the building delivery systems, market analysis, computation of present, future and annual worth; life cycle costing, depreciation, and tax implications. 3 cl. Prereq: Arch 3rd yr standing or above.

693 Individual Studies in Architecture UGRD 1-5
For students majoring in arch desiring to pursue special studies not offered in the fixed curriculum. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor and completion of dept independent study form. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies in Architecture UGRD 1-5
For students majoring in arch desiring to pursue special studies not offered in the fixed curriculum. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor andcompletion of dept independent study form. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only. Repeatable.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only. Repeatable.

698.03H Study Tour: Honors UGRD 1-15
Honors. Repeatable.

698.04 Study Abroad Preparatory Course UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.04H Study Abroad Preparatory Course, Honors UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Honors program and permission of instructor. Repeatable for different titled study tours only.

700 Allied Arts and Issues UGRD 3
Analysis of arts and issues related to architecture. Topics vary. 3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.

701 History of Architectural Theory UGRD 3
Survey of architectural theories as stated by architects, historians, and architectural critics. 3 cl. Prereq: Arch 4th yr standing or permission of instructor.

724 Structural Design in Architecture UGRD 3
Analysis and design of structural elements and systems; emphasis on integration of structures and building design. 3 cl. Prereq: 428 or 618 or permission of instructor.

751 Practice of the Design Professions I UGRD 3
History of professions and their clients; the professional's interaction with society and government substantive aspects of practice, including organization and communication; legal aspects of construction. Au Qtr. 3 cl. Prereq: Grad standing in arch or permission of instructor.

752 Practice of the Design Professions II UGRD 3
Management of construction contracts; bonds and insurance operational procedures during negotiation and construction phases; arbitration; office and project case studies. Sp Qtr. 3 cl. Prereq: Grad standing in arch or permission of instructor.

783H Honors Research UGRD 3
Research and investigation for each student with individual conferences resulting in a proposal, objectives, bibliography, and other research. Arr. Prereq: 4th yr standing in arch with a minimum cumulative pt-hr ratio of 3.20, permission of instructor and Dept Honors Committee. This course is graded S/U.

784H Honors Project UGRD 6
Development and promulgation of an honors project as proposed in H783. Arr. Prereq: H783, 4th yr standing in arch with a minimum cumulative pt-hr ratio of 3.20, permission of instructor and Dept Honors Committee. Accepted students may substitute this course for 443. Completion and acceptance of the project is required for graduation with distinction in BS Arch.

801 Architectural Theory: Criticism GRAD 3
Fundamentals of the formal analysis of persistent architectural typologies. Au Qtr. 3 cl. Prereq: Grad standing in arch; concur: 841.

802 Architectural Theory: Tectonics GRAD 3
Investigations into the tectonic strategies of 20th century architecture. Wi Qtr. 3 cl. Prereq: Grad standing in arch; concur: 842.

803.01 Seminar: Architectural Issues I GRAD 3

803.02 Seminar: Architectural Issues II GRAD 3

803.03 Seminar: Architectural Issues III GRAD 3

803.04 Seminar: Architectural Issues IV GRAD 3

810 Baumer Seminar GRAD 3
Contemporary strategies in architectural practice and criticism as elaborated upon by significant architects, designers, theoreticians and historians. Taught by Baumer Distinguished Visiting Professor. Sp Qtr. Prereq: Permission of Graduate Studies Committee and 6th yr grad standing. Repeatable to a maximum of 9 cr hrs.

841 Advanced Architectural Design I GRAD 6
Development of small-scale residential and institutional projects with an emphasis on historical precedent. Au Qtr. 8 lab hrs. Concur: 801.

842 Advanced Architectural Design II GRAD 6
Continuation of 841. Programs and sites of increasing complexity with additional emphasis on tectonic strategies. Wi Qtr. 8 lab hrs. Concur: 802.
### Art

#### 200 Concepts and Issues in Art UGRD 2
An orientation for new art students and a survey of art making with an emphasis on contemporary works.
Su, Au, Wi, Sp Qtrs. 2 cl. Not open to students with credit for 162.

#### 205 Beginning Drawing UGRD 5
An introduction to basic freehand drawing, exploration of a range of drawing methods and media, concepts; emphasis on drawing from observation.
Su, Au, Wi, Sp Qtrs. 1 cl, 3 hr-labs. Not open to students with credit for 170. GEC arts and hums VPA course. VPA Admis Cond course.

#### 205H Beginning Drawing UGRD 5
An introduction to basic freehand drawing, exploration of a range of drawing methods and media, concepts; emphasis on drawing from observation.
^ Su, Au, Wi, Sp Qtrs. 1 cl, 3-3 hr labs. Prereq: Honors program or permission of department or instructor. Not open to students with credit for 170. GEC arts and hums VPA course. VPA Admis Cond course.

#### 206 Visual Studies: Two Dimensional Art UGRD 5
Basic concepts of two-dimensional art dealing with visual structure, process, content, and invention.
Su, Au, Wi, Sp Qtrs. 3-3 hr labs. Not open to students with credit for 172. GEC arts and hums VPA course. VPA Admis Cond course.

#### 206H Visual Studies: Two Dimensional Art UGRD 5
Basic concepts of two-dimensional art dealing with visual structure, process, content, and invention.
^ Su, Au, Wi, Sp Qtrs. 3-3 hr labs. Prereq: Honors program or permission of department or instructor. Not open to students with credit for 172. GEC arts and hums VPA course. VPA Admis Cond course.

#### 207 Visual Studies: Three-Dimensional Art UGRD 5
Basic concepts of three-dimensional art dealing with the organization of space and form, using a variety of materials, processes, tools.
Su, Au, Wi, Sp Qtrs. 3-3 hr labs. Prereq or concur: 205. Not open to students with credit for 182.

#### 208 Visual Studies: Four Dimensional Art and Recorded Time UGRD 3
Introduction to basic concepts of real time and recorded time-based artworks using a variety of processes and media.
Au, Wi, Sp Qtrs. 2-3 hr cl. Prereq: 200. Not open to students with credit for 260.

#### 299 BA Portfolio Review UGRD 0
Successful BA portfolio review.
Prereq: 200, 205, 206, 207, 208. This course is graded S/U.

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#### 300.01 Introduction to Photography: Film Camera UGRD 5
Introduction to photographic theory, practice, and aesthetics with image production and critique.
Not open to students with credit for 201 or 300 or 300.02. GEC arts and hums VPA course. VPA Admis Cond course. Students must supply 35mm adjustable camera, color film and processing of prints.

#### 300.02 Introduction to Photography: Digital Camera UGRD 5
Introduction to photographic theory, practice, and aesthetics with image production and critique.
Not open to students with credit for 201 or 300 or 300.01. GEC arts and hums VPA course. VPA Admis Cond course. Students must supply adjustable digital camera (4 mp or greater), and processing of prints.

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#### 330 Introduction to Glassblowing UGRD 5
Introduction to glass as a fluid material for artistic expression; emphasis on the development of original imagery made from molten glass.
Au, Wi, Sp Qtrs. 2-3 hr cl. Prereq: 200; 205 or 206. Not open to rank 4 except by permission. Credit counts towards Art BA and BFA (in 3D Core).

#### 331 Introduction to Glass Construction UGRD 5
Exploration of contemporary possibilities for the visual imagery of preformed glass using traditional techniques as a departure point; emphasis on innovational approaches 2-3 hr cl. Prereq: 200; 205 or 206. Not open to Rank 4 except by permission, not open to students with credit for 231.

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#### 350 Digital Image Manipulation I UGRD 5
Introduction to the concepts and techniques of producing, editing, publishing and critiquing personal and artistic video/audio content as related to the medium of podcasting.
Au, Wi, Sp Qtrs. 1-4 hr cl/lab (2 hrs arranged).

#### 370 Beginning Life Drawing UGRD 5
Drawing from the human figure; discussion of drawing as related to significant traditions; lectures and demonstrations.
Su, Au, Wi, Sp Qtrs. 2-3 hr labs, 9 hrs arr. Prereq: 170 or 205, and 172 or 207. Not open to students with credit for 270.

#### 372 Visual Studies: Color UGRD 5
An introduction to seeing and using color for all disciplines; projects deal with color organization, phenomena, and interaction.
Au, Wi, Sp Qtrs. 2-3 hr cl. Prereq: 200 and History of Art 201 or 202
373 Painting I UGRD 5
Introduction to the practice and examination of several modes of artistic expression in the relief processes of printmaking. Au, Wi, Sp Qtrs. 2 3-hr cls. Prereq: 208, 370 and 375, and History of Art 201 or 202. Not open to students with credit for 376.

478 Beginning Intaglio Printmaking UGRD 5
Introduction to the practice and examination of several modes of artistic expression in the intaglio processes of printmaking. Au, Wi, Sp Qtrs. 2 3-hr cls. Prereq: 208, 370 and 375, and History of Art 201 or 202. Not open to students with credit for 377.

479 Beginning Lithography UGRD 5
Introduction to the practice and examination of several modes of artistic expression in the lithographic processes of printmaking. Au, Wi, Sp Qtrs. 2 3-hr cls. Prereq: 208, 370, and 375, and History of Art 201 or 202. Not open to students with credit for 379.

480 Construction Sculpture UGRD 5
Exploration of a range of technical and conceptual concerns of sculpture, using wood as a primary material. Sp Qtr. 2 3-hr cls. Prereq: 208 and 207, and History of Art 201 or 202. Not open to students with credit for 380.

481 Metal Fabrication UGRD 5
Introduction to metal fabrication, including casting, forging, and other processes. Au, Wi, Sp Qtrs. 2 3-hr cls. Prereq: 307 and History of Art 201 or 202. Not open to students with credit for 381.

493 Individual Studies: Drawing UGRD 2-5
Preliminary studies for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. Including cr hrs earned in 293.09, or 293.10. This course is graded S/U.

493.09 Individual Studies: Drawing UGRD 2-5
Preliminary studies for students in specialized programs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. Including cr hrs earned in 293.09 and 293.10. This course is graded S/U.

524 Large Format Photography UGRD 5
Advanced still photography course dealing with the mechanics, aesthetics, and psychology of large format photography. Sp Qtr. 2 3-hr cl. Prereq: 401 and written permission of instructor. Student must supply 4 x 5 format film.

531 Color Printing UGRD 5
Introduction to color negative printing, its history, and current aesthetic issues surrounding work in color photography. Au Qtr. 2 3-hr cl. Prereq: 401 and written permission of instructor. Film processing supplied by student.

550 Digital Image Manipulation II UGRD 5
Creation, manipulation and animation of digital imagery including the integration of multiple elements, such as video and audio, into artistic projects. Au, Wi, Sp Qtrs. 2 3-hr cl/labs. Prereq: 452; 350 or 450; and permission of instructor. Repeatable to a maximum of 15 cr hrs.

551 New Media UGRD 5
Approaches to new media; electronic and digital control of objects, projections and sound in interactive installations, performances and exhibitions. Au, Wi, Sp Qtrs. 2 3-hr cls, 1 lab. Repeatable to a maximum of 15 cr hrs.

552 Computer Animation I UGRD 5
Introduction to theory and practice of 3D modeling, animation, cinematography and audio as it relates to experimental digital storytelling. Au, Wi, Sp Qtrs. 2 3-hr cls, 1 lab. Prereq: 452 and permission of instructor. Repeatable to a maximum of 15 cr hrs.

553 Video Art I UGRD 5
Introduction to the creation and analysis of video artwork; including techniques of video capture, post production, manipulation and critique within the context of art. Au, Wi, Sp Qtrs. 1 4-hr cl/lab (2 hrs arranged). Prereq: 200 or 208 or 300.02 or 350 or Hist Art 260 or Dance 357 or Theatre 100 or permission of instructor. Repeatable to a maximum of 10 cr hrs.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Level</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>554 Video Art II</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>555 Holography II</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>570.01 Special Topics</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>570.02 Life Drawing Studio</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>573 Multi-Level Painting</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>587.01 Third Year Sculpture Class: Part 1</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>587.02 Third Year Sculpture Class: Part 2</td>
<td>UGRD</td>
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<tr>
<td>587.03 Third Year Sculpture Class: Part 3</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>589 Undergraduate Internship</td>
<td>UGRD</td>
<td>3-5</td>
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<tr>
<td>591.03 Studio Practice I: Ceramics</td>
<td>UGRD</td>
<td>2-5</td>
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<td>591.04 Studio Practice I: Glass</td>
<td>UGRD</td>
<td>2-5</td>
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<tr>
<td>591.06 Studio Practice I: Printmaking</td>
<td>UGRD</td>
<td>2-5</td>
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<td>591.11 Studio Practice I: Sculpture</td>
<td>UGRD</td>
<td>2-5</td>
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<tr>
<td>591.12 Studio Practice I: Art and Technology</td>
<td>UGRD</td>
<td>2-5</td>
</tr>
<tr>
<td>595 Senior Seminar in Studio Art</td>
<td>UGRD</td>
<td>3</td>
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<td>630 Intermediate Molten Glassmaking</td>
<td>UGRD</td>
<td>5</td>
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<td>631 Intermediate Cold Glassworking</td>
<td>UGRD</td>
<td>5</td>
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<td>635 Photography Criticism</td>
<td>UGRD</td>
<td>5</td>
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<td>640 Kiln Building</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>641 Mold Making</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>642 Monumental Building Techniques</td>
<td>UGRD</td>
<td>5</td>
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<td>644 Ceramic Glaze and Technology</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>645 Advanced Special Projects</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>651 Photography Criticism</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>661.01 Aspects of Art and Technology I</td>
<td>UGRD</td>
<td>5</td>
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<td>661.02 Aspects of Art and Technology II</td>
<td>UGRD</td>
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<tr>
<td>661.03 Aspects of Art and Technology III</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>670 Advanced Drawing I</td>
<td>UGRD</td>
<td>5</td>
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<tr>
<td>673.01 Advanced Painting: Special Topics</td>
<td>UGRD</td>
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Description:
- **555 Holography II**: Expanding the students' knowledge of holographic techniques, including computer generated holography in traditional and experimental artworks.
- **570.01 Special Topics**: Special topics in intermediate to advanced drawing materials and processes for personal expression with emphasis on development of analytical and critical skills.
- **570.02 Life Drawing Studio**: Intermediate to advanced level focusing on issues of the figure.
- **573 Multi-Level Painting**: Intermediate painting; traditional subject matter such as figures, still lifes, and concepts relative to contemporary directions in painting.
- **587.01 Third Year Sculpture Class: Part 1**: Advanced study of sculptural processes, techniques, and concepts.
- **587.02 Third Year Sculpture Class: Part 2**: Advanced study of sculptural processes, techniques, and concepts.
- **587.03 Third Year Sculpture Class: Part 3**: Advanced study of sculptural processes, techniques, and concepts.
- **589 Undergraduate Internship**: Planned field, teaching, curatorial, or lab experience under academic and professional supervision.
- **591.03 Studio Practice I: Ceramics**: Intermediate studio practice, following and continuing the basic program of courses undertaken in the first two years.
- **591.04 Studio Practice I: Glass**: Intermediate studio practice, following and continuing the basic program of courses undertaken in the first two years.
- **591.06 Studio Practice I: Printmaking**: Intermediate studio practice, following and continuing the basic program of courses undertaken in the first two years.
- **591.11 Studio Practice I: Sculpture**: Intermediate studio practice, following and continuing the basic program of courses undertaken in the first two years.
- **591.12 Studio Practice I: Art and Technology**: Intermediate studio practice, following and continuing the basic program of courses undertaken in the first two years.
- **595 Senior Seminar in Studio Art**: Presentations of studio work by seminar students, faculty, and visiting artists, with selected readings; accompanied by critical discussion emphasizing contemporary issues. BA majors exhibit work as final exhibition.
- **630 Intermediate Molten Glassmaking**: Molten glass as an artist's material; emphasis on the evolution of a personal aesthetic through series studies.
- **631 Intermediate Cold Glassworking**: Innovative approach in fabricated glass imagery; emphasis on the growth of artistic development through series studies.
- **635 Photography Criticism**: Reading, lectures, and discussions dealing with the study and practice of photographic criticism to facilitate and enrich the understanding and criticism of photography.
- **640 Kiln Building**: Design, construction, and use of simple gas and electric ceramic studio kilns; practice in the various types and methods of firing.
- **641 Mold Making**: Studies in the designing, fabrication, and uses of molds and molds in such multiple ceramic production processes as casting, jiggering, and pressing.
- **642 Monumental Building Techniques**: Design and construction of large ceramic art forms.
- **644 Ceramic Glaze and Technology**: Ceramic computations for art students; methods of representing ceramic composition; laboratory study and discussion of raw materials and their uses in bodies and glazes.
- **645 Advanced Special Projects**: Advanced work developed in consultation with and under the close supervision of the instructor.
- **661.01 Aspects of Art and Technology I**: Creative and conceptual multimedia explorations into contemporary technical and aesthetic aspects of Art and Technology, such as interactive installation art, bio art and performative art.
- **661.02 Aspects of Art and Technology II**: Creative and conceptual multimedia explorations into contemporary technical and aesthetic aspects of Art and Technology, such as interactive installation art, bio art and performative art.
- **661.03 Aspects of Art and Technology III**: Creative and conceptual multimedia explorations into contemporary technical and aesthetic aspects of Art and Technology, such as interactive installation art, bio art and performative art.
673.03 Advanced Painting: Special Problems in Abstraction UGRD 5
Research problems in abstract painting with a wide emphasis upon abstract and/or representational painting, lectures, discussions, and field trips.
Prereq: 573. Not open to students with 20 cr hrs in 673. Repeatable to a maximum of 20 cr hrs.

673.06 Advanced Painting: Special Problems in Conceptual Approaches UGRD 5
Conceptual and theoretical approaches to painting will be emphasized; lectures, discussions, and field trips.
Prereq: 573. Not open to students with 20 cr hrs in 673. Repeatable to a maximum of 20 cr hrs.

675 Photomechanical Printmaking UGRD 5
Intensive exploration of photomechanical reproduction technology utilized by the printing industry and the aesthetic of the photographic image as a tool for the artist.
Wi, Sp Qtrs. 2 3-hr labs, 7 hrs arr. Prereq: 377 or 378 or 379, or written permission of instructor. Repeatable to a maximum of 20 cr hrs.

676 Advanced Relief Printmaking UGRD 5
An intensive exploration of the relief processes as a means for individual expression.
Au, Wi Qtrs. 3 3-hr labs, 7 hrs arr. Prereq: 377 or 378 or 379 and art or art educ major. Repeatable to a maximum of 20 cr hrs.

677 Advanced Serigraphy UGRD 5
An intensive exploration of the serigraphic processes as a means for individual expression.
Au, Sp Qtrs. 2 3-hr labs, 5 hrs arr. Prereq: 377 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

678 Advanced Intaglio UGRD 5
An intensive exploration of the intaglio process as a means for individual expression.
Au, Wi, Sp Qtrs. 2 3-hr labs, 5 hrs arr. Prereq: 378 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

679 Advanced Lithography UGRD 5
An intensive exploration of the lithographic processes as a means for individual expression.
Au, Wi, Sp Qtrs. 2 3-hr labs, 5 hrs arr. Prereq: 377 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

687.01 Fourth Year Sculpture Class: Part 1 UGRD 5
Study of sculptural processes, concepts, and self analysis as an artist.
2 3-hr cls. Prereq: 587.03. Open only to students specializing in sculpture.

687.02 Fourth Year Sculpture Class: Part 2 UGRD 5
Study of sculptural processes, concepts, and self analysis as an artist.
2 3-hr cls. Prereq: 587.03. Prereq: 687.01. Open only to students specializing in sculpture.

687.03 Fourth Year Sculpture Class: Part 3 UGRD 5
Study of sculptural processes, concepts, and self analysis as an artist.
2 3-hr cls. Prereq: 587.03. Prereq: 687.02. Open only to students specializing in sculpture.

690 Imagemakers' Seminar UGRD 3-5
Advanced group investigation of individual photographic projects with weekly critique sessions.
Au, Wi, Sp Qtrs. 1 3-hr cl. Prereq: 25 hrs of photography course work and permission of instructor. Repeatable to a maximum of 20 cr hrs.

691.03 Studio Practice II: Ceramics UGRD 2-5
Advanced studio practice beyond 591.
Prereq: Permission of instructor. Open only to srs or grad students majoring in art. Repeatable to a maximum of 20 cr hrs.

691.04 Studio Practice II: Glass UGRD 2-5
Advanced studio practice beyond 591.
Prereq: Permission of instructor. The Open only to srs or grad students majoring in art. Repeatable to a maximum of 20 cr hrs.

691.05 Studio Practice II: Photography UGRD 2-5
Advanced studio practice beyond 591.
Arr. Prereq: Permission of instructor. Open only to srs or grad students majoring in art. Repeatable to a maximum of 20 cr hrs. Including cr hrs earned in Photo 691.

691.06 Studio Practice II: Printmaking UGRD 2-5
Advanced studio practice beyond 591.
Prereq: Permission of instructor. Open only to srs or grad students majoring in art. Repeatable to a maximum of 20 cr hrs.

691.09 Studio Practice II: Drawing UGRD 2-5
Advanced studio practice beyond 591.
Prereq: Permission of instructor. Prereq: Grad standing or 10 cr hrs of 673, and submission of 10-15 drawings/paintings on Advising Day previous to the intended qtr of study; open only to students with successful review by the area faculty and a completed, signed ISA form. Repeatable to a maximum of 20 cr hrs.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Level</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>695.10</td>
<td>Topics in Photographic Production: History</td>
<td>UGRD</td>
<td>5</td>
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<td></td>
<td>of Photography</td>
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<tr>
<td>696</td>
<td>Senior Exhibition</td>
<td>UGRD</td>
<td>2</td>
</tr>
<tr>
<td>698.01</td>
<td>Study Tour: Domestic</td>
<td>UGRD</td>
<td>1-15</td>
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<td>698.02</td>
<td>Study Tour: Foreign</td>
<td>UGRD</td>
<td>1-15</td>
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<td>Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.</td>
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<tr>
<td>699</td>
<td>Undergraduate Scholarship: Research and</td>
<td>UGRD</td>
<td>1-15</td>
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<td>Creative Activity in Art</td>
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<tr>
<td>783H</td>
<td>Honors Research</td>
<td>UGRD</td>
<td>3-5</td>
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<td>A research investigation resulting in a senior honors project. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.</td>
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**Prerequisites:**

- Permission of instructor.
- Repeatable for different titled study tours only.
- Department office for details.

**Course Descriptions:**

- **695.10** Topics in Photographic Production: History of Photography
- **696** Senior Exhibition
- **698.01** Study Tour: Domestic
- **699** Undergraduate Scholarship: Research and Creative Activity in Art
- **783H** Honors Research
896 Graduate Teaching Seminar  UGRD  2
Exercises and discussions exploring techniques used in organizing, presenting, and evaluating materials taught in studio art classes with special reference to the Foundation Program.
Au Qtr. 1 2-hr cl. Prereq: Permission of instructor and grad standing in studio art.

991.03 Studio Practice IV: Ceramics  UGRD  2-5
Advanced graduate studio practice.
Prereq: Grad standing in art or permission of instructor. Repeatable to a maximum of 45 cr hrs.

991.04 Glass Art  UGRD  2-5
Advanced graduate studio practice.
Prereq: Grad standing in art or permission of instructor. Repeatable to a maximum of 45 cr hrs.

991.05 Photography  UGRD  2-5
Advanced graduate studio practice.
Prereq: Grad standing in art or permission of instructor. Repeatable to a maximum of 45 cr hrs.

991.06 Studio Practice IV: Printmaking  UGRD  2-5
Advanced graduate studio practice.
Prereq: Grad standing in art or permission of instructor. Repeatable to a maximum of 45 cr hrs.

991.09 Studio Practice IV: Drawing  UGRD  2-5
Advanced graduate studio practice.
Prereq: Grad standing in art or permission of instructor. Repeatable to a maximum of 45 cr hrs.

991.10 Studio Practice IV: Painting  UGRD  2-5
Advanced graduate studio practice.
Prereq: Grad standing in art or permission of instructor. Repeatable to a maximum of 45 cr hrs.

991.11 Studio Practice IV: Sculpture  UGRD  2-5
Advanced graduate studio practice.
Prereq: Grad standing in art or permission of instructor. Repeatable to a maximum of 45 cr hrs.

991.12 Studio Practice IV: Art and Technology  UGRD  2-5
Advanced graduate studio practice.
Prereq: Grad standing in art or permission of instructor. Repeatable to a maximum of 45 cr hrs.

999 Research in Art  UGRD  1-18
Research for thesis and dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Art Education

160 Art and Music since 1945  UGRD  5
A survey of the visual arts and music in the western world since 1945, based on live and recorded performances and exhibitions.
Au, Wi, Sp Qtrs. 2.2-hr cl, 1.1-hr rec. Not open to students with credit for Arts Col 160. GEC arts and hums VPA course. VPA Admis Cond course. Also offered as a Web-delivered course.

225 Introduction to Art Education  UGRD  5
Ideas, issues, and career possibilities in art education explored through readings, dialogue, and site visitations.
Au, Wi Qtrs. 3.2-hr cl.

252 Introduction to the Computer in the Visual Arts  UGRD  5
Introductory study of computer graphics in relation to the traditional visual arts and as a distinct art form; computer will be used to produce imagery.
Su, Au, Wi, Sp Qtrs. 2.2-hr cl, 4 lab hrs arr. GEC arts and hums VPA course. Service Learning course.

255 Engaging Visuality: The Power of Seeing and Being Seen  UGRD  5
An introduction to issues of representation, spectacle, surveillance and voyeurism explored through a range of visual images and sites.
Au, Wi, Sp Qtrs. 2.2-5.hr cl. GEC arts and hums and social diversity course.

352 Fundamental Three-Dimensional Computer Art Techniques  UGRD  5
An introductory study of three-dimensional computer art techniques; three-dimensional still and animated imagery will be produced.
Sp Qtrs. 2.2-hr cl, 4 lab hrs arr. Prereq: 252.

367.01 Ethnic Arts: A Means of Intercultural Communication  UGRD  5
A study of the artists, the artworks, and art worlds from diverse ethnic cultures in North America.
367.01H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110 or 111 or equiv, and soph standing. Not open to students with credit for 367. GEC second writing, arts and hums VPA, and social diversity course.

367.01H Ethnic Arts: A Means of Intercultural Communication  UGRD  5
A study of the artists, the artworks, and art worlds from diverse ethnic cultures in North America.
Prereq: Honors program or permission of department or instructor; English 110 or 111 or equiv, and soph standing. Not open to students with credit for 367. GEC second writing, arts and hums VPA, and social diversity course.

367.02 Second Writing Course: Writing Art Criticism  UGRD  5
Writing critically about contemporary American art by a variety of artists with diverse points of view.
Prereq: English 110 or 111 or equiv, and soph standing. GEC second writing course.

367.03 Second Writing Course: Criticizing Television  UGRD  5
A critical analysis of a wide variety of television programs through viewing, discussing, reading, and writing.
Au, Wi, Sp Qtrs. Prereq: English 110 or 111 or equiv, and soph standing. Prereq: English 110. Not open to students with credit for Theatre 367.03. This course will alternately be taught by Art Education and Theatre. Cross-listed in Theatre. GEC second writing and social diversity course.

467 Powwows: Cultural and Arts Exploration  UGRD  5
An interdisciplinary examination of contemporary powwow culture using concepts from history, the humanities, social sciences, and American Indian perspectives.
Wi Qtr. 2.2-hr cl. Prereq: Second writing course. Not open to students with credit for Arts&Sci 467. Cross-listed with Arts&Sci 467. GEC third writing and social diversity course.

480 Exploring the Creative Sector: Art in the 21st Century  UGRD  5
Explores the relationships within the creative sector; artistic workforce, contemporary art trends, organizational structures and variety within the industries.
Au, Sp Qtrs. Prereq: English 110 and Junior status or above or with permission of instructor.

481 Managing Arts Organizations  UGRD  5
Nonprofit arts organizations purposes and their functions such as governance, program planning, marketing, and fundraising; encourages critical thinking in managerial decision making through practical assignments.
Wi Qtr. 2.2-hr cl, 1-hr on line work. Prereq: English 110, jr standing or above or permission of instructor.

483 Developing Arts Careers: Positioning Passion  UGRD  5
Prepares students as entrepreneurs to enter nonprofit, commercial, and public sector careers through independent research, dossier development, proposal, and grant writing.
Su, Wi Qtrs. 1.3-hr cl, outside assignment. Prereq: Jr or sr standing or permission of instructor.

493 Individual Studies  UGRD  1-15
Individual studies and project work in specified problems of the field of art education.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

589 Internship in Art Education  UGRD  1-15
Students intern at non-public school sites to synthesize and apply what they have learned in the classroom through concentrated practice in the field.
Su, Au, Wi, Sp Qtrs. Prereq: Completion of all other program requirements. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

600 Art and Curriculum Concepts for Teachers  UGRD  3
Problems of teaching in terms of personal knowledge about art, insight into children's art work, and understanding of elementary school curriculum.
Su, Au, Wi, Sp Qtrs. 3.2-hr labs.

601 Conceptual Process for Visual Culture as Curricula  UGRD  3
Examination of visual culture concepts and processes to plan K-12 school curricula.
Wi Qtr. Prereq: Open only to Art Education majors.

603 History and Philosophy of Art Education  UGRD  5
History of the field with an emphasis on major ideas in philosophy and learning theory that affect current trends.
Sp Qtrs. Prereq: Open only to Art Education majors.
604 Teaching of Studio Activities UGRD 5
Exploration of instructional application of various art materials for educational setting
Au Qtr. Prereq: Open only to Art Education majors.

605 Social and Cultural Factors in Art Education UGRD 5
Investigation into the role of culture, social class, gender, and age in understanding art
and the diverse audiences served by art education.
Au Qtr. Prereq: Open only to Art Education majors.

606 The Computer in Art Education: A Survey UGRD 5
A survey and practical course, exploring the implications and potential of the
computer in a variety of art education contexts and roles.
^ Wi Qtr. 2 1.5-hr cl. Prereq: 330 or 603, and 445 or 604.

607 Concepts in Planning Art Education UGRD 5
Planning for and management of the social and physical environment of art education.
Wi Qtr. Prereq: Open only to Art Education majors.

608 Art Education for Children with Special Needs UGRD 5
Strategies that can be used in teaching art to students with special needs and lesson
planning for inclusion.
Wi Qtr. Prereq: Open only to Art Education majors.

635 Photography Criticism UGRD 5
Readings, lectures, and discussions dealing with the study and practice of
photographic criticism to facilitate and enrich the understanding of criticism and
photography.
Sp Qtr. 2.25-hr cl. Prereq: Jr standing or above, or permission of instructor. Not open
to students with credit for Art 635. Cross-listed in Art.

640 Critical Dialogue about Art UGRD 3
Theory and practice of engaging others in informed discussion of works of art.
Au Qtr. Prereq: Open only to Art Education majors.

652 Computer Graphics in the Arts and Education UGRD 3
Application of computer imaging for the arts and interactive educational programs.
* Wi Qtr. 1 3-hr cl. Prereq: Sr or grad standing.

670 Public Policy and the Arts UGRD 5
Issues in arts policymaking as they affect community arts services.
Au Qtr. 1 2.5-hr cl, outside assignments.

671 Organizational Leadership in the Nonprofit Arts UGRD 5
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.
Au Qtr. 1 2.5-hr cl, outside assignments.

672 Managing Cultural Policy Change UGRD 5
Planning and executing strategic change in public arts agencies. Explores implications
of shifting from a supply-demand to a value-based cultural policy paradigm.
Sp Qtr. 1 2.5-hr cl plus project requirements off-campus.

673 Issues across the Arts GRAD 3
A visiting lecturer series facilitates the in-depth exploration and analysis of a quarterly
selection of related arts policy, programming, and funding issues.
Sp Qtr. 1 3-hr cl. Prereq: 670 or permission of instructor. Repeatable to a maximum
of 9 cr hrs.

680 Aesthetics in Art Education UGRD 3
Concepts and strategies for including aesthetics in art education curricula.
^* Sp Qtr. 2 1.5-hr cl. Prereq: 488 or 607 or grad standing.

681 Arts/Cultural Institutions, Organizational Theories & Management Practice UGRD 5
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: Graduate standing or permission of instructor.

683 Developing Arts Careers: Positioning Passion GRAD 5
Prepares graduate students as entrepreneurs to enter nonprofit, commercial, public
and/or academic careers through independent investigation, dossier development,
research proposals, and grant writing.
Su, Wi Qtr. 1 3-hr cl, outside assignment.

688.01 Instructional Applications in Art: Clinical Experience: The Context of Schools UGRD 3
Preparation for art instruction through curriculum development, study of instructional
strategies, and peer teaching.
Au Qtr. Open only to art educ majors. This course is graded S/U.

688.02 Instructional Applications in Art: Clinical Experience: Construction and Application of Curriculum UGRD 3
Preparation for art instruction through curriculum development, study of instructional
strategies, and peer teaching.
Wi Qtr. Prereq: 688.01. Open only to art educ majors. This course is graded S/U.

688.03 Instructional Applications in Art: Clinical Experience: Investigating Instruction UGRD 3
Preparation for art instruction through curriculum development, study of instructional
strategies, and peer teaching.
Sp Qtr. Prereq: 688.02. Open only to art educ majors. This course is graded S/U.

689 Pre-Practicum Clinical Experience GRAD 5
Contact with practicum sites and collaborative work with cooperating teachers to plan
and deliver instruction.
Au Qtr. 1 2-hr cl, 1 6-hr lab. Prereq: Grad standing in art educ. Open only to art educ
majors. Repeatable to a maximum of 10 cr hrs.

691 Applied Research in Art Education UGRD 2-10
Studies in empirical, philosophical, curriculum, or studio problems in art education.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 10 cr hrs.

693 Individual Studies UGRD 1-15
Advanced study for students in specialized programs.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of
45 cr hrs. This course is graded S/U.

694 Group Studies UGRD 2-5
Group studies for students in specialized programs.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of
15 cr hrs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact
department office for details.
Prereq: Permission of instructor. Repeatable for different study tours only.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact
department office for details.
Prereq: Permission of instructor. Repeatable for different study tours only.

699 Undergraduate Scholarship: Research and Creative Activity in Art Education UGRD 1-15
Undergraduate research or creative activities in varying topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum
of 15 cr hrs. This course is graded S/U.

699H Honors Undergraduate Scholarship: Research and Creative Activity in Art Education UGRD 1-15
Undergraduate research or creative activities in varying topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Honors program and permission of instructor.
Repeatable to a maximum of 15 cr hrs.

700 Issues in Graduate Study in Art Education GRAD 5
Review of analytical reading and writing; overview of topics in thesis and dissertation
research; graduate faculty research; national and international issues; university
resources and policies.
Au, Wi Qtrs. 1 5-hr cl. Prereq: Grad standing. Must be taken during the first year of
graduate study in the major.

701 History of Art Education GRAD 5
Historical examination of theoretical frameworks utilized in art education research as
well as the influence of multiple perspectives (political, social and cultural on art
education.
Sp Qtr. 1 3-hr cl. Prereq: 601 and any 500- or 600-level course in history of art; or
permission of instructor.

703 Contemporary Theory and Art Education GRAD 5
An introduction to theoretical ideas which have emerged in contemporary writing in
recent years and which have implications for the field of art education.
Wi Qtr. 2 2.5-hr cl. Prereq: Grad standing.

704 Policy Perspectives on Arts Education GRAD 5
Examines recent reform initiatives in the public, nonprofit and private sectors with the
goal of understanding policy practices and dynamics in arts education.
Wi Qtr. 1 3-hr cl, 2 hrs arr. Prereq: Grad standing.

705 Overview of Research Methods in Art Education GRAD 5
Introduction to a wide range of methods applicable to art education research problems
including historical, philosophical, ethnographic, survey, experimental, and case study
methods.
Au Qtr. 2 2-hr cl. Must be taken during the first year of graduate study in the major.
707 Introduction to Teaching Arts Education at the College Level GRAD 3

An introduction to theories, methods and issues related to teaching arts education at the college level.
Au Qtr. 1 3-hr cl. Open only to new or recently reassigned Art Education GTA's or students with instructor's permission. This course is for all new GTAs in the Art Education department and for other students with the instructor's permission.

715 Art Education as a Community Act: Developing Pedagogy for School-Community Collaboration through Art GRAD 5

Course will explore the process of connecting art education and community contexts. Students will investigate and envision collaborative practices and create pedagogy for community-based art education.
2 2.5-hr cl. Prereq: Grad standing.

720 Philosophy of Art Education Literature GRAD 3

Survey
Discussion of writings by art educators, aestheticians, artists, critics, and others for historical perspective on and to distinguish the nature of philosophy of art education.
* Wi Qtr. 3 cl.

730 Cognitive Approaches to Art Education GRAD 5

Explores current psychological and philosophical approaches to cognition and art education and their implications for education issues.
Au Qtr.

731 Evaluation in Art Education GRAD 3-5

Evaluation of student performance in art; informal instruments for collecting data for use in assessing programs.
* Wi Qtr. 2 2-hr cl. Prereq: 807 or equiv with written permission of instructor.

735 Museum History GRAD 5

Critical examination of the historic and theoretical foundations of art and other museums as an institution, drawing on multiple disciplinary perspectives.
1 2.5-hr cl, online interaction. Will count toward Museum Education specialization.

736 Museum Education Theory GRAD 5

Theory, structure and functions of museum education.
1 2.5-hr cl, online interaction. Will count toward Museum Education specialization.

745 Museums and Teaching GRAD 5

A theoretical and practical study of teaching and learning in and through museums.
1 2.5-hr cl, online interaction. Will count toward Museum Education specialization.

748 Museum Education Practicum GRAD 5

An examination of the role of education in art museums through an in-depth experience in a museum setting.
2 2.5-hr cl. Will count toward Museum Education specialization.

753 Aesthetics of Interactive Technology GRAD 5

Aesthetic and critical investigations of the impact of interactive technologies on artmaking and art education.
* Au Qtr. 1 3-hr cl, 1 2-hr lab. Prereq: Grad standing. Repeatable to a maximum of 10 cr hrs.

755 History, Politics and Practices of Visual Culture in Art Education GRAD 5

An examination of the antecedents, history, politics and practices of visual culture, with a specific focus on the literature in art education.
Au, Wi, Sp Qtrs. 1 3-hr cl and hr arr. Prereq: Grad standing or permission of instructor.

764 Investigating Material Culture GRAD 5

Investigates the relationship between people and objects including scientific analysis of materials, skill of maker, use, cultural importance and meaning.
Sp Qtr. 2 2.5-hr cl. Core course for graduate interdisciplinary specialization in the Analysis of Material Culture.

765 Contemporary Art and Art Education GRAD 3

A study of recent developments in contemporary art and the implication of those developments on art education practice and curriculum design.
Au Qtr. 4 cl.

767 Critical Analysis of Multicultural Art Education: Theory and Practice GRAD 5

Investigation and analysis of multicultural theories and issues for art education.
Au Qtr. 2 2.5-hr cl. Prereq: Permission of instructor.

768 Indigenous People and Visual Culture GRAD 5

In this course, we critically investigate images of indigenous people as portrayed through visual culture (i.e. television, films, advertising, art, and historic references).
Au Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor.

775 Social and Cultural Theories in Art and Art Education GRAD 3

Critical investigation of the relationships between and among artists and art worlds of various societies and cultures.
* Wi Qtr. 1 3-hr cl. Prereq: Permission of instructor.

781 Arts Participation, Cultural Literacy, and Audience Development GRAD 5

Building on empirical and theoretical research, this course constructs a framework to understand audience participation, understanding and reception of specific art forms.
Prereq: Grad standing or permission of instructor.

782 Nonprofit Arts Institution Governance and Leadership GRAD 5

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.
Au Qtr. 2 2.5-hr cl and independent research. Prereq: Grad standing.

783H Honors Research UGRD 3-5

A program of reading and research arranged for each student, with individual conferences, reports, and honors thesis.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 4th yr standing with a pt/hr ratio of 3.50 in the major area and permission of instructor under whose supervision the work is to be completed and the Honors Committee of either the College of the Arts or the College of Education. Repeatable to a maximum of 15 cr hrs. Satisfactory completion of at least 8 cr hrs is required of candidates for an undergraduate degree with distinction in art educ. This course is graded S/U.

786 Teaching Practicum: Prekindergarten through Elementary Levels GRAD 15

Field-based teaching practicum at the prekindergarten through elementary levels.
Au, Wi, Sp Qtrs. 40 hrs/wk on site, 1 3-hr cl. Prereq: 689. This course is graded S/U.

787 Teaching Practicum: Intermediate through Secondary Levels GRAD 15

Field-based teaching practicum at the intermediate through secondary levels.
Au, Wi, Sp Qtrs. 40 hrs/wk on site, 1 3-hr cl. Prereq: 689. This course is graded S/U.

795 Seminar on Topical Issues in Art Education GRAD 1-5

S Seminar on Topical Issues in Art Education.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 15 cr hrs in art educ or permission of dept. Repeatable to a maximum of 30 cr hrs.

803 Critical Theory and Cultural Studies of Art Education Policy Research and Practice GRAD 5

Traces the development of critical theories from 19th-20th centuries, tracing historic developments and value/importance to arts education practice and policy research.
Sp Qtr. 3-hr cl. Prereq: Grad standing.

805 Empirical Problems in Art Education GRAD 3-5

An introduction to the language, methodology, and application of empirical research in art education; the identification and isolation of appropriate empirical problems in the field.
Wi Qtr.

807 Curriculum Problems in Art Education GRAD 3-5

An examination of the functions of curricular plans as tools for transforming selected conceptions of art education into teacher and student activities in the classroom.
Wi Qtr.

809 Thesis and Dissertation Proposal Writing GRAD 3

The purpose of this course is for students to understand the components of a thesis or dissertation research proposal. Students will write a draft proposal.
Wi Qtr. Prereq: 700 and 705.

830 Seminar on Art History in Art Education GRAD 3

An examination of art history structures, concepts and research methods for translating into alternative education methods for teaching art history in K-12 settings.
Au Qtr. 1 3-hr cl, 2 hrs arr.

835 Visual Representations of LGBT Subjects GRAD 5

Survey of social standpoints on visual culture and cinematic representations of (homo)sexualities through readings, film viewings, class discussions and presentation of independent research.
* Au Qtr.

840 Criticism, Aesthetics, and Education GRAD 5

Teaching about art and the aesthetic and social issues it raises in school and community contexts.
Wi Qtr. 2 2.5-hr cl.

875 Social and Cultural Research Methods for Art Education GRAD 5

Social and culturally based research methods for studying the art of diverse groups of people.
Sp Qtr. 2 2.5-hr cl. Prereq: 705 or permission of instructor.
889.01 Internship in Arts Management  
GRAD 1-16
Supervised professional experience within a performing arts, visual arts, literary arts, 
or museum/historical organization. Assignments may include fundraising, marketing, 
grantwriting, budgeting, communication and website maintenance, preparing material 
for board meetings, etc.
Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs. This course is 
graded S/U.

889.02 Art and Cultural Policy Internship  
GRAD 1-16
Supervised experience within a government arts or cultural agency at any level - local 
state, regional, national or international - or within a trade or professional association 
engaged in arts advocacy. Assignments may include grants administration, background 
research on issues or program practices, constituency contact, activities in support of 
the preparation of public documents and reports, etc.
Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs. This course is 
graded S/U.

889.03 Internship in Museum Education  
GRAD 1-16
Supervised experience within a museum or public gallery that provides educational 
services. Assignments may include the preparation of interpretive and/or curriculum 
materials, acting as a docent in museum educational programs, communication and 
cooporation with school and/or community partners, etc.
10 hrs/wk at placement site.
Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs. This course is 
graded S/U.

889.04 Community Arts Internship  
GRAD 1-16
Supervised experience within community settings that provide programs addressing 
arts education. Assignments may include curriculum development, assets mapping, 
participation in community collaborations and program evaluation.
Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs. This course is 
graded S/U.

893 Individual Studies  
GRAD 1-15
Individual Studies. 
Su, Au, Wi, Sp. Qtr. Repeatable to a maximum of 45 cr hrs. This course is graded 
S/U.

894 Group Studies  
GRAD 1-5
Group studies for students in specialized programs.
Su, Au, Wi, Sp. Qtr. Repeatable to a maximum of 15 cr hrs.

911 Research Problems in Art Education  
GRAD 3-15
Research Problems in Art Education. 
Su, Au, Wi, Sp. Qtrs. Repeatable to a maximum of 45 cr hrs.

998 Research in Art Education: Thesis  
GRAD 0-18
Research for thesis purposes only. 
Su, Au, Wi, Sp. Qtrs. Repeatable. This course is graded S/U.

999 Research in Art Education: Dissertation  
GRAD 0-18
Research for dissertation purposes only. 
Su, Au, Wi, Sp. Qtrs. Repeatable. This course is graded S/U.

Arts and Sciences

100.01 Arts and Sciences Survey: General  
UGRD 1
Academic requirements; University procedures, grading system, resources; student 
rights and responsibilities; overview of Arts and Sciences academic areas of study and 
services. 
Not open to students with credit for 100 or 100.02, Agr Int 100, Arts Col 100.01 or 
100.02, Bio Sci 100, Engineer 100, Hum Col 100, MPS Col 100, SBS Col 100, or any 
decimal subdivision of Univ Col 100. This course is graded S/U.

100.01H Arts and Sciences Survey: General (Honors)  
UGRD 1
Academic requirements; University procedures, grading system, resources; student 
rights and responsibilities; overview of Arts and Sciences academic areas of study and 
services. 
Not open to students with credit for 100 or 100.02, Agr Int 100, Arts Col 100.01 or 
100.02, Bio Sci 100, Engineer 100, Hum Col 100, MPS Col 100, SBS Col 100, or any 
decimal subdivision of Univ Col 100. This course is graded S/U.

100.02 Arts and Sciences Survey: Health  
UGRD 1
Academic requirements; University procedures, grading system, resources; student 
rights and responsibilities; overview of Arts and Sciences academic areas of study and 
services. 
Not open to students with credit for 100 or 100.02, Agr Int 100, Arts Col 100.01 or 
100.02, Bio Sci 100, Engineer 100, Hum Col 100, MPS Col 100, SBS Col 100, or any 
decimal subdivision of Univ Col 100. This course is graded S/U.

100.02H Arts and Sciences Survey: Health (Honors)  
UGRD 1
Academic requirements; University procedures, grading system, resources; student 
rights and responsibilities; overview of Arts and Sciences academic areas of study and 
services. 
Not open to students with credit for 100 or 100.02, Agr Int 100, Arts Col 100.01 or 
100.02, Bio Sci 100, Engineer 100, Hum Col 100, MPS Col 100, SBS Col 100, or any 
decimal subdivision of Univ Col 100. This course is graded S/U.

101 First- or Second-Year Seminar  
UGRD 1
Seminars on varying topics taught by University faculty.
Prereq: Fr or soph standing or permission of instructor. Repeatable to a maximum of 
15 cr hrs. This course is graded S/U.

101H First- or Second-Year Seminar  
UGRD 1
Seminars on varying topics taught by University faculty.
Prereq: Honors program or permission of department or instructor; Fr or soph standing 
or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is 
graded S/U.

120 Internet Tools and Research Techniques  
UGRD 2
This 4-week online course teaches about internet browsing and communication tools, 
Au, Wi, Sp. Prereq: May not be taken concurrently with ASC 121 or 122. This is 
a 4 week course that begins in the 4th week of the quarter. Distance Learning Course 
(Web taught).

121 Advanced Online Research  
UGRD 2
This 4-week online course teaches specialized Web tools, article databases, and issues 
served to finding information in a student's chosen field. See: http://liblearn.osu.edu. 
Au, Wi, Sp. Prereq: Satisfactory completion of 120D. May not be taken 
concurrently with ASC 120 or 121. This is a 4 week course that begins in the 4th 
week of the quarter. Distance Learning Course (Web taught).

122 Online Research Strategies for Career Exploration  
UGRD 1
In this 4-week course, students explore career interests, learn online research skills 
already by investigating an occupation in depth. See: http://liblearn.osu.edu. 
Au, Wi, Sp. Prereq: May not be taken concurrently with ASC 120 or 121. This is 
a 4 week online course that begins in the 4th week of the quarter. Distance Learning 
Course (Web taught).

137.01 Freshman Seminar  
UGRD 1-2
Affords first-year students opportunities for contact with faculty in small group 
settings; introduction to academic areas, research, and frontier areas of scholarly 
pursuit.
Su, Au. Wi, Sp. Prereq: Rank 1 standing or permission of instructor. Open only 
to first-year students. Only one freshman seminar per quarter allowed. Topics will 
vary each quarter. This course is letter graded. Repeatable to a maximum of 6 cr hrs.

137.02 Freshman Seminar  
UGRD 1-2
Affords first-year students opportunities for contact with faculty in small group 
settings; introduction to academic areas, research, and frontier areas of scholarly 
pursuit.
Su, Au, Wi, Sp. Prereq: Rank 1 standing or permission of instructor. Open only 
to first-year students. Only one freshman seminar per quarter allowed. Topics will 
vary each quarter. This course is letter graded. Repeatable to a maximum of 6 cr hrs.

137.03 Freshman Seminar  
UGRD 1-2
Affords first-year students opportunities for contact with faculty in small group 
settings; introduction to academic areas, research, and frontier areas of scholarly 
pursuit.
Su, Au, Wi, Sp. Prereq: Rank 1 standing or permission of instructor. Open only 
to first-year students. Only one freshman seminar per quarter allowed. Topics will 
vary each quarter. This course is letter graded. Repeatable to a maximum of 6 cr hrs.

137.04 Freshman Seminar  
UGRD 1-2
Affords first-year students opportunities for contact with faculty in small group 
settings; introduction to academic areas, research, and frontier areas of scholarly 
pursuit.
Su, Au, Wi, Sp. Prereq: Rank 1 standing or permission of instructor. Open only 
to first-year students. Only one freshman seminar per quarter allowed. Topics will 
vary each quarter. This course is letter graded. Repeatable to a maximum of 6 cr hrs.

137.05 Freshman Seminar  
UGRD 1-2
Affords first-year students opportunities for contact with faculty in small group 
settings; introduction to academic areas, research, and frontier areas of scholarly 
pursuit.
Su, Au, Wi, Sp. Prereq: Rank 1 standing or permission of instructor. Open only 
to first-year students. Only one freshman seminar per quarter allowed. Topics will 
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This course affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. It is letter graded and repeatable to a maximum of 6 cr hrs. Prerequisite: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. This course is letter graded. Repeatable to a maximum of 6 cr hrs.

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Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.01 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.02 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.03 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.04 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.05 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.06 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.07 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.08 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.09 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.10 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.11 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.12 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.13 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.14 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.15 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.16 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.17 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.18 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.19 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

**138.20 Freshman Seminar**

Affords first-year students opportunities for contact with faculty in small group settings; introduction to academic areas, research, and frontier areas of scholarly pursuit. Designated Service Learning section.

Au, Wi, Sp Qtrs. Prereq: Rank 1 standing or permission of instructor. Open only to first-year students. Only one freshman seminar per quarter allowed. Topics will vary each quarter. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.
211 Introduction to Forensic Science UGRD 5
An introduction to the major concepts, issues, and techniques in forensic science. Au, Sp Qtrns. 3.1-3.5 hr cl.

264 Introduction to Popular Culture Studies UGRD 5
An introduction to the interdisciplinary discipline of popular culture studies, focusing on history, theory and research methods. Prereq: English 110 or equiv.

265 Introduction to South Asia UGRD 5
A multi-disciplinary introduction to South Asia's geographical, political, cultural, and religious contexts and connections.

293 Individual Studies UGRD 1-5
Individual Studies for undergraduate students.

294 Interdisciplinary Group Studies UGRD 1-5
Study of special or interdisciplinary topics at an introductory level.

294H Interdisciplinary Group Studies UGRD 1-5
Study of special or interdisciplinary topics at an introductory level.

298.01 Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Domestic. Prereq: Permission of instructor. Repeatable for different titled study tours only. Repeatable.

298.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.

331 Thinking Theoretically UGRD 5
Study of fundamental texts and practices informing contemporary understandings of theory in the humanities and social sciences. Prereq: English 110 or equivalent.

338.01 Professional Pathways in Earth and Environmental Sciences UGRD 1-2
These seminars help Arts and Sciences students explore graduate and professional post-secondary opportunities, and the wider professional issues and professional options within and/or across disciplines. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

338.02 Professional Pathways in Education UGRD 1-2
These seminars help Arts and Sciences students explore graduate and professional post-secondary opportunities, and the wider professional issues and professional options within and/or across disciplines. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

338.03 Professional Pathways in Entrepreneurship UGRD 2
These seminars help Arts and Sciences students explore graduate and professional post-secondary opportunities, and the wider professional issues and professional options within and/or across disciplines. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

338.04 Professional Pathways in Health UGRD 2
These seminars help Arts and Sciences students explore graduate and professional post-secondary opportunities, and the wider professional issues and professional options within and/or across disciplines. Repeatable to a maximum of 10 cr hrs. This course will be further subdivided into seven sub-sections (Pharmacy, Dentistry, Medicine, Opetometry, Veterinary Med, Nursing, and Public Health) with max of 18 students in each. This course is graded S/U.

338.05 Professional Pathways in Non-Profit Organizations UGRD 2
These seminars help Arts and Sciences students explore graduate and professional post-secondary opportunities, and the wider professional issues and professional options within and/or across disciplines. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

338.06 Professional Pathways in Social Justice UGRD 1-2
These seminars help Arts and Sciences students explore graduate and professional post-secondary opportunities, and the wider professional issues and professional options within and/or across disciplines. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

338.07 Professional Pathways in Public Affairs UGRD 1
These seminars help Arts and Sciences students explore graduate and professional post-secondary opportunities, and the wider professional issues and professional options within and/or across disciplines. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

338.08 Professional Pathways in Wall Street UGRD 2
These seminars help Arts and Sciences students explore graduate and professional post-secondary opportunities, and the wider professional issues and professional options within and/or across disciplines. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

338.09 Professional Pathways in Higher Education and Student Affairs UGRD 2
Introduction to the field of Higher Education and Student Affairs. Education required, job descriptions, and differences between institution types will be studied. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

338.10 Professional Pathways in Civic Engagement UGRD 2
Students will examine the role of civic engagement in various career choices through active participation in the Columbus Metropolitan Club (CMC). Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

338.11 Professional Pathways in Religious Vocations UGRD 2
Seminar helps begin the process of thinking through what it means to enter into religious vocation.

350 American Deaf Arts and Literature UGRD 5
Survey of literary and artistic works about being deaf that are written or created by individuals who are American deaf. Su, Au, Wi, Sp Qtrns.

400.01 Career Planning Seminar: General UGRD 1
Exploration of career options; incorporates interests, skills, values and personality assessments. Covers effective internship and job search strategies, resume and cover letter preparation, interviewing techniques. Prereq 400.01: Soph or jr standing. This course is graded S/U.

400.01H Career Planning Seminar: General (Honors) UGRD 1
Exploration of career options; incorporates interests, skills, values and personality assessments. Covers effective internship and job search strategies, resume and cover letter preparation, interviewing techniques. Prereq: Jr standing in ASC Honors Program and permission of instructor. This course is graded S/U.

400.02 Career Planning Seminar: Capital Program UGRD 1
Discussion of careers for liberal arts majors; employment trends; effective job search strategies; resumes, and cover letter preparation; interviewing techniques. Prereq: Soph or jr standing in Capital program. Not open to srs except by permission of instructor, or to students with credit for 400.01. This course is graded S/U.

400.04 Powwows: Cultural and Arts Exploration UGRD 5
An interdisciplinary examination of contemporary powwow culture using concepts from history, the humanities, social sciences, and American Indian perspectives. Wi Qtr. 2.2-2.5 hr cl. Prereq: Second writing course. Not open to students with credit for Art Educ 467. Cross-listed with Art Educ 467. GEC third writing and social diversity course.

489.01 Professional Practice: Credit Cooperative Education Program UGRD 2
Employment through the Cooperative Education program conducted under the supervision of an ASC faculty member; midterm and comprehensive final reports required. Prereq: Registration with the co-op education program, minimum cumulative pt-hr ratio of 2.50, soph standing or above, completion of credit co-op education agreement form with instructor under whose supervision the work is to be completed, and permission of the director of co-op education. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

489.02 Professional Practice: Noncredit Cooperative Education Program UGRD 0
A cooperative education or internship assignment conducted under the supervision of the employer; registration and evaluation by the director of ASC Career Services. Prereq: Minimum cumulative GPA of 2.0, permission of the director of ASC Career Services. Student is responsible for finding an internship or cooperative education site that is secured, through completion of the Internship Agreement form, prior to the start of the quarter. This course is graded S/U.

494 Interdisciplinary Group Studies UGRD 1-5
Study of special or interdisciplinary topics at the upper-division level. Prereq: Jr or sr standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs.

494H Interdisciplinary Group Studies UGRD 1-5
Study of special or interdisciplinary topics at the upper-division level. Prereq: Honors program; Jr or sr standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs.
The Ohio State University: Its History and Its World
UGRD 5
An introduction to the past and present of OSU and to the educational and intellectual contexts that have shaped it. 2-3 cr. Prereq. Jr or above standing. GEC, Cultures and Ideas course.

Theorizing Your Academic Experience
UGRD 5
Study of principles underlying knowledge organization and curricula in higher education as well as students' experience of the structures of academia at OSU and elsewhere.
Prereq: 331, 4th yr standing.

Disability Studies Internship
UGRD 1-3
This is a one-quarter internship course that offers undergraduate and graduate students the opportunity to work with disability related organizations on or off campus.
Su, Au, Wi, Sp Qtrs. Prereq: English 277 or Speech and Hearing 510. Repeatable to a maximum of 6 cr hrs. This course is graded S/U. Service Learning course.

Nonprofit Studies Internship
UGRD 1-3
A one-quarter internship course that offers undergraduate students the opportunity to work with nonprofit organizations off campus.
Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

Disability Studies Workshop
GRAD 2
Structured participation in seminar/event organized for that quarter.
Optional course for the Graduate Interdisciplinary Specialization in Disability Studies (GIS-DS). Repeatable to a maximum of 4 cr hrs. This course is graded S/U.
Su, Au, Wi, Sp Qtrs.

Diversity Lecture Series
UGRD 1
By attending lectures and writing papers, students will learn about diversity and equity issues.
Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

Group Studies
UGRD 1-5
Study of special or interdisciplinary studies.
Repeatable to a maximum of 15 cr hrs.

Group Studies
UGRD 1-5
Study of special or interdisciplinary studies.
Prereq: Honors program or permission of department or instructor. Repeatable to a maximum of 15 cr hrs.

Undergraduate Research in the Arts and Sciences
UGRD 0-15
Undergraduate research or creative activities in variable topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

Introduction to Graduate Study in Disability Studies
GRAD 5
Introduction to Disability Studies as an interdisciplinary academic field of study; outlines major scholarly perspectives, methodologies, and professional issues in the study of disability.
Su Qtr. 2-3 hr cl. Prereq: Grad standing or permission of instructor. Required core course for Graduate Interdisciplinary Specialization in Disability Studies.

Introduction to Latino/a Studies
GRAD 5
Introduces graduate students to the broad themes, concepts, and questions raised in the interdisciplinary field of Latin/Latino studies.
Au, Wi, Sp Qtrs. 2-2 hr cl.

Health Literacy
GRAD 3
Examines the issues and challenges of low health literacy, including research; development and testing of information in plain language; health communication techniques; and organizational approaches to meet these challenges.
Not open to students with credit for Med Col 710, Alli Med 710, Pharmacy 709 or Nursing 710. Cross-listed with Med Col 710 and Alli Med 710, Pharmacy 709 and Nursing 710.

Graduate Introduction to the Study of Sexuality
GRAD 5
A broad, interdisciplinary graduate survey of the field of Sexuality Studies.
Prereq: Grad standing or permission of instructor.

Graduate Seminar in Scientific Literacy
GRAD 5
Explores nature of scientific literacy, scientific thought, roots of western science and technology and the relationship between scientific and other forms of literacy.
Wi Qtr. 2-2 hr cl.

A Multidisciplinary Seminar for Artists
GRAD 5
A seminar for graduate student artists in all fields, in which the process of art-making is examined through presentation and discussion of student work.
Sp Qtr. 1-3 hr cl. Prereq: Permission of instructor.

Group Studies
GRAD 1-5
Study of special or interdisciplinary topics at the graduate level.

Disability Studies Research Forum
GRAD 1
Research forum/round table for students enrolled in the GIS-DS to share their work in Disability Studies (both course work and independent research).
Sp Qtr. Arr. Prereq: Permission of instructor. Open to students enrolled in the Graduate Interdisciplinary Specialization in Disability Studies (GIS-DS). Repeatable to a maximum of 4 cr hrs. Required course for Graduate Interdisciplinary Specialization in Disability Studies (GIS-DS). This course is graded S/U.

Astronomy

Life in the Universe
UGRD 5
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.
GEC phy sci course.

Black Holes
UGRD 5
The nature, formation, and discovery of black holes in the universe.
Prereq: Math 075 or 076. GEC phy sci course.

History of the Universe
UGRD 5
Description of the history of the universe from Big Bang to present; how observations led to discovery of this history.
Au, Wi Qtr. 5 cr or 3 1.5-hr cl. Not open to students with credit for 162 or 172 or 292. GEC phy sci course.

Introduction to Solar System Astronomy
UGRD 5
Physical nature of the sun and its family of planets, satellites and minor bodies; gravitation, light, and telescopes.
Su, Au, Wi, Sp Qtrs. 5 cl or 3 1.5-hr cl. Prereq for 161: Math 075 or 076 or 102, or Math Placement Level R. Not open to students with credit for 171. Not intended for ASC BS students. Not recommended for students who plan to continue in astronomy or physics. This course is available for EM credit. GEC phy sci course. NS Admis Cond course.

Introduction to Solar System Astronomy
UGRD 5
Physical nature of the sun and its family of planets, satellites, comets and minor bodies; gravitation, light, and telescopes.
Su, Au, Wi, Sp Qtrs. 5 cl or 3 1.5-hr cl. Prereq: Honors program or permission of department or instructor; Math 116 or 148. Not open to students with credit for 171. Not intended for ASC BS students. Not recommended for students who plan to continue in astronomy or physics. This course is available for EM credit. GEC phy sci course. NS Admis Cond course.

Introduction to Stellar, Galactic, and Extragalactic Astronomy
UGRD 5
Structure, motions, and evolution of stars, interstellar material, galaxies, and the universe as a whole.
Su, Au, Wi, Sp Qtrs. 5 cl or 3 1.5-hr cl. Prereq: 161. Not open to students with credit for 172. Not intended for ASC BS students. Not recommended for students who plan to continue in astronomy or physics. This course is available for EM credit. GEC phy sci course. NS Admis Cond course.

Relativity and Cosmology
UGRD 5
Origin and evolution of the Universe, based on the Theory of Relativity, including the Big Bang, cosmic microwave background, formation of cosmic structure, dark matter. ** Au Qtr. 5 cl. Prereq: 162 and enrollment in an honors program; or permission of dept. GEC phy sci course.

Solar System Astronomy
UGRD 5
Development of astronomy and astrophysics; nature of the solar system, including planets, satellites, comets, asteroids, and the solar atmosphere.
** Wi Qtr. 5 cl. Prereq: Math 150. Not open to students with credit for 161. GEC phy sci course.

Stellar, Galactic, and Extragalactic Astronomy
UGRD 5
Structure and evolution of stars, interstellar material, galaxies, and the universe.
** Sp Qtr. 5 cl. Prereq: 171. Not open to students with credit for 162. GEC phy sci course.

Basic Astrophysics and Planetary Astronomy
UGRD 5
Motions and physical nature of objects in the solar system; electromagnetic radiation, telescopes, and astronomical detectors.
Au Qtr. 5 cl. Prereq or concur: Physics 133; or permission of instructor. Intended only for BS students. This course is available for EM credit.
292 Stellar, Galactic, and Extragalactic Astronomy and Astrophysics
UGRD 5
Observational and physical properties of the sun and stars; stellar structure and evolution; interstellar medium; galaxies and cosmology.
Wi Qtr. 5 cl. Prereq: 291 or permission of instructor. This course is available for EM credit.

294 Group Studies
UGRD 1-5
Special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor.

295 Topics in Astrophysics
UGRD 1
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.
Au, Wi Qtrs. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

350 Methods of Astronomical Observation and Data Analysis
UGRD 5
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.
* Au Qtr. 3 cl. 1-2 hr lab plus independent observation. Prereq: 162 or 292, Math 153, and Physics 133. GEC data analysis course.

681 Principles of Stellar Evolution and Nucleosynthesis
UGRD 5
Physics of stellar structure, evolution, and nucleosynthesis.
* Wi, Sp Qtrs. 5 cl. Prereq: Math 255 or 415; Physics 263; Physics 621 (or concurrent) required; or permission of instructor. Not open to students with credit for 641 or Physics 681. Cross-listed in Physics. Offered either spring or winter quarter.

682 Introduction to Cosmology
UGRD 5
Structure and evolution of the Universe.
** Wi, Sp Qtrs. 5 cl. Prereq: Math 255 or 415; Physics 263; Physics 621 (or concurrent) required; or permission of instructor. Not open to students with credit for 642 or Physics 682. Cross-listed in Physics. Offered either spring or winter quarter.

693 Individual Studies
UGRD 1-15
Independent library or laboratory work on a special problem in observational or theoretical astronomy.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable. This course is graded S/U.

694 Group Studies
UGRD 1-5
Special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

699 Undergraduate Research in Astronomy
UGRD 1-15
Undergraduate Research.
Prereq: permission of instructor. Repeatable to a maximum of 15 cr hrs. Natural Science Advm Cond course.

783H Honors Research
UGRD 3-5
A program of study arranged for each student, with individual conferences, reports, and honors thesis.
Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing with a grade of A in at least half of the astron courses taken, 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 2 qtrs are required of candidates for the degree BS with distinction in astron. Failure to receive a mark of S in this course is a disqualification for special honors. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

801 Astronomy Seminar I
GRAD 2
Seminars conducted on astronomical topics of current interest; students will participate actively in the presentation and discussion of materials.
Au Qtr. Prereq: 10 cr hrs each at 600-level or higher in astron, physics, and math; or permission of instructor. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

802 Astronomy Seminar II
GRAD 2
Continuation of 801.
Wi Qtr. Prereq: 801. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

803 Astronomy Seminar III
GRAD 2
Continuation of 802.
Sp Qtr. Prereq: 802. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

810 Order-of-Magnitude Astrophysics
GRAD 2
Methods for approximate solution of a wide range of astrophysical problems, building on basic physical principles.
Prereq: Grad standing in astronomy or permission of instructor. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

820 Radiation Measurements
GRAD 3
Techniques for obtaining and interpreting measurements of radiation from astronomical sources.
** Au Qtr. 3 cl. Prereq: Permission of instructor.

822 Electromagnetic Radiation
GRAD 3
Continuous radiative processes of astrophysical interest.
* Au Qtr. 2.1-5 hr cl. Prereq: Physics 656 or permission of instructor.

823 Astrophysical Spectroscopy
GRAD 3
Spectral formation in astrophysical sources, theory of atomic and molecular spectra, radiative and collisional processes in astrophysical and laboratory plasmas.
** Au Qtr. 3 cl or 2.1-5 hr cl. Prereq: Physics 532 or 632 or permission of instructor.

825 Radiative Gas Dynamics
GRAD 3
Dynamics of gas flows in astrophysical situations, including stellar winds, accretion, shock waves, and jets.
** Wi Qtr. 3 cl or 2.1-5 hr cl. Prereq: Physics 621 or permission of instructor.

830 Observed Properties of Stars and Galaxies
GRAD 5
Observed properties of individual stars and normal (non-active) galaxies.
Au Qtr. 3.1-5 hr cl. Prereq: 640 and Physics 533 or 633 or 706, or permission of instructor.

831 Stellar Interiors
GRAD 3
Theoretical aspects of the interiors and evolution of single stars.
* Sp Qtr. 3 cl. Prereq: 641, Math 255 and 551, and Physics 533 or 633 or 706, or permission of instructor.

832 Stellar Atmospheres
GRAD 3
Theory of the atmospheric structure of stars, emphasizing spectral line formation.
** Wi Qtr. 3 cl or 2.1-5 hr cl. Prereq: 641, Math 255 and 551, and Physics 533 or 633 or 706; or permission of instructor.

868 Galactic Astronomy
GRAD 3
Structure and kinematics of the Galaxy.
** Wi Qtr. 3 cl. Prereq: 640 and Physics 533 or 633 or 706, or permission of instructor.

869 Observational Cosmology and Active Galaxies
GRAD 3
Methods of observational cosmology; properties and evolution of active galacic nuclei and quasars.
** Wi Qtr. 3 cl or 2.1-5 hr cl. Prereq: Grad standing in astronomy or permission of instructor.

870 Stellar Systems
GRAD 3
Dynamics and evolution of stellar systems.
* Sp Qtr. 3 cl. Prereq: 888 or permission of instructor.

871 Interstellar Medium
GRAD 3
Physical processes occurring in interstellar gas and dust.
** Sp Qtr. 3 cl or 2.1-5 hr cl. Prereq: 825 or permission of instructor.

873 Cosmology and Structure Formation
GRAD 3
Structure and evolution of the Universe; physical processes in the early universe; formation of cosmic structure.
* Sp Qtr. 3 cl or 2.1-5 hr cl. Prereq: Grad standing in astronomy or permission of instructor.

880 Directed Research
GRAD 3
Participation by the student in the research being conducted by a professor.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs. Repeatable only under supervision of different faculty members. This course is graded S/U.

890 Topical Seminars in Astronomy
GRAD 1
Focused seminars on topics and methods of contemporary astronomical research.
Sp Qtrs. Times by arrangement flexible: 4 1.5-hr lectures/quarter. Prereq: Grad standing in astronomy or permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

894 Group Studies
GRAD 1-5
Special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 15 cr hrs.

999 Research in Astronomy and Astrophysics
GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Athletic Training

303 Basic Athletic Training
UGRD 5
Introduction to profession of Athletic Training, its governing organizations and basic knowledge and skills in prevention, recognition, management and rehabilitation of injuries and illnesses.
Su, Au, Wi, Sp Qtrs. 2.2 hr cl, 2 hr lab. Prereq or concur: Chem 121. Only open to Pre AT majors or by permission of instructor. Students seeking a sports medicine course for non-majors should take 661.
**350 Managing Risks, Emergencies and Patient Care in the Pre-Season**

Integration into AT practice emphasizing unique risks and demands of the pre-season. Focus on applying risk management, emergency procedures, patient interaction, treatments, and modalities. Su Qtr. 1.5-hr cl, 1.5-hr lab (7 wks). Prereq: 303. Open only to students admitted to Athletic Training major. Repeatable to a maximum of 4 cr hrs. Includes supervised clinical practice.

**420 Evaluation and Acute Management of Lower Extremity Pathologies**

Pathology, evaluation, diagnosis, on-field care, and management of lower extremity pathologies by athletic trainers. Special emphasis on management of acute trauma and return to play determinations. Au Qtr. 2-2 hr-cl, 1-2 hr-lab. Prereq or concur: 350. Open only to students admitted to Athletic Training major.

**421 Evaluation and Acute Management of Upper Extremity Pathologies**

Pathology, evaluation, diagnosis, on-field care, and management of upper extremity pathologies by athletic trainers. Special emphasis on management of acute trauma and return to play determinations. Wi Qtr. 2-2 hr-cl, 2-2 hr-lab. Prereq: 420. Open only to students admitted to Athletic Training major.

**422 Evaluation and Acute Management of Head and Spinal Pathologies**

Pathology, evaluation, diagnosis, on-field care, and management of head and spinal pathologies by athletic trainers. Special emphasis on management of acute trauma and return to play determination. Sp Qtr. 2-2 hr-cl, 2-2 hr-lab. Prereq: 421. Open only to students admitted to Athletic Training major.

**430 Experience in Athletic Training I**

Supervised clinical experience in the application of Athletic Training techniques. Focus is on risk management/injury prevention and acute care of athletic injuries and illnesses. Au Qtr. 16 hrs supervised clinical practice and assessment per week. Prereq: Admission to major or permission of instructor. First of 9 clinical experience courses for Athletic Training majors.

**431 Experience in Athletic Training II**

Supervised clinical experience in the application of Athletic Training techniques. Focus is on assessment and evaluation of the upper extremity. Wi Qtr. 16 hrs supervised clinical practice and assessment per week. Prereq: 430. Second of 9 clinical experience courses for Athletic Training majors.

**432 Experience in Athletic Training III**

Supervised clinical experience in the application of Athletic Training techniques. Focus is on assessment and evaluation of the lower extremity. Sp Qtr. 16 hrs supervised clinical practice and assessment weekly. Prereq: 431. Open only to Athletic Training majors or by permission of instructor. Third of 9 clinical experience courses for Athletic Training majors.

**521 Athletic Training Therapeutic Exercise I**

Theory and clinical application of therapeutic exercise in rehabilitation by Athletic Trainers. Emphasis on foundations, basic strategies and techniques. Wi Qtr. 2-2 hr-cl, 1-2 hr-lab. Prereq: 540. Open only to students admitted to Athletic Training major.

**522 Athletic Training Therapeutic Exercise II**

Theory and clinical application of therapeutic exercise in rehabilitation by Athletic Trainers. Emphasis on application, advanced strategies and techniques. Sp Qtr. 2-2 hr-cl, 1-2 hr-lab. Prereq: 521 or permission of instructor. Open only to students admitted to Athletic Training major.

**530 Experience in Athletic Training IV**

Supervised clinical experience in the application of Athletic Training techniques. Focus is on the evaluation of head and spine injuries and illnesses. Au Qtr. 16 hrs supervised clinical practice and assessment weekly. Prereq: 432. Open only to Athletic Training majors or by permission of instructor. Fourth of 9 clinical experience courses for Athletic Training majors.

**531 Experience in Athletic Training V**

Supervised clinical experience in the application of Athletic Training techniques. Focus is on the application of therapeutic modalities and pharmacological practices. Wi Qtr. 16 hrs supervised clinical practice and assessment weekly. Prereq: 530. Open only to Athletic Training majors or by permission of instructor. Fifth of 9 clinical experience courses for Athletic Training majors.

**532 Experience in Athletic Training VI**

Supervised clinical experience in the application of Athletic Training techniques. Focus is on the basic components of therapeutic exercise. Sp Qtr. 16 hrs supervised clinical practice and assessment weekly. Prereq: 531. Open only to Athletic Training majors or by permission of instructor. Sixth of 9 clinical experience courses for Athletic Training majors.

**540 Care of Medical Emergencies, Trauma, and Disease**

Pathology, evaluation, on-field care, and management of disease and trauma by athletic trainers. Special emphasis on management of catastrophic injury and on inflammation and repair. Sp Qtr. 2-2 hr-cl, 1-2 hr-lab. Prereq: 420, 421, concur-422.

**550 Athletic Training Biomechanics**

Theory and clinical application of biomechanics, kinetics, and kinematics by Athletic Trainers in the prevention, evaluation, management, and rehabilitation of injuries. Wi Qtr. 2-1.5 hr-cl, 1-2 hr-lab. Prereq: Physics 101 or higher, or permission of instructor. Open only to Athletic Training majors or by permission of instructor.

**600 Athletic Training Ethics**

Application of ethics and legal principles to the practice of Athletic Training. Focus is on making ethical decisions and on understanding and minimizing legal liability in Athletic Training practice. Sp Qtr. 2-2 hr-cl.

**610 Athletic Training Therapeutic Modalities**

Theory and clinical application of physical agents including heat, cold, light, sound, electromagnetic and mechanical energy in treatment and rehabilitation performed by Athletic Trainers. Au Qtr. 2-2 hr-cl, 1-2 hr-lab. Prereq: 540. Open only to Athletic Training majors or by permission of instructor.

**620 Pharmacology in Athletic Training**

Overview of pharmacokinetics, pharmacodynamics, drug law and selected medications common to sports medicine. Emphasis on drug administration, physiology, adverse reaction, and athletic eligibility ramifications. Wi Qtr. 2-1 hr-cl, 1-1 hr-lab. Prereq: 540, 600. Open only to Athletic Training majors or by permission of instructor.

**625 Administration in Athletic Training**

Administration of Athletic Training programs. Includes management of personnel, budget, facilities, medical records, insurance, legal liability, emergency plans, public relations, and other topics. Wi Qtr. 2-2 hr-cl. Prereq: 630. Open only to Athletic Training majors or permission of instructor.

**630 Experience in Athletic Training VII**

Supervised clinical experience in the application of Athletic Training techniques. Focus is on advanced techniques in therapeutic exercise. Au Qtr. 1-2 hr-cl. Prereq: 532. Open only to Athletic Training majors or by permission of instructor. Seventh of 9 clinical experience courses for Athletic Training majors.

**631 Experience in Athletic Training VIII**

Supervised clinical experience in the application of Athletic Training techniques. Focus is on the evaluation of visceral injuries and illnesses, assessment of general medical conditions and disabilities, and NATABOC preparation. Wi Qtr. 1-1 hr-cl. Prereq: 630. Open only to Athletic Training majors or by permission of instructor. Eighth of 9 clinical experience courses for Athletic Training majors.

**632 Experience in Athletic Training IX**

Supervised clinical experience in the application of Athletic Training techniques. Focus is on administration in Athletic Training, professional development, psychological aspect of injury and rehabilitation, and nutritional counseling. Sp Qtr. 1-1 hr-cl. Prereq: 631. Open only to Athletic Training majors or by permission of instructor. Last of 9 clinical experience courses for Athletic Training majors.

**635 Psychosocial Issues, Identification and Mediation in Physically Active Patients**

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. Au Qtr. 1-1.5 hr-cl, 1-1.5-hr lab.

**640 Special Topics in Athletic Training**

Comprehensive discussion of timely issues and recently published or presented research in sports medicine. Also includes a program cumulative mock certification examination. Sp Qtr. 2-2 hr-cl. Prereq: 625. Open only to Athletic Training majors or permission of instructor.

**661 Survey of Sports Medicine**

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. Su, Au, Wi, Sp Qtr. 2-2 hr-cl, 1-1 hr-lab. Not open to athletic training majors.

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**Atmospheric Sciences**

**230 Basic Meteorology**

Introduction to the underlying physics of the atmosphere; basic equations of thermodynamics, radiation, and dynamics are presented and used to explain selected atmospheric phenomena. Sp Qtr. 5 cl. Prereq: Math 152 and Physics 132. Not open to students with credit for Geog 520.
620 Synoptic Meteorology Laboratory UGRD 3
Introduction to reading and interpretation of synoptic weather maps and diagram-and
data-communication systems.
Au Qtr. 2 cl, 1 lab hr. Prereq or concur: 230 or Geog 520. Not open to students with credit for Geog 620. Cross-listed in Geography.

629 Climate System Modeling: Basics and Applications UGRD 5
An examination of climate system modeling, including their component atmospheric, oceanic, sea ice and land surface models, and their coupling, and their applications. Prereq: 230 or Geog 520 or permission of instructor.

631 Atmospheric Thermodynamics UGRD 5
An analysis of the fundamentals of atmospheric thermodynamics and their application to meteorological problems.
Au Qtr. 5 cl. Prereq: Math 153.

637 Dynamic Meteorology I UGRD 5
Fundamental problems in dynamic meteorology; components of the equations of atmospheric motion are derived, and vorticity and divergence in the development of meteorological systems.
Wi Qtr. 5 cl. Prereq: 631 and Math 255 or 415.

638 Dynamic Meteorology II UGRD 5
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.
Sp Qtr. 5 cl. Prereq: 637 or Aero Eng 765.

689 Internship in Atmospheric Sciences UGRD 3-10
An opportunity for practical experience and on-the-job learning in an atmospheric sciences related work place.
Prereq: 10 hours of major program courses and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

693 Individual Studies in Atmospheric Sciences UGRD 1-5
Independent studies on selected atmospheric sciences related topics.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

694 Group Studies in Atmospheric Sciences UGRD 1-5
Special studies on topics directly related to the atmospheric sciences.
3 cl. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

699 Undergraduate Research in Atmospheric Sciences UGRD 1-15
Undergraduate research on topics in the atmospheric sciences. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

783H Honors Research UGRD 3-5
A program of research which includes individual conferences and which culminates in an honors thesis and an oral defense.
Prereq: Approved candidacy for graduation with distinction, which includes faculty advisor and ASC Honors Committee approval of a project, a minimum of 3.5 GPA in the field of distinction, senior standing, and a cumulative GPA commensurate with honors program membership. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

881 Atmospheric Sciences Seminar GRAD 2-4
A multidisciplinary seminar reviewing selected topics in atmospheric sciences and related fields.
Au Qtr. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.

893 Individual Studies in Atmospheric Sciences GRAD 1-5
Reviews the state-of-the-art of selected topics in the atmospheric sciences-related fields of meteorology and climatology, air environment studies, or aeronomy and solar terrestrial relations.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

894 Group Studies in Atmospheric Sciences GRAD 1-5
Advanced studies on topics directly related to the atmospheric sciences.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

999 Research in Atmospheric Sciences GRAD 1-18
Research for thesis or dissertation purpose only.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing in atmos sc. Repeatable. This course is graded S/U.

Aviation

294 Group Studies in Aviation UGRD 2-5

300 The National Aviation System UGRD 3
A comprehensive survey of the national aviation system.
Au, Wi, Sp Qtrs. 2 cl or 1 3-hr cl.

310.01 Private Pilot Fundamentals UGRD 5
Study of flight fundamentals, aircraft operation, weather, and regulations essential for the private pilot.
Su, Au, Wi, Sp Qtrs. 5 cl, or 1 2-hr cl and 1 3-hr cl. Prereq: Eligible to enroll in Math 148. Not open to students with credit for 310.

322 Aviation History UGRD 3
A survey of the evolution of aviation; emphasis on the development of the national aviation system and its social, economic, and political impact.
Wi Qtr. 2 cl, or 1 3-hr cl.

341 Private Pilot Flight Lab I UGRD 2
Laboratory course providing students an opportunity to learn the fundamentals of flight and airplane operation leading to solo flight.
Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Obtain equipment usage charge and permission slip at University Airport prior to scheduling.

342 Private Pilot Flight Lab II UGRD 2
Laboratory course providing students an opportunity to learn the fundamentals of flight and airplane operation leading to Private Pilot certification.
Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 310 and 341. Obtain equipment usage charge and permission slip at University Airport prior to scheduling.

410 Aviation Weather UGRD 3
Overview of weather theory; identification of aviation weather hazards and methods for obtaining current weather data.
Au, Wi Qtrs. 3 cl or 1 3-hr cl. Prereq: 300, 310. Requires one unit of high school physics.

413 Commercial Pilot Fundamentals UGRD 3
A study of high-performance airplane operational considerations, systems, and components and the Federal Aviation Regulations which govern the operations, privileges, and limitations of commercial pilots.
Au, Sp Qtrs. 3 1-hr cl. Prereq: 410.

415 Instrument Flight Fundamentals UGRD 3
Study of flight by reference to instruments, IFR regulations, and procedures in the national airspace system.
Au, Sp Qtrs. 3 cl or 1 3-hr cl. Prereq: 410.

417 Advanced Multiengine Operations UGRD 2
The study of the principles of operation of the contemporary corporate airplane.
Wi Qtr. 2-3 hr cl. Prereq: 411.

421 Flight Instruction Methodology UGRD 3
Principles of teaching aeronautical subjects.
Au, Sp Qtrs. 3 1-hr cl. Prereq: 411, 413, and 415.

422 Instrument Instruction Methodology UGRD 2
Principles of teaching instrument flight theory and requirements.
^ Sp Qtr. 1 2-cl hr. Prereq: 421.

441 Commercial Flight Lab 1 UGRD 3
Development of commercial pilot skills and experiences, fundamentals of instrument flight.
Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 342. Obtain equipment usage charge and permission slip at Ohio State Airport prior to scheduling.

442 Commercial Pilot Flight Lab 2 UGRD 3
Further development of commercial pilot skills and experience, completion of instrument flight instruction.
Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 415 and 441. Obtain equipment usage charge and permission slip at University Airport prior to scheduling.

443 Commercial Pilot Flight Lab 3 UGRD 3
Complex airplane (SEL) flight instruction.
Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 442. Obtain equipment usage charge and permission slip at University Airport prior to scheduling.

444 Commercial Pilot SEL Flight Lab 4 UGRD 3
SEL commercial and instrument flight skills.
Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 443 and 444. Obtain equipment usage charge and permission slip at University Airport prior to scheduling.

445 Commercial Pilot SEL Flight Lab 5 UGRD 3
Leads to SEL commercial certificate.
Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 444. Obtain equipment usage charge and permission slip at University Airport prior to scheduling.

446 Commercial Pilot MEL Flight Lab 4 UGRD 3
Development of MEL commercial pilot flight skills; leads to multi-engine rating.
Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 413 and 443. Obtain equipment usage charge and permission slip at University Airport prior to scheduling.
447 Commercial Pilot MEL Flight Lab 5 UGRD 3 Development of MEL instrument flight skills; leads to MEL instrument rating.
  Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 446. Obtain equipment usage charge and
  permission slip at University Airport prior to scheduling.

461 Flight Instructor ASEL Flight Lab UGRD 3 Development of skills and experience necessary for certification as flight instructor
  airplane SEL.
  Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 421 and 445 or 447. Obtain equipment usage
  charge and permission slip at University Airport prior to scheduling.

462 Flight Instructor Instrument Airplane UGRD 3 Flight Lab
  Development of skills and experience necessary for flight instructor instrument rating
  Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 422 and 445 or 447. Obtain equipment usage
  charge and permission slip at University Airport prior to scheduling.

463 Flight Instructor AMEL Flight Lab UGRD 3 Development of skills and experience necessary for airplane MEL rating.
  Su, Au, Wi, Sp Qtrs. 5 1-hr labs. Prereq: 421 and 447. Obtain equipment usage charge
  and permission slip at University Airport prior to scheduling.

498 Professional Practice in Industry UGRD 2 Actual employment in a co-op program in the aviation industry and the preparation of
  a report based on the work experience.
  Su, Au, Wi, Sp Qtrs. Prereq: Admission to co-op program in aviation and written
  permission of dept. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

  Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a
  maximum of 10 cr hrs. This course is graded S/U.

530 Aviation Regulation UGRD 3 Introduction to federal regulations with particular emphasis on Title 14 of the Code of
  Federal Regulations governing Aviation.
  Au, Sp Qtrs. 3 cl or 1 3-hr cl. Prereq: 310.01 or 310.02.

540 Aviation Human Factors UGRD 3 An examination of human factors problems in aviation safety including aircraft design
  aviation systems design, and human behavior.
  Au, Sp Qtrs. 3 cl or 1 3-hr cl. Prereq: 300, 310, Stat 135.

550 Aviation Management UGRD 3 A blend of accepted business procedures and practical techniques applied to aviation
  management; includes general aviation, airlines, airports, aircraft, and air traffic control.
  * Au, Sp Qtrs. 3 cl or 1 3-hr cl. Prereq: 300, 310 and Econ 200.

552 Airport Management UGRD 3 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.
  Au, Sp Qtrs. 1 3-hr cl. Prereq: 550.

560 Aviation Safety UGRD 3 Review of safety concepts with emphasis on ground and flight safety.
  Su, Wi Qtr. 1 3-hr cl. Prereq: 540 or permission of instructor.

591 Flight Network Analysis and Optimization UGRD 3 Introduction to planning and operating an airline, including route analysis, scheduling
  fleet planning, and maintenance.
  Wi, Sp Qtrs. 2 1.5-hr cl. Prereq: 300 and 550.

593 Individual Studies in Aviation UGRD 2-5 Individual Studies in Aviation.
  Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a
  maximum of 10 cr hrs. This course is graded S/U.

650 Air Transportation Analysis I UGRD 3 Analysis and planning of air transportation systems; focus on air transportation supply
  and demand components, and examples from U.S. domestic and international airlines,
  passenger and cargo.
  Au, Sp Qtrs. 3 cl or 1 3-hr cl. Prereq: 550 and Econ 400 or Econ 201.

652 The International Aviation System UGRD 3 Overview of the international system: aeropolitical framework, air transport, air
  navigation, and contemporary issues.
  Wi Qtr. 3 cl or 1 3-hr cl. Prereq: 550.

654 Airline Marketing UGRD 3 Contemporary marketing concepts and procedures and their applications in the airline
  industry with emphasis on domestic and international passenger service and service
  planning.
  Wi Qtr. 3 cl or 1 3-hr cl. Prereq: 550.

674 Airport Systems Planning, Design, and Development UGRD 3 Comprehensive study of airport planning, design, and development to support
  commercial and general aviation.
  Su Qtr. 1 3-hr lab. Prereq: 552 (recommended).

693 Individual Studies UGRD 2-5 Individual conferences, assigned readings and reports on advanced topics in aviation.
  Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

  Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a
  maximum of 10 cr hrs.

699 Undergraduate Research in Aviation UGRD 1-5 Opportunity for undergraduate student to conduct research in Aviation.
  Su, Au, Wi, Sp Qtrs. Prereq: Engineer 183. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

750 Air Transportation Analysis II UGRD 3 Application and use of specific analytical techniques for analyzing aviation data for
  decision analysis.
  Wi Qtr. 3 cl or 1 3-hr cl. Prereq: 650 or permission of instructor.

783H Honors Research UGRD 2-5 A research investigation resulting in an honors project for a senior thesis.
  Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

Biochemistry

200H Early Experience in Research in Biochemistry: Seminar UGRD 2 Two quarter introduction to biochemical research through seminars and laboratory
tours by faculty in the Department of Biochemistry. The second quarter will link with
Biochem H201 and will involve a seminar and student presentations.
  Wi Qtr. 1 2-hr cl. This course is graded S/U.

201H Early Experience in Research in Biochemistry: Laboratory UGRD 3 A laboratory supplement to Biochem H200 to introduce undergraduate to biochemical
research.
  Sp Qtrs. Prereq: Biology 113 or Chem 121 and Biochem H200. This course is
graded S/U.

211 Elements of Biochemistry I UGRD 3 A survey of biochemistry in a two-quarter sequence stressing the qualitative rather
than the quantitative approach.
  Au Qtr. 3 cl. Prereq: Chem 102 or 122. Credit does not count toward major in
biochem. This course is available for EM credit.

212 Elements of Biochemistry II UGRD 3 A continuation of 211.
  Wi Qtr. 3 cl. Prereq: 211. Credit does not count toward a major in biochem.

294 Group Studies UGRD 1-5 Group Studies.
  Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20
cr hrs. For different subject matter only.

511 Introduction to Biological Chemistry UGRD 5 An introductory course in biochemistry dealing with the molecular basis of structure
and metabolism of plants, animals, and microorganisms.
  Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: Chem 123 or 125 and 252, and 2 qtrs of biological
sciences. The organic chemistry requirement (Chem 252) may also be satisfied by
Chem 231 with a grade of at least C. This course is available for EM credit.

521 Introduction to Biological Chemistry: Laboratory UGRD 5 Laboratory
  Assay techniques for chemical constituents and metabolic reactions of living cells.
  Wi, Sp Qtrs. 2 cl, 2 3-hr labs. Prereq: 511 or 613 or equiv.

521H Introduction to Biological Chemistry: Laboratory UGRD 5 Laboratory
  Assay techniques for chemical constituents and metabolic reactions of living cells.
  Wi, Sp Qtrs. 2 cl, 2 3-hr labs. Prereq: Honors program or permission of department or
instructor, 511 or 613 or equiv., and Chem 221.

591 DNA Finger Printing Workshops in Columbus Public Schools UGRD 2 A service learning course whereby undergraduates mentor high school students in
molecular biology workshops.
  Sp Qtr. Repeatable to a maximum of 6 cr hrs. Undergraduates present workshops in
Columbus Public Schools. Cross-listed in Microbiology and Molecular Genetics.
  Service learning course. This course is graded S/U.
613 Biochemistry and Molecular Biology UGRD 4
An introductory course in biochemistry and molecular biology developing in three quarters the molecular basis of structure and function of living cells. 
Au Qtr. 4 cl. Preq: Chem 253 and 2 qtrs of biological sciences. Not open to students with credit for 511 without written permission of instructor. Not open to students with credit for 513. This course is available for EM credit.

614 Biochemistry and Molecular Biology UGRD 4
Continuation of 613.
Wi Qtr. 4 cl. Preq: 613. This course is available for EM credit.

615 Biochemistry and Molecular Biology UGRD 4
Continuation of 614.
Sp Qtr. 4 cl. Preq: 614. This course is available for EM credit.

693 Individual Studies UGRD 2-10
Individual Studies.
Su, Au, Wi, Sp Qtrs. Preq: Permission of instructor. Repeatable to a maximum of 40 cr hrs for grad credit and a maximum of 20 cr hrs for undergrad credit. This course is graded S/U.

694 Group Studies UGRD 1-5
Group Studies.
Su, Au, Wi, Sp Qtrs. Preq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Domestic.
Preq: Permission of instructor. Repeatable for different titled study tours only. Repeatable.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Foreign.
Preq: Permission of instructor. Repeatable for different titled study tours only. Repeatable.

699 Undergraduate Research in Biochemistry UGRD 1-15
Undergraduate research in biochemistry, structural and molecular biology.
Su, Au, Wi, Sp Qtrs. Arr. Preq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

702 Molecular Genetics: Regulation of Gene Expression UGRD 3
Transcription, translation, and regulation of gene expression in prokaryotes and eukaryotes; emphasis on concepts and experimental analysis of gene regulatory mechanisms.
Wi Qtr. 3 cl. Preq: Mol Gen 701 or permission of instructor.

706 Advanced Biological Chemistry Lab UGRD 5
Advanced laboratory integrating recombinant DNA technology including cloning and mutagenesis with protein expression, purification, and characterization.
Au Qtr. 3-4 hr labs. Preq: 511 and 521 or equiv or permission of instructor.

708 Protein and Enzyme Laboratory UGRD 5
Purification, characterization, and study of the physical and catalytic properties of enzymes and proteins. 
^ Sp Qtr. 2-4 hr labs. Preq: 521 and 761; or equivs; or permission of instructor.

710 Molecular Biology Laboratory UGRD 5
Isolation of recombinant phage and phage DNA, subcloning of DNA fragments, restriction enzyme analysis, nucleic acid hybridization, RNA metabolism. 
^ Wi Qtr. 2-4 hr labs. Preq: 521 and 511 or 702; or equivs; or permission of instructor.

721.01 Physical Biochemistry I UGRD 3
Introduction to physical chemistry with emphasis on biological applications; designed for students in the life sciences.
Au Qtr. 3 cl. Preq or concurr: 511 or 613, Math 153 (254 recommended), and Physics 113 or 133; or permission of instructor.

721.02 Physical Biochemistry II UGRD 3
A continuation of 721.01.
Wi Qtr. 3 cl. Preq: 511 or concurr: 614 and 721.01; or permission of instructor.

721.03 Physical Biochemistry III UGRD 3
A continuation of 721.02.
Sp Qtr. 3 cl. Preq: 721.02.

735 Plant Biochemistry I UGRD 3
The biochemistry of plant chloroplasts and mitochondria: photosynthesis, carbohydrate metabolism, sulfate and nitrate reduction, chlorophyll and heme synthesis, chloroplast development, respiration, and mitochondrial development. 
^ Au Qtr. 3 cl. Preq: 511 or 614. Not open to students with credit for PCMB 735. Cross-listed in PCMB.

736 Plant Biochemistry II UGRD 3
The biochemistry of plants with emphasis on the synthesis and structure of cell walls, lipids, secondary compounds, phytohormones, and nitrogen fixation.
^ Wi Qtr. 3 cl. Preq: 735. Not open to students with credit for PCMB 735. Cross-listed in PCMB.

761 Advanced Biochemistry: Proteins UGRD 3
An advanced treatment of protein biochemistry.
Au Qtr. 3 cl. Preq: 615 and Chem 253, 255, and 521; or equivs. Not open to students with credit for Chem 761 or Molbioch 761. Cross-listed in Chemistry, and Molecular and Cellular Biochemistry.

762 Advanced Biochemistry: Enzymes UGRD 3
An advanced treatment of enzymology.
Au Qtr. 2-1.5 hr cl. Preq: 615 and Chem 253, 255, and 521; or equivs. Not open to students with credit for Chem 762, or Molbioch 762. Cross-listed in Chemistry, and Molecular and Cellular Biochemistry.

763 Advanced Biochemistry: Membranes and Bioenergetics UGRD 2
An advanced treatment of membranes and bioenergetics.
Wi Qtr. 2 cl. Preq: 615 and Chem 253, 255, and 521; or equivs. Not open to students with credit for Chem 763 or Molbioch 763. Cross-listed in Chemistry, and Molecular and Cellular Biochemistry.

765 Advanced Biochemistry: Physical Biochemistry UGRD 3
Nuclear magnetic resonance, optical spectroscopy, and mass spectroscopy.
Sp Qtr. 1.2-5 cl. Preq: 615 and Chem 253, 255, and 521; or equivs. Not open to students with credit for Chem 765 or Molbioch 765. Cross-listed in Chemistry, and Molecular and Cellular Biochemistry.

770 Protein Engineering UGRD 3
Current research on genetic engineering of proteins for biotechnological and theoretical studies.
Au Qtr. 2.1-5 hr cl. Preq: 702, 761, and Microbiol 680 or Mol Gen 701.

775 Biophysical Chemistry UGRD 3
Techniques and principles of physical biochemistry, emphasizing chromatography, electrophoresis, centrifugation, ultrafiltration, and circular dichroism. 
^ Sp Qtr. 3 cl. Preq: Introductory courses in biochemistry and physical chemistry or permission of instructor.

783H Honors Research UGRD 3-5
A program of reading and research for each student with individual conferences, reports, and honors thesis.
Su, Au, Wi, Sp Qtrs. Arr. Preq: 4th yr standing with a grade of A in at least half of the courses in biochem 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. Repeatable to a maximum of 15 cr hrs. At least 2 qtrs are required of candidates for the degrees BA or BS with distinction in biochem. Failure to receive a mark of S in this course is a disqualification for special honors. This course is grade S/U.

785 Research Principles and Techniques UGRD 2-10
Research Principles and Techniques.
Au, Wi, Sp Qtrs. Preq: Permission of instructor. Repeatable to a maximum of 40 cr hrs. for grad credit and a maximum of 20 cr hrs for undergrad credit.

795 Special Topics in Biochemistry UGRD 1-3
Lecture/discussion in a seminar format of publications, current research, or research techniques in biochemistry.
Su, Au, Wi, Sp Qtrs. Arr. Preq: 521 and 615; or permission of instructor. Repeatable to a maximum of 40 cr hrs. This course is graded S/U.

850 Seminar in Biological Chemistry GRAD 2
Seminar in Biological Chemistry.
Au, Wi, Sp Qtrs. Arr. 1 or 2 cl. Repeatable to a maximum of 40 cr hrs. This course is graded S/U.

890 Interdepartmental Seminar in Molecular, Cellular, and Developmental Biology GRAD 2
Students will present oral reports and lead discussion on research progress in specific areas of developmental biology. 
^ 1-2 hr cl. Preq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Given cooperatively by Biochemistry, Molecular Genetics, Microbiology, and Plant Biology. This course is graded S/U.
Advanced treatment of areas of current interest in biochemistry; topics will be announced each quarter.
Su, Au, Wi, Sp Qtr. Arr. Prereq: 613 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

Bio-Macromolecular NMR Spectroscopy
Application of NMR spectroscopy to the study of biological macromolecules. Heteronuclear NMR, product operators, multidimensional spectra, proteins, nucleic acids, structure determination, dynamics, ligand complexes.
Sp Qtr. Prereq: Grad status in Biochemistry, Biophysics or Chemistry, or instructor permission.

Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.

Biology: Interdisciplinary

Biological Sciences Survey
Academic requirements, University procedures, grading system, resources; student rights and responsibilities; overview of Biological Sciences areas of study, Arts and Sciences services.
Au Qtr. Not open to students with credit for Agr Int 100, Arts Col 100.01 or 100.02, Arts&Sci 100 or 100.01 or 100.02, Engineer 100, Hum Col 100, MPS Col 100, SBS Col 100, or any decimal subdivision of Univ Col 100. This course is graded S/U.

Biological Sciences Survey
Academic requirements, University procedures, grading system, resources; student rights and responsibilities; overview of Biological Sciences areas of study, Arts and Sciences services.
Au Qtr. Prereq: Honors program or permission of department or instructor. Not open to students with credit for Agr Int 100, Arts Col 100.01 or 100.02, Arts&Sci 100 or 100.01 or 100.02, Engineer 100, Hum Col 100, MPS Col 100, SBS Col 100, or any decimal subdivision of Univ Col 100. This course is graded S/U.

Individual Studies
Individual Study projects in selected interdisciplinary topics in the Biological Science.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

Group Studies
Group studies of special interdisciplinary topics not otherwise offered in the Biological Sciences.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

Internship in the Biological Sciences
A cooperative education or internship assignment conducted under the supervision of a faculty member.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

Biological Roots in England
A short-term study abroad course examining the history of biology in England.
Wi Qtr. 3 cr. Prereq: 10 cr hrs of biological sciences.

Individual Studies
Designed to give a properly qualified student opportunity for independent reading, study or laboratory work in a specialized field of interest in the Biological Sciences.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Group Studies
Designed to give groups of students an opportunity to pursue special studies not otherwise offered in the Biological Sciences.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

Interdepartmental Seminar
Two or more departments or colleges may collaborate in presenting seminars in subjects of mutual interest; topics to be announced.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable by permission. This course is graded S/U.

Introductory Biology
Basic principles of biology; topics include nature of science, organismal diversity, evolution, ecology, genetics, reproduction, cell structure and function.
Su, Au, Wi, Sp Qtrs. 3 cr, 1 3-hr rec/lab; or 2 1.5-hr cr, 1 3-hr rec/lab Prereq: Math 075 or 076 or 104 or Mathematics Placement Level R. Not open to students with credit for 113 or H115, or Entomol 101, or PCMB 101. Not intended for the student pursuing an undergraduate major in one of the biological sciences. This course is available for EM credit. GEC bio sci course. E101 may be available for honors embedded experience at the Newark Campus.

Human Biology
Exploration of human biology; topics include structure and physiological function, reproduction and development, genetics and disease, ecology and evolution.
Su, Au, Wi, Sp Qtrs. 3 cr or 2 1.5-hr cl, 1 2-hr film/video presentation. Prereq: 101. Not open to students with credit for 114 or H116. Not intended for the student pursuing an undergraduate major in one of the biological sciences. This course is available for EM credit. GEC bio sci course.

Living Chemistry
Explores the nexus between biology and chemistry to advance understanding of biology studies in Biology 101, and to consider the relationship of biology to current issues.
Wi Qtr. 3 cr, 2 1-hr rec. Prereq: 101 and concurrent enrollment in Chem 100. GEC bio sci course. Biology 103 is a sequence to Biology 101 and is part of a two-course cluster with Chem 100.

Biological Sciences: Energy Transfer and Development
Exploration of biology and biological principles; evolution and the origin of life, cell structure and function, bioenergetics, and genetics. A broad introduction to biology comprises both Biology 113 and 114.
Su, Au, Wi, Sp Qtrs. 3 cr or 2 1.5-hr cl, 1 3-hr lab, 1 1-hr rec. Prereq: Chem 101 or 121 or H201. Not open to students with credit for H115. This course and 114 provide a comprehensive two-qtr sequence in general biology. This course is available for EM credit. GEC bio sci course. NS Admin Cond course.

Honors Biology I
Exploration of biology and biological principles; evolution and the origin of life, cell structure and function, bioenergetics, and genetics, with emphasis on current research.
A broad introduction to biology comprises both Biology H115 and H116.
Au, Wi, Sp Qtrs. 4 cr, 1 3-hr lab. Prereq: 113. Not open to students with credit for H116. This course is available for EM credit. GEC bio sci course. NS Admin Cond course.

Honors Biology II
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 H115 and H116.
Au, Wi, Sp Qtrs. 3 cr, 1 3-hr lab, 1 1-hr rec. Prereq: Chem 121 or H201, and enrollment in an honors program. Not open to students with credit for 113. Intended for the undergraduate student pursuing a major in the life sciences. GEC bio sci course. NS Admin Cond course.

Honors Biology I
Exploration of biology and biological principles; evolution and the origin of life, cell structure and function, bioenergetics, and genetics, with emphasis on current research.
A broad introduction to biology comprises both Biology H115 and H116.
Wi, Sp Qtrs. 3 cr, 1 3-hr lab, 1 1-hr rec. Prereq: H115. Not open to students with credit for 114. GEC bio sci course. NS Admin Cond course.

Group Studies
Group studies of special topics not otherwise offered in Biology.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

Introduction to Research
Introduction to undergraduate research or creative activities on various topics.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

The Biology of Hope and Belief
Examines evolutionary significance of hope and near universal desire to believe in a supernatural deity from multiple perspectives and details the neurochemistry of both phenomena.
Wi Qtr. GEC bio sci course.

Integrated Biology I
A case studies approach is used to gain a better understanding of biological concepts and principles. This course is designed for biology majors.
Au, Wi Qtrs. Prereq: Biology 113 or H115 and 114 or H116 and Chem 123 and Math 150; or permission of instructor.

Integrated Biology II
A case studies approach is used to gain a better understanding of biological concepts and principles. This course is designed for biology majors.
Prereq: 401, and Chem 123; and Math 150; or permission of instructor.

Biology of Human Diversity: Race, Gender, and Ethnicity
Historical perspectives on contemporary issues in human biology and biocultural problems.
Au, Sp Qtrs. 3 cr, 1 2-hr rec. Prereq: 10 cr hrs of biological sciences course work and standing. GEC contemporary world and social diversity course.
693 Individual Studies UGRD 1-5
A program of individual research in the biological sciences appropriate for the student's needs.
Su, Au, Wi, Sp Qtr. Prereq: 113 or H115, and 114 or H116, and permission of adviser and supervising instructor. Biology majors carrying out research in the Biological Sciences should register for 693 in supervising instructor's dept. Repeatable to a maximum of 20 cr hrs. Not more than 5 cr hrs of 693, 699, or H783 may be counted toward an undergraduate major in biology. This course is graded S/U.

694 Group Studies UGRD 1-5
Group studies of special topics not otherwise offered in Biology.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtr. Prereq: Written permission of Biological Sciences academic advisor or biology advisor. Repeatable to a maximum of 45 cr hrs. This course is Progress ('P') graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

699 Undergraduate Research in Biology UGRD 1-15
Undergraduate research in biology.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of adviser and supervising instructor. Repeatable to a maximum of 15 cr hrs. Biology majors carrying out research in the Biological Sciences should register for 699 in supervising instructor's department. Not more than 5 cr hrs of 693, 699 or H783 may be counted toward an undergraduate major in biology. This course is graded S/U.

701 Biology College Teaching GRAD 3
Students take a scholarly approach to studying theory-based methods to help undergraduates learn biology. Students consider the methods as an instructor, peer reviewer, and student. Offered only to graduate students in the Biological Sciences.

702 Topics in Biology Teaching UGRD 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.
Au, Wi, Sp, Su Qtrs. This course is graded S/U. Repeatable.

703H Honors Research UGRD 1-5
A program of individual research in the biological sciences appropriate for the student's needs.
Su, Au, Wi, Sp Qtrs. Prereq: 113 or H115, and 114 or H116, and permission of adviser and supervising instructor. Biology majors carrying out research in the Biological Sciences should register for 703 in supervising instructor's dept. Repeatable to a maximum of 20 cr hrs. Not more than 5 cr hrs of 693, 699, or H783 may be counted toward an undergraduate major in biology. This course is graded S/U.

Biomedical Engineering

202 Introduction to Biomedical Engineering UGRD 3
Introduction to the engineering aspects of life science, utilizing lectures from engineering, medicine, and life science.
Wi Qtr. Prereq: Mech Eng 410 or equiv; Biology 113 or equiv; Physics 132; prereq or concur: Math 415; or permission of instructor. Open only to Biomed E undergrad students.

205 Numerical Simulations in Biomedical Engineering UGRD 2
Computer based simulations for problems in biomedical engineering.
Wi Qtr. Prereq or concur: Introductory MATLAB experience (OSU ENG 183 or equiv), Biomed E 202 concurrently; or permission of instructor.

402 Biomedical Engineering Laboratory UGRD 2
Measurement and interpretation of data from living systems; measurement and analysis of signals generated by bioelectrical potentials, and their relationship to human physiology and function.
Wi Qtr. 1 hr lecture, 3 hr lab. Prereq: 202; EEOB 232 or equiv; or permission of instructor.

403 Quantitative Physiology UGRD 4
Introducing and building on fundamentals of control system theory. Quantitative models of physiological systems will be developed and studied.
Sp Qtr. 4 1/2 hr lecture. Prereq: 205; EEOB 232 and 415; Math 415.

411 Bioimaging UGRD 4
Introduction to medical imaging techniques, including data collection and image processing for projection x-ray, computed tomography, ultrasonic, and magnetic resonance.
Wi, Sp Qtrs. 2 2-hr cl. Prereq: 205; Physics 133; EEOB 232 or equiv; or permission of instructor. Biomed E Bioimaging "domain course".

421 Biotransport UGRD 4
Integrating fundamental engineering and life science principles to cover key mass plus momentum transport concepts, and contemporary applications in biomedical engineering.
Wi, Sp Qtrs. 2 2-hr cl. Prereq: 205; Mech Eng 420 or equiv and Mech Eng 500 or equiv; EEOB 232 or equiv; or permission of instructor. Biomed E Biotransport "domain course".

431 Biomaterials UGRD 4
Review of basic concepts of materials science; biocompatibility and biological reactions to implanted materials; natural biomaterials and synthetic materials used in biomedical applications.
Wi, Sp Qtrs. 2 2-hr cl. Prereq: 205; MatScEn 205; Mech Eng 420; Mech Eng 500; EEOB 232; or permission of instructor. Biomed E Biomaterials "domain course".

441 Biomechanics UGRD 4
Mechanical characterization of biological tissues at the organ and system level; exploration of biomechanical factors on physiological and pathological conditions.
Wi, Sp Qtrs. 2 2-hr cl. Prereq: 205; Mech Eng 420 or equiv and Mech Eng 500 or equiv; EEOB 232 or equiv; or permission of instructor. Biomed E Biomechanics "domain course".

451 Molecular, Cell, and Tissue Engineering UGRD 4
Introduction to the incorporation of living components and compatible biomaterials to repair or replace biological functions.
Wi, Sp Qtrs. 2 2-hr cl. Prereq: 205; Mech Eng 500 or equiv; EEOB 232 or equiv; or permission of instructor. Biomed E Molecular, Cell, Tissue Engineering "domain course".

461 Biomedical Micro/Nanotechnology UGRD 4
Micro/nanotechnology focusing on integrating basic physics, chemistry, biochemistry and physiology of micro- and nanoscale devices in biomedical applications.
Wi, Sp Qtrs. 2 2-hr cl. Prereq: 202, 205; MatScEn 205; Biochem 511; EEOB 232; or permission of instructor. Biomed E Micro Nano "domain course".

500 Introduction to Biomedical Engineering UGRD 3
Introduction to the engineering aspects of life science, utilizing lectures from medicine, engineering, and life science.
Wi Qtr. 2 1.5-hr cl. Prereq: EEOB 232, PhysioCB 311, or equiv; Mech Eng 410 or equiv. Not open to students with credit for 400.

501 Biomedical Engineering Design I UGRD 4
Biomedical device design, prototyping, testing, material considerations, regulatory requirements, product documentation, ethics. Application of design principles via student team projects to aid the disabled.
Au Qtr. 2 2-hr cl, 1 3-hr lab. Prereq: Sr standing in Biomed E and completion of at least 2 Biomed E domain classes; concur: Biomed E 503. First Biomed E capstone course.

502 Biomedical Engineering Design II UGRD 5
Biomedical device design, prototyping, testing, material considerations, regulatory requirements, product documentation, ethics. Application of design principles via student team projects to aid the disabled.
Wi Qtr. 2 2-hr cl, 2 3-hr labs. Prereq: 501. Continuation of Biomed E design capstone course.

503 Professional Development in Biomedical Engineering UGRD 1
Development of professional skills; engineering economy; project planning; ethics, best business practices in biomedical engineering.
Prereq or concur: 501.

565.01 Biomedical Engineering Design I UGRD 3
Introduction to design principles, biomedical device design, technical writing and communication skills, group management, regulatory and patenting considerations, and product documentation via aid to disabled.
Au Qtr. Prereq: Senior Standing in BioMedE. Concur: BioMedE 503. This course is Progress ('P') graded, with grade rendered upon completion of progress 565.03.

565.02 Biomedical Engineering Design II UGRD 3
Second course in a three-course BME capstone sequence. Continuation of group design problem in the area of projects focused on assisting clients with disabilities.
Wi Qtr. Prereq: 565.01. This course is Progress ('P') graded, with grade rendered upon completion of 565.03.

565.03 Biomedical Engineering Design III UGRD 3
Third course in a three-course BME capstone sequence. Continuation of group design problem in the area of assisting clients with disabilities.
Sp Qtr. Prereq: 565.02.

571 Introduction to Bioinstrumentation UGRD 3
Measurement and analysis of signals generated by biomedical transducers and bioelectric potentials, and their relationship to human physiology and bodily function.
Wi Qtr. 2 1.5-hr cl. Prereq: 400, Elec Eng 300 or equiv.

581.01 Biomedical Engineering Seminar I UGRD 0
Weekly biomedical engineering seminars by students and faculty.
Au, Wi, Sp Qtrs. 1-hr cl. Prereq: Biomed E sr standing. 1 credit awarded upon completion of 3 quarters of 581 (581.01-581.03). This course is graded S/U.
581.02 Biomedical Engineering Seminar II UGRD 0
Weekly biomedical engineering seminars by students and faculty. Au, Wi, Sp Qtrs. 1-hr cl. Prereq: 581.01. 1 credit awarded upon completion of 3 quarters of 581 (581.01-581.03). This course is graded S/U.

581.03 Biomedical Engineering Seminar III UGRD 1
Weekly biomedical engineering seminars by students and faculty. Au, Wi, Sp Qtrs. 1-hr cl. Prereq: 581.02. 1 credit awarded upon completion of 3 quarters of 581 (581.01-581.03). This course is graded S/U.

600 Survey of Biomedical Engineering UGRD 3
Multi-lecturer survey course designed to introduce fundamental technologies and design methodologies relevant to biomedical engineering product development and clinical applications. Au Qtr. 2 1.5-hr cl. Prereq: Grad standing or permission of instructor.

611 Fundamentals of Biomedical Microscopic Imaging UGRD 3
Principles and description of microscopy techniques (light, electron and atomic force microscopy) for application to biomedical research. Sp Qtr. Prereq: Graduate standing or Senior-level undergraduate standing, and 411; or permission of instructor. Limited to senior undergraduates and graduates only.

612 Introduction to Biomedical Optics UGRD 3
Introduction to clinical and technical aspects of biomedical optics. Au Qtr. Prereq: Junior or senior undergraduate or graduate standing in engineering or science or permission of instructor.

621 Biotransport GRAD 3
Theoretical and phenomenological derivation and applications of transport (momentum, mass, energy) concepts important for biological systems and motivated by biomedical problems. Au Qtr. Prereq: Biomed E 421; or senior or graduate standing in engineering; or permission of instructor.

631 Fundamentals of Biomaterials UGRD 3
Review of basic concepts of materials science; biocompatibility and biological reactions to implanted materials; natural biomaterials and synthetic materials used in biological applications. Au Qtr. 2 1.5-hr cl. Prereq: Mech Eng 410; Mech Eng 420; and EEOB 232 or PhysioCB 311 or PhysioCB 601; or permission of instructor.

642 Mechanobiology UGRD 3
Explores biological effects of mechanical forces at molecular, cellular, and tissue level in five specific tissues (blood vessels, cartilage, bone, skeletal and cardiac muscle). Au Qtr. Prereq: Grad standing or permission of instructor.

643 Finite Element Applications in Biomedical Engineering UGRD 3
The finite element method for solution of differential equations for modeling biomedical engineering applications (implemented using COMSOL Multiphysics software). Au Qtr. Prereq: Differential Equations (Math 415 or equivalent); Physiology (EEOB 415 or equivalent); or permission of instructor.

651 Tissue Engineering UGRD 3
Introduction to the incorporation of living components and compatible biomaterials to study, repair, or replace biological functions. Wi Qtr. Prereq: Graduate standing in engineering or Junior or Senior standing in engineering or permission of instructor.

662 Introduction to Nanofabrication and Nanomanufacturing UGRD 3
Novel nanomanufacturing techniques will be introduced with a focus on top down approaches and a brief introduction of bottom up approaches. Au Qtr. 3 cl. Prereq: ECE 331 or MatScEn 205 or permission of instructor. Not open to students with credit for ChBE 632 or ECE 632 or Ind Eng 652.02. Cross-listed with ChBE 632, ECE 632, and Ind Eng 652.02.

679 Medical Devices and Design UGRD 3
Introduction to essential processes involved in medical device development cycle including basic skills and tools necessary for design, fabrication, testing and commercialization. Wi Qtr. Prereq: Junior, Senior, or grad standing in Engineering or Science.

686 Introduction to Biomedical Ultrasound UGRD 3
Introduction to use of ultrasound in biomedical applications, including interaction of ultrasound with tissue; generation, reception and interpretation of ultrasonic signals; and clinical instrumentation. Au Qtr. 2 1.5-hr cl. Prereq: Math 255 or 415 or equiv and Physics 133 or equiv; or grad standing.

693 Individual Studies in Biomedical Engineering UGRD 1-5
Provides the opportunity to pursue special studies or research in biomedical engineering not otherwise covered. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies in Biomedical Engineering UGRD 1-5
Provides groups of students opportunities to pursue special studies not otherwise offered. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

701 Survey of Cardiovascular Bioengineering UGRD 3
Overview of biomedical engineering approaches in imaging and intervention in cardiovascular medicine. Wi Qtr. 2 1.5-hr cl. Prereq or concur: 400; or grad standing in engineering, medicine or science; or permission of instructor.

706 Medical Imaging UGRD 3
Introduction to medical imaging techniques, including data collection and image processing for projection x-ray, computed tomography, ultrasonic, and magnetic resonance. Au, Sp Qtrs. 3 cl. Prereq: ECE 352, prereq or concur: ECE 582; or grad standing in EE/ECE or BME. Not open to students with credit for ECE 706. Cross-listed in Electrical and Computer Engineering.

732 Soft-Tissue Biomaterials UGRD 3
Study of soft-tissue biomaterials and their uses, including tissue engineering, drug delivery, cosmetic surgery and prosthetics. Wi Qtr. 2 1.5-hr cl. Prereq: 631 or permission of instructor. This course will enable students to understand requirements, classes, and properties of biomaterials used in effective device design.

733 Hard-Tissue Biomaterials UGRD 3
Structure and material properties of musculoskeletal materials and the synthetic materials used in musculoskeletal reconstruction. Sp Qtr. 2 1.5-hr cl. Prereq: 631 or permission of instructor.

734 Biocompatibility GRAD 1
Interactions between surgically implanted materials and human tissues are presented. Wi Qtr. Prereq: Graduate standing or permission of instructor.

739 Biopolymer Structure and Function UGRD 3
Discussion of biopolymers, critical for normal body function, including those involve in bone structure, coagulation, elasticity, extracellular matrix, genetics. Au Qtr. 2 1.5-hr cl. Prereq: Chem 125 or equiv; Chem 231 or equiv; Biomed E 400 or grad standing; or permission of instructor.

740 Cellular Mechanics UGRD 3
How the mechanical properties of cells influence biological functions, emphasizing biomembranes, cell-cell and cell-substrate adhesion site and cytoskeletal mechanics. Sp Qtr. Prereq: Graduate standing in engineering, medicine, or science; or permission of instructor.

741 Tissue Mechanics UGRD 3
Mechanical characterization of biological tissues at the organism level; exploration of interactions with physiological and pathological conditions. Wi Qtr. 2 1.5-hr cl. Prereq or concur: 400, 500, or 600; Mech Eng 410; EEOB 232 or PhysioCB 311 or PhysioCB 601; or permission of instructor.

761 Biomedical Nanotechnology UGRD 3
Survey of biomedical technology with particular emphasis on nanoscale mass transport, nanomechanics, nanofluidics and medical therapeutics. Sp Qtr. 2 1.5-hr cl. Prereq: 400 or grad standing in engineering, medicine, or life science. Cross-listed with Chem Eng 769.

762 Biomedical Microdevices GRAD 3
Basics of the application of microdevices to biomedical uses, including review of microfabrication and biophysical chemistry. Discussion and analysis of current research. Sp Qtr. 2 1.5-hr cl. Prereq: 400 or 500 or 600 or permission of instructor. This course will enable students to understand requirements, classes, and properties of biomaterials used in effective device design.

763 Introduction to Micro and Nano Fluidics UGRD 3
Introduction to basic principles of incompressible fluid mechanics appropriate to micro and nano fluids. Au Qtr. 2 1.5-hr cl. Prereq: Mech Eng 504 or permission of instructor. Not open to students with credit for Mech Eng 715. Cross-listed with Mech Eng 715.

764 Advanced Biomedical Nanotechnology UGRD 3
Follows BME 761, emphasizing the contribution of biotechnology, pharmacology, toxicology and immunology to biomedical nanotechnology, and providing intensive interactive current literature and presentation experience. Sp Qtr. Prereq: 761 or permission of instructor.

765 Cellular Nanotechnology UGRD 3
An introduction and overview of the role of nanotechnology in soft materials and biotechnology. Applications in polymer devices for biomedical and diagnostics are emphasized. Prereq: Sr or grad standing in engineering or permission of instructor. Not open to students with credit for CHBE 735. Cross-listed with CHBE 735.
768 Biomedical Microtransducers UGRD 3
Operational principles of microsensors and microactuators, fabrication processes, and the interface of microtransducers with biological subjects.
Au Qtr. Prereq: Junior, Senior, or Grad standing in Engineering or Science; or permission of instructor.

771 Biomedical Instrumentation UGRD 4
Study of instruments and measurement techniques used in obtaining data from living systems.
Sp Qtr. 2 1.5-hr cl and 1 2-hr lab. Prereq: 400 or 600; EEOB 232 or PhysioCB 601 or equiv; Elec Eng 300 or equiv; or permission of instructor.

783H Undergraduate Honors Program Research UGRD 1-3
Honors program students are offered the opportunity to pursue an independent distinction project/research. Student presentations and thesis writing included.
Su, Au, Wi, Sp Qtrs. Prereq: Sr standing in Biomedical Engineering. Repeatable to a maximum of 9 cr hrs. GPA of at least 3.4 and permission of instructor.

793 Individual Studies in Biomedical Engineering UGRD 1-15
Individual Studies in Biomedical Engineering.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

813 Magnetic Resonance Spectroscopy and Imaging I GRAD 3
Presentation of the basic principles of MRI/MRS, including basic MR physics, pulse sequences, adiabatic excitation coil design, MR hardware image formation, localized spectroscopy.
Wi Qtr. 2 1.5-hr lectures. Prereq: Grad standing and permission of instructor. Cross-listed in Radiology.

814 Magnetic Resonance Spectroscopy and Imaging II GRAD 3
Presentation of the basic principles of MRI/MRS, including basic MR physics, pulse sequences, adiabatic excitation coil design, MR hardware image formation, localized spectroscopy.
Sp Qtr. 2 1.5-hr lectures. Prereq: 813, grad standing and permission of the instructor. Cross-listed in Radiology.

881.01 Seminar in Biomedical Engineering I GRAD 0
Weekly seminars by students and faculty.
Au, Wi, Sp Qtrs. Required of all biomedical eng students. Final grade awarded upon completion of 3 quarters. All biomedical eng students must complete the series of 881 classes for 2 hrs credit. This course is graded S/U.

881.02 Seminar in Biomedical Engineering II GRAD 0
Weekly seminars by students and faculty.
1 hr cl. Prereq: 881.01. Required of all biomedical eng students. Final grade awarded upon completion of 3 quarters. All biomedical eng students must complete the following series of 881 classes for 2 hrs credit. This course is graded S/U.

881.03 Seminar in Biomedical Engineering III GRAD 1
Weekly seminars by students and faculty.
1 hr cl. Prereq: 881.02. Required of all biomedical eng students. Final grade awarded upon completion of 3 quarters. All biomedical eng students must complete the following series of 881 classes for 2 hrs credit. This course is graded S/U.

881.04 Seminar in Biomedical Engineering IV GRAD 0
Weekly seminars by students and faculty.
1 hr cl. Prereq: 881.03. Required of all biomedical eng students. Final grade awarded upon completion of 3 quarters. All biomedical eng students must complete the following series of 881 classes for 2 hrs credit. This course is graded S/U.

881.05 Seminar in Biomedical Engineering V GRAD 0
Weekly seminars by students and faculty.
1 hr cl. Prereq: 881.04. Required of all biomedical eng students. Final grade awarded upon completion of 3 quarters. All biomedical eng students must complete the following series of 881 classes for 2 hrs credit. This course is graded S/U.

881.06 Seminar in Biomedical Engineering VI GRAD 1
Weekly seminars by students and faculty.
1 hr cl. Prereq: 881.05. Required of all biomedical eng students. Final grade awarded upon completion of 3 quarters. All biomedical eng students must complete the following series of 881 classes for 2 hrs credit. This course is graded S/U.

883 Biomedical Engineering Research Ethics GRAD 3
Introduction to professional and ethical issues confronting biomedical research and researchers, and approaches to address such issues.
Au Qtr. 1.3-hr cl. Prereq: Grad or professional standing; or permission of instructor. Not open to students with credit for BME 751 or Pharmacol 751.

891.01 Interdisciplinary Seminar on Biomedical Images GRAD 1-2
Graduate seminar for Graduate Interdisciplinary Specialization in Comprehensive Engineering and Science of Medical Images.
Au, Wi, Sp Qtrs. 1 cl. Prereq: Grad standing. Cross-listed in Biomedical Informatics, Biophysics, Computer Science and Engineering, Electrical and Computer Engineering, Integrated Biomedical Science, Pathology, Radiology, Statistics, and Vision Science. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

894 Group Studies in Biomedical Engineering GRAD 1-18
Provides graduate students with an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

990.02 Advanced Topics in Biomedical Engineering: Cardiovascular Fluid Mechanics, Transport and Imaging GRAD 1-3
Advanced study of topics of special interest in Biomedical Engineering: Cardiovascular Fluid Mechanics, Transport and Imaging.
Su, Au, Wi, Sp Qtrs. Prereq: Biomed eng grad standing or permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

990.03 Advanced Topics in Biomedical Engineering: Sensory Integration, Neural Networks and Life-Cycle Design GRAD 1-3
Advanced study of topics of special interest in Biomedical Engineering: Sensory Integration, Neural Networks and Life-Cycle Design.
Au Qtr. Prereq: Biomed eng grad standing or permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

990.04 Advanced Topics in Biomedical Engineering: Hard-Tissue Biomaterials GRAD 1-3
Advanced study of topics of special interest in Biomedical Engineering: Hard-Tissue Biomaterials.
Au Qtr. Prereq: Biomed eng grad standing or permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

710 Introduction to Clinical Informatics GRAD 3
A survey of biomedical informatics theories and methods employed in the design, implementation and management of clinical information systems.
Wi Qtr. 2.1.5-hr cl. Prereq: Permission of instructor.

720 Introduction to Imaging Informatics GRAD 3
The purpose of this course is to teach students from different backgrounds the role of imaging in biomedical research, decision support and personalized medicine.
Wi Qtr. 2.1.5-hr cl. Prereq: Permission of instructor.

730 Biomedical Informatics I GRAD 3
Introduces students to basic topics of bioinformatics including sequence analyses, proteomics, microarrays, regulatory networks, sequence and protein databases, etc.
Au Qtr. Prereq: CS&E 230. Not open to students with credit for IBGP 730. Cross-listed in Integrated Biomedical Science.

731 Biomedical Informatics II GRAD 3
Continuation of Biomedical Informatics I.
Wi Qtr. Prereq: 730 and/or Cptr/Inf 230. Not open to students with credit for IBGP 731. Cross-listed in Integrated Biomedical Science.

740 Introduction to Translational Informatics MED 3
A survey of biomedical informatics theories and methods employed in the design, implementation and management of translational research information systems.
Sp Qtr. 2.1.5-hr cl. Prereq: Permission of instructor.

793 Individual Studies in Biomedical Informatics GRAD 1-15
A research project will be assigned by a faculty member to meet the individual student's educational goals.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 60 cr hrs. This course is graded S/U.

Biomedical Informatics
810 Advanced Topics Clinical Informatics GRAD 3
An in-depth review of practical theories and methods employed in the design, implementation and management of complex clinical information systems. Wi Qtr. 2 1.5-hr cl. Prereq: 710 or permission of instructor.
820 Biological and Medical Image Analysis GRAD 3
Provides a comprehensive review of key techniques for analyzing biomedical images, especially histological and microscopic images using an imaging informatics approach. Wi Qtr. 2 1.5-hr cl. Prereq: 720 or permission of instructor.
830 Systems Biology Analyses MED 3
Critical analysis of experiments in systems biology. Sp Qtr. 2 1.5-hr cl. Prereq: 730 or IBGP 705, or permission of instructor.
840 Advanced Topics in Biomedical Data Management 3
An in-depth review of latest developments in the areas of biomedical data management technologies, tools, middlewares that support translational studies. Wi Qtr. 2 1.5-hr cl. Prereq: 740 or permission of instructor.
881 Seminar in Biomedical Informatics 2
Faculty and outside speakers will give presentations on current BMI research and theory. Alternate classes will consist of journal-club style discussions moderated by faculty. Su, Au, Wi, Sp Qtrs. 2 cl. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.
891.01 Interdisciplinary Seminar on Biomedical Images 1-2
Graduate seminar for Graduate Interdisciplinary Specialization in Comprehensive Engineering and Science of Medical Images. Au, Wi, Sp Qtrs. 1 cl. Prereq: Grad standing. Cross-listed in Biomedical Engineering, Biophysics, Computer Science and Engineering, Electrical and Computer Engineering Integrated Biomedical Science, Pathology, Radiology, Statistics, and Vision Science. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
999 Research in Biomedical Informatics GRAD 1-15
Research for thesis or dissertation purposes only. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable. This course is graded S/U.

Biomedical Science

100 Biomedical Science Survey UGRD 1
Academic requirements and resources, careers in healthcare, university policies, student rights and responsibilities. Au Qtr. 1 1.5-hr cl. Prereq: Admission to the Biomedical Science major or permission of instructor.
180.01 Reading and Analyzing the Biomedical Literature I UGRD 2
First of a two part seminar series: Introduce students to the process of searching the literature in the Biomedical Sciences and determining its relevance and validity. Wi Qtr. 1 2-hr cl. Prereq: Admission to the Biomedical Science major or permission of instructor. This course is graded S/U.
180.02 Reading and Analyzing the Biomedical Literature II UGRD 1
Second of a two part seminar series: Continues the process of searching the literature in the Biomedical Sciences for relevance and validity and begins critiquing selected research articles. Sp Qtr. 1 1-hr cl. Prereq: 180.01 and admission to the Biomedical Science major or permission of instructor. This course is graded S/U.
220.01H Honors Reading and Analyzing the Biomedical Literature I UGRD 2
A two part seminar series designed to introduce students to the process of searching the literature in the biomedical sciences, determining its validity, and critiquing. Introduce students to the process of searching the literature in the Biomedical Science and determining its relevance and validity. Wi Qtr. 1 2-hr cl. Prereq: Admission to the Biomedical Science major or permission of instructor. May be available to students enrolled in an honors program or by permission of dept or instructor. This course is graded S/U.
220.02H Honors Reading and Analyzing the Biomedical Literature II UGRD 1
A two part seminar series designed to introduce students to the process of searching the literature in the biomedical sciences, determining its validity, and critiquing. Continues the process of searching the literature in the Biomedical Sciences for relevance and validity and begins critiquing selected research articles. Sp Qtr. 1 1-hr cl. Prereq: H220.01 and admission to the Biomedical Science major or permission of instructor. May be available to students enrolled in an honors program or by permission of dept or instructor. This course is graded S/U.
320.01H Honors Introduction to Biomedical Research I 1
Two part seminar series introducing students to the departments in the School of Biomedical Science and the six signature programs of the Medical Center. First course in a two part seminar series; introduces students to three of the six OSUMC signature programs and various departments in the School. Au Qtr. 1 1-hr cl. Prereq: Admission to the Biomedical Science major or permission of instructor. May be available to students enrolled in an honors program or by permission of dept or instructor. This course is graded S/U.
320.02H Honors Introduction to Biomedical Research II 1
Two part seminar series introducing students to the departments in the School of Biomedical Science and the six signature programs of the Medical Center. Second course in a two part seminar series. Concludes introduction of the six OSUMC signature programs and departments in the School of Biomedical Science. Wi Qtr. 1 1-hr cl. Prereq: Admission to the Biomedical Science major or permission of instructor and H320.01. May be available to students enrolled in an honors program or by permission of dept or instructor. This course is graded S/U.
480H Biomedical Science Laboratory Techniques UGRD 3
Provide biomedical science students with the necessary background and experience in basic cellular and molecular techniques, which are in general use in most research laboratories. Sp Qtr. 2 3-hr labs. Prereq: Admission to the biomedical science major or permission of instructor. May be available to students enrolled in an honors program or by permission of dept or instructor.
521 Concepts in Healthcare I: Humanistic and Social Issues in Medicine and Biomedical Sciences UGRD 3
Students will examine the humanistic, behavioral and social aspects of health care with an emphasis on effective communication with patients, families and health professionals. Au Qtr. 2 1.5-hr cl. Prereq: 4th year standing in biomedical science major or permission of instructor.
522 Concepts in Healthcare II: Introduction to Policy Issues Related to Health Care UGRD 3
Students will gain a comprehensive understanding of the political, social and economic forces that have shaped health care policy in the United States. Wi Qtr. 2 1.5-hr cl. Prereq: Fourth year standing in the biomedical science major or permission of instructor.
Introduce basic concepts of leadership in preparation for a career in a health care profession, biomedical research. Sp Qtr. Prereq: Senior standing in the Biomedical Science major or permission of the instructor.
581 Special Topics in Biomedical Science: Immunology and Infectious Disease UGRD 3
Introduction to immunology and infectious diseases including: normal function prior to disease onset, epidemiology pathology and treatment and current and future research efforts. Au Qtr. 2 1.5-hr cl. Prereq: Fourth year standing in biomedical science major or permission of instructor.
582 Special Topics in Biomedical Science: Genetics and Neurological Diseases UGRD 3
Introduction to genetics and neuroscience disorders, including: normal functions prior to disease onset, epidemiology pathology and treatment and current and future research efforts. Wi Qtr. 2 1.5-hr metings. Prereq: Fourth year standing in biomedical sciences or permission of instructor.
583 Special Topics in Biomedical Science: Cancer Research: Bench to Bedside and Back UGRD 3
The study of cancer research as the integration of three themes previously considered as separate disciplines: genetics, immunology, and infection. Sp Qtr. Prereq: Fourth year standing in the Biomedical Science major or permission of instructor.
693 Individual Studies UGRD 1-5
A program of individual research or study in the biomedical sciences. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
694 Group Studies UGRD 1-5
Group Studies of special topics related to Biomedical Science; topics vary. Prereq: Admission to the Biomedical Science plan or permission of the instructor. Repeatable to a maximum of 20 cr hrs.
699 Undergraduate Research UGRD 1-5
Undergraduate Research in a Biomedical Science Laboratory. This course is graded S/U. Repeatable to a maximum of 20 cr hrs.

720.01H Honors Research Experience I UGRD 5
A three part research sequence designed to give students an in depth experience in the research process.
First course in a three part research sequence designed to give students an in depth experience in the research process.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Admission to the biomedical science major or permission of instructor. Repeatable to a maximum of 10 cr hrs.

720.02H Honors Research Experience II UGRD 5
A three part research sequence designed to give students an in depth experience in the research process.
Second course in a three part research sequence designed to give students an in depth experience in the research process. Repeatable to a maximum of 10 cr hrs.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Admission to the biomedical science major or permission of instructor.

720.03H Honors Research Experience III UGRD 5
A three part research sequence designed to give students an in depth experience in the research process.
Third course in a three part research sequence designed to give students an in depth experience in the research process. Repeatable to a maximum of 10 cr hrs.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Admission to the biomedical science major or permission of instructor.

783H Honors Research UGRD 1-5
A program of individual research in the biomedical sciences culminating in an honors thesis and defense.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of the supervising instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Biophysics

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of program director. Repeatable to a maximum of 45 cr hrs. This course is Progress ("P") graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

702 Advanced Experimental Methods in Biophysics UGRD 1-3
Advanced Experimental Methods in Biophysics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

789 Free Radicals in Biomedicine GRAD 3
A background introductory course in free radical biology and medicine, focused on biologically relevant radicals, their physiological and pathophysiological roles and underlying physico-chemical processes.
Sp Qtr. Prereq: Graduate level biochemistry, physical chemistry and/or biophysics recommended. Undergraduates only by permission of instructor. Cross-listed in Internal Medicine.

793 Individual Studies UGRD 1-5
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

795 Seminar in Biophysics UGRD 1-2
Seminar in Biophysics.
Au, Wi, Sp Qtrs. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

813 Magnetic Resonance Spectroscopy and Imaging I UGRD 3
Basic principles of MRI/MRS including basic MR physics, pulse sequences, adiabatic excitation coil design, MR hardware, image formation, localized spectroscopy.
Au Qtr. 2.1 5-hr cl or 3 cl. Prereq: Chem 521 or equiv. Biochem 511 or equiv. Grad standing, and permission of instructor. Not open to students with credit for Biomed E 813 or Radiology 813. Cross-listed in Biomedical Engineering and Radiology.

814 Magnetic Resonance Spectroscopy and Imaging II UGRD 3
Continuation of 813.
Wi Qtr. 2.1 5-hr cl or 3 cl. Prereq: 813 or Biomed E 813 or Radiology 813, grad standing, and permission of instructor. Not open to students with credit for Biomed E 814 or Radiology 814. Cross-listed in Biomedical Engineering and Radiology.

891.01 Interdisciplinary Seminar on Biomedical Images GRAD 1-2
Graduate seminar for Graduate Interdisciplinary Specialization in Comprehensive Engineering and Science of Medical Images.
Au, Wi, Sp Qtrs. 1 cl. Prereq: Grad standing. Cross-listed in Biomedical Engineering, Biomedical Informatics, Computer Science and Engineering, Electrical and Computer Engineering, Integrated Biomedical Science, Pathology, Radiology, Statistics, and Vision Science. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

999 Research in Biophysics GRAD 1-18
Research for thesis and dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Biostatistics

318H Introduction to Biostatistics UGRD 5
Descriptive statistics, probability, models for population distributions, estimation, hypotheses testing, correlation, regression, categorical data analysis; emphasizes analysis of biomedical data using statistical software.
Su Qtr. 3.1-5 hr cl. Prereq: Math 153 or 162 or H162, or permission of instructor.
Not open to students with credit for PubH-Bio 605. Cross-listed in Public Health: Biostatistics.

605 Applied Survival Analysis UGRD 4
Techniques for analyzing censored data including: life table and product limit estimator, k-sample tests, and proportional hazards regression.
* Wi Qtr. 2.2 hr cl. Prereq: Stat 521 and 645, or permission of instructor. Not open to students with credit for PubH-Bio 605.

615 Design and Analysis of Clinical Trials GRAD 3
Design, monitoring, and analysis of clinical trials; includes protocol development, randomization schemes, sample size methods, and ethical issues.
Wi Qtr. 3 cl. Prereq: Stat 528 and 529, or equivs.

709 Biostatistical Collaboration GRAD 2-3
Basic biomedical research methodologies; team with biomedical PhD students to design experiments and plan analyses; writing statistical sections of biomedical research grants and reports.
Wi Qtr. Prereq: Grad standing and permission of instructor; sufficient coursework in statistics or biostatistics to serve as a biostatistical consultant. Not open to students with credit for IBGP 709.

805 Survival Analysis I GRAD 3
* Wi Qtr. Prereq: Stat 722 or permission of instructor.

806 Survival Analysis II GRAD 3
Parametric models, semiparametric proportional hazards regression, additive hazards regression, multivariate survival models.
* Sp Qtr. 3 cl. Prereq: 805.

865 Analysis of Discrete Data GRAD 3
Theory of techniques for the analysis of discrete data including: two-way and multidimensional tables; logistic regression; loglinear models; chi-square tests; numerical methods.
* Au Qtr. 3 cl. Prereq: Stat 622, 742, or permission of instructor.

882 Advanced Topics in Biostatistics GRAD 3
Selected topics in biostatistics.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.

999 Research in Biostatistics GRAD 1-18
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Bulgarian

101.01 Elementary Bulgarian I UGRD 5
Development of oral and written language skills.
* Au Qtr. Not open 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. GEC for lang courses. FL Admis Cond courses.

101.51 Elementary Bulgarian I: Individualized Track UGRD 1-5
Track Development of oral and written language skills.
* Not open 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. GEC for lang courses. FL Admis Cond courses. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 102.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement.
### 102.01 Elementary Bulgarian II

Development of oral and written language skills.

- Wi Qtr. Prereq: 101 or 101.01 or 5 cr hrs of 101.51. GEC for lang courses. FL Admin Cond core.

### 102.51 Elementary Bulgarian II: Individualized

Development of oral and written language skills.

- Prereq: 101 or 101.01 or 5 cr hrs of 101.51. Prereq: B- or above in 101 or 101.01, or 5 cr hrs of 101.51, or permission of instructor. GEC for lang courses. FL Admin Cond core. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 103.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 101.51 and 102.51 concurrently with permission of instructor.

### 103.51 Intermediate Bulgarian I: Individualized

Intermediate Bulgarian.

- Prereq: B- or above in 102.01 or 5 cr hrs of 102.51 or permission of instructor. GEC for lang course. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 102.51 and 103.51 concurrently with permission of instructor.

### 104.51 Intermediate Bulgarian II: Individualized

Continuation of 103; development of the four skills.

- Prereq: 5 cr hrs of 103.51 or permission of instructor. GEC for lang course. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 103.51 and 104.51 concurrently with permission of instructor.

### 111 Intensive Intermediate Bulgarian

Readings, oral and written practice, grammar review.

- Sp Qtr. Prereq: 102 or equiv. Equiv to the 3rd and 4th courses of the foreign language sequence. GEC for lang course.

### Business Admin

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>College of Business Survey</td>
<td>UGRD</td>
<td>1</td>
</tr>
<tr>
<td>100H</td>
<td>College of Business Survey</td>
<td>UGRD</td>
<td>1</td>
</tr>
<tr>
<td>201</td>
<td>Business Career Planning</td>
<td>UGRD</td>
<td>2</td>
</tr>
<tr>
<td>489</td>
<td>Professional Experience Field Study</td>
<td>UGRD</td>
<td>1</td>
</tr>
<tr>
<td>493</td>
<td>Individual Studies</td>
<td>UGRD</td>
<td>1-10</td>
</tr>
<tr>
<td>494</td>
<td>Group Studies</td>
<td>UGRD</td>
<td>1-10</td>
</tr>
<tr>
<td>498.02</td>
<td>Study Tour: Foreign</td>
<td>UGRD</td>
<td>1-15</td>
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</tbody>
</table>

### 499.01 Applied Business Skills and Environment I

Introduction to the environment of business and development of skills preparatory to the multi-disciplinary upper division curriculum in business.

Su, Au, Wi, Sp Qtrs. 1 hr lec; 2-2 hr rec. Prereq: Soph standing in the Business Administration major. This course is a prerequisite for specialization courses in Business.

### 499.02 Applied Business Skills and Environment II

Experiential skills-building course designed to improve team building skills and communication/presentational skills; business ethics and corporate social responsibility; students will also study sustainability initiatives.

Su, Au, Wi, Sp Qtrs. Not open to students with credit for 499.01. Repeatable to a maximum of 4 cr hrs.

### 499H Applied Business Skills and Environment I

Introduction to the environment of business and development of skills preparatory to the multi-disciplinary upper division curriculum in business.

Su, Au, Wi, Sp Qtrs. 1 hr lec; 2-2 hr rec. Prereq: Honors program or permission of department or instructor; Soph standing in the Business Administration major. This course is a prerequisite for specialization courses in Business.

### 501.01 Job Search Preparation and Transition to the World of Work

Practical techniques and skill development in conducting a job/internship search, researching career information, evaluating career decisions and beginning a successful career.

Su, Wi, Sp Qtrs. 2 1-hr cr. Prereq: Soph standing and enrollment in the Fisher College of Business (must be admitted to your major).

### 501.02 Internship Search Preparation for the Fisher Futures Investment Banking Program

Practical techniques and skill development in conducting an internship search in investment banking, researching career information, financial modeling and financial based case interviewing, and evaluating internship decisions.

Wi Qtr. 2 1-hr cr. Prereq: Permission of instructor.

### 502H Honors Seminar

Seminar on current business topics for students enrolled in the Business Administration Honors Program. Topics may vary.

Au, Wi, Sp Qtrs. Prereq: 499 and jr standing. Open only to students enrolled in the B.A. Honors Programs. Repeatable to a maximum of 6 cr hrs. This course is Progress ("P") graded. The seminar is a year long companion course to the set of honors courses taken by students enrolled in the B.A. Honors Program during the junior year. Progress grades are assigned for autumn and winter quarters; final grade (A-E) assigned at the end of spring quarter.

### 503 Undergraduate Speaker Series

Business enrichment speaker series open to sophomore business majors. Business and community leaders will share personal and professional life stories. Participation will be encouraged.

Au, Wi, Sp Qtrs. Open to sophomores in the Fisher College of Business. This course is graded S/U.

### 555 Introduction to International Business

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.

Su, Au, Wi, Sp Qtrs. 2 2-hr cl. 555H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Econ 201 or 400. H555: Open only to students in the Honors Business Administration Cohort Program.

### 589 Advanced Field Placement

This course is designed to prepare students who will be participating in an international internship through the Fisher College of Business Office of Career Management.

Sp Qtr. Prereq: Permission only. Repeatable to a maximum of 5 cr hrs.

### 657H Establishing Import-Export Firms

Designed to teach students how to get an export business started, how to compete in the global market and how to expand the business globally.

Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 5 cr hrs.

### 689 Professional Experience in Business

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 Professional Experience Program.

Su, Au, Wi, Sp Qtrs. Prereq: Permission of the Director of Professional Experience Program. Repeatable. This course is graded S/U.

### Individual Studies

Individual study projects in selected interdisciplinary topics in business administration.

Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
Group study projects in selected interdisciplinary topics in business administration. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

893 Individual Studies UGRD 1-6

Individual study projects in selected interdisciplinary topics in business administration. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

894.90 Group Studies UGRD 1-6

Group study projects in selected interdisciplinary topics in business administration. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

**Business Admin: Finance**

220 Personal Finance UGRD 4

Budgeting, credit, borrowing money, bank relationships, savings, insurance, real estate, stocks and bonds, income taxes, social security, annuities, wills, trusts, estates, and taxes.

Su, Au, Wi, Sp Qtrs. Prereq: 2-2 hr cl. Prereq: 2nd yr standing. Not open to students in the College of Business majoring in either accounting or finance.

420 Foundations of Finance UGRD 4

Survey of topics in finance for non-business students including: discussion of investment, time value of money, financial markets, financial institutions, risk and return, corporate and international business.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: Econ 200 and 201, or equivs. Not open to students with credit for Bus-Fin 494 (Spring 2001) or 620; or to students enrolled in the BSBA program. Credit does not count toward the BSBA degree.

493 Individual Studies UGRD 1-10

Individual study projects in selected areas in finance. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

510 Legal Environment of Business UGRD 4

An introduction to American legal institutions and sources of law and an analysis of basic concepts of public and private law related to business decisions.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. 510H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Ir standing. Honors section open only to students in the Honors Business Administration Cohort Program.

522 Investment Management UGRD 4


Su Qtr. 2-2 hr cl. Prereq: Bus-MIS 310 or 212; or to students enrolled in the BSBA program. Credit does not count toward the BSBA Degree.

590 Entrepreneurial Finance UGRD 4

Explores the financial needs of entrepreneurial ventures. Considers financial challenges facing entrepreneurs, framing the issues, evaluating the needs, developing financial strategies and structuring deals.

Su Qtr. 2-2 hr cl. Prereq: Econ 200, or AED Econ 200, or equiv; Math 130 or equiv.

620 Business Finance UGRD 4

Survey of investment management of business firms; financial analysis, planning and control; understanding financial management; capital investment decisions and required rates of return; capital structure decisions and sources of financing.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. 620H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Econ 200, or equivs.; and Bus-Fin 620H. Credit does not count toward the BSBA Degree.

640 Insurance and Risk UGRD 4

Principles and practices of insurance and risk management, including personal, business, and social viewpoints in regard to insurance for life, health, property, and liability risks.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: Econ 200 and 201, or equivs.

670 Real Estate and Urban Land Economics UGRD 4

Introduction to urban land economics and real estate markets; topics include land use, property taxation, income taxation, and property rights.

Su, Wi Qtrs. 2-2 hr cl. Prereq: Econ 200 and 201, or equivs.
693 Individual Studies UGRD 1-6
Individual study projects in related areas in finance.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694.21 Group Studies UGRD 1-6
Group study projects in selected areas in finance.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

694.22 Group Studies UGRD 1-6
Group study projects in selected areas in finance.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

694.23 Group Studies UGRD 1-6
Group study projects in selected areas in finance.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

694.24 Group Studies UGRD 1-6
Group study projects in selected areas in finance.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

694.25 Group Studies UGRD 1-6
Group study projects in selected areas in finance.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

721 Corporate Finance UGRD 4
Effects of projects and financial policy on stockholder wealth; capital budgeting, project cost of capital, dividend policy, debt policy, leasing policy, and option pricing.
Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 620 or equiv (H620 and 3.4 CPIR required for honors version) and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor.

722 Investment Management UGRD 4
Investment objectives; types of investments and their relative merits; security prices and yields; investment programs; and taxes.
Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 620 or equiv and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor.

723 Special Topics Investment Management UGRD 4
Traditionally focuses on the valuation and use of derivatives. At the discretion of the professor, other special topics might be covered.
Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 722 or equiv.

724 Stock Market UGRD 5
Practices, procedures, and evaluations relating to buying and selling securities in the organized security markets.
Su, Au, Wi, Sp Qtrs. 1-3 hr cl. Prereq: 722 and 3.20 CPIR or permission of instructor.

725 International Finance UGRD 4
The international financial environment; management of financial risks inherent with international business; problems of implementing corporate finance principles overseas; financial aspects of parent-subsidiary relationships.
Au Qtr. 2-2 hr cl. Prereq: 810 and 822.

726 Management of Financial Institutions UGRD 4
Overview of the role of financial institutions; study of asset and liability management in commercial banks and savings institutions; cases and simulation.
Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 620 and Econ 520 or equivs, and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor.

727 Treasury Management UGRD 4
Coverage of principles of treasury management including working capital, banking systems and services, e-commerce, short-term investing and borrowing, and international cash management.
Wi Qtr. 2-2 hr cl. Prereq: 620 and Bus Adm 499.

728 Portfolio Management UGRD 4
Designed for students who are pursuing careers in the investment field and those who want to learn more about investments.
Sp Qtr. 2-2 hr cl. Prereq: 722. Not open to students with credit for 694P (Sp 04) or 694.21 (Sp 05, Sp 06, Sp 07).

730 Trading and Markets UGRD 4
For students interested in a career in investment management, securities trading, or the brokerage industry. An excellent course for students targeting a career as a financial advisor.
Sp Qtr. 2-2 hr cl. Prereq: 620 or equiv and Bus Adm 499 and Bus-Mgt 330 and 331.

731 Fixed Income Securities UGRD 4
This course explores key issues in fixed-income valuation, portfolio management, and risk management.
Wi Qtr. Prereq: 620.

741 Life and Health Risk Management UGRD 4
Management of risks involving health or death; employee benefit programs for corporations, non-profit organizations, and government institutions; the life and health insurance industry.
Wi Qtr. 2-2 hr cl. Prereq: 640 or equiv, and Bus-Mgt 330 and 331 or equiv and Bus Adm 499; or permission of instructor.

749 Property and Liability Risk Management UGRD 4
Management of risks involving property damage or legal liability for businesses, hospitals, and government institutions; identification of resources for managing these risks.
Sp Qtr. 2-2 hr cl. Prereq: 640 or equiv and Bus-Mgt 330 and 331 and Bus Adm 499; or permission of instructor.

771 Real Estate Investment Analysis UGRD 4
Feasibility and market analysis with consideration of property and income taxation an urban land developments.
Au, Wi Qtr. 2-2 hr cl. Prereq: 620 or equiv and Bus-Mgt 330 and 331 or equivs and Bus Adm 499; or permission of instructor.

772 Real Estate Finance UGRD 4
Sources and methods of obtaining funds for real estate investment; financial institutions, legal considerations, the construction industry and cycles, and financing policies, practices, and experiences.
Wi, Sp Qtrs. 2-2 hr cl. Prereq: 620 or equiv and Bus-Mgt 330 and 331 or equivs and Bus Adm 499; or permission of instructor.

773 Real Estate Valuation UGRD 4
Professional valuation as a guide to business decisions; valuation theory and procedures; factors influencing real estate values, and the selection and analysis of data.
Au Qtr. 2-2 hr cl. Prereq: Econ 200 or equiv or permission of instructor.

774 Income Property Valuation UGRD 4
The value-creating attributes of investment properties; methodologies of income-property valuation and investment analysis.
Sp Qtr. 2-2 hr cl. Prereq: Econ 200 or equiv or permission of instructor.

775 Real Estate Law UGRD 4
Legal aspects of real estate transactions and documents (deeds, mortgages, and leases), and selected elements of the law of real estate brokerage.
Wi Qtr. 2-2 hr cl. Prereq: 510 or equiv or permission of instructor.

779 History of Financial Thought UGRD 2
Class will consist of a series of lectures by, and interviews with, leading contributors to the development and practice of finance.
Au Qtr. This course is graded S/U.

783H Honors Research UGRD 1-5
Special topics research in finance, business law, insurance and risk, and/or real estate; research evaluated through papers, thesis, and/or special examinations.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Jr or sr standing in business, 3.40 CPIR, and permission of instructor. Repeatable to a maximum of 15 cr hrs.

811 Financial Management II GRAD 4
This course continues the development of the principles of finance begun in MBA 810, and covers the valuation of derivatives, corporate financing decisions, mergers and acquisitions, and an introduction to international finance.
Au, Sp Qtrs. Prereq: MBA 810.

821 Advanced Corporate Finance GRAD 4
Advanced topics in corporate finance are covered in this course, such as the interaction between financial policy and corporate strategy, the market for corporate control, bankruptcy and restructuring.
Au Qtr. 2-2 hr cl. Prereq: 811.

822 Securities Markets and Investments GRAD 4
Taking the perspective of an investor, topics in this course include the fundamental principles of risk and return, diversification, asset allocation, style-based investing, index investing and the efficiency of markets.
Au, Wi Qtrs. 2 1.5-2 hr cl. Prereq: MBA 810.

823 Derivatives GRAD 4
Explores the valuation of forwards, options, forward-based and option-based financial instruments.
Wi Qtr. 2-2 hr clo Prereq: 810 and 822.

824 The Stock Market GRAD 4
Practices, procedures, and evaluations for managing equity portfolios.
Su, Au, Wi, Sp Qtrs. Prereq: MBA 810.

825 International Finance GRAD 4
The international financial environment, management of financial risks inherent with international business; problems of implementation of corporate finance principles overseas; financial aspects of parent-subsidiary relationships.
Wi, Sp Qtrs. 2-2 hr cl. Prereq: 810; permission of instructor for PhD students.

826 Financial Institutions GRAD 4
Financial management of commercial banks and savings institutions; review, analysis and evaluation of pertinent literature and research; readings and cases.
Sp Qtr. 2-2 hr cl. Prereq: MBA 810.

827 Treasury and Fixed Income Management GRAD 4
Forecasting cash flows, short term asset and liability management and long term bond management.
Wi Qtr. 2-2 hr cl. Prereq: 811 and 822 and MBA 810.
828 Cases in Corporate Finance  GRAD 4
Intensive analysis of case studies to develop the students' abilities to make financial decisions. Applying and integrating ideas learned in MBA 810/811.
Au, Sp Qtrs. 2 2-hr cl. Prereq: MBA 810 or 811.

829 Risk Management  GRAD 4
Designed to train the participants in evaluating and managing risks using an enterprise wide approach.
Sp Qtr. 2 2-hr cl. Prereq: 811.

830 Trading and Markets  GRAD 4
How today's financial markets work; how governments and exchanges regulate them; and how traders create liquidity, volatility, informative prices, trading profits, and transaction costs.
Sp Qtr. Prereq: 810.

831 Corporate Insurance and Risk Management  GRAD 4
Review of insurance contracts, markets and institutions. Emphasis is placed on risk management methods in the context of the insurance industry.
Wi, Sp Qtrs. Prereq. 810.

832 Behavioral Finance  GRAD 4
Recent research suggests that psychological biases of investors can cause misvaluation. Review of the causes of market inefficiency, and its practical implications for portfolio management and corporate financial management.
Sp Qtr. Prereq: MBA 810.

833 Current Legal Issues in Business  GRAD 4
Focusing on legal issues that impact management decision making, legal resources available to businesses and changing business law current events.
Sp Qtr.

834 Applied Enterprise Risk Management  GRAD 4
An examination of the nature and practice of ERM in different organizational settings. The course features a series of presentations by corporate risk management specialists.
Sp Qtr. Prereq: 810.

835 Financial Engineering  GRAD 4
Focuses on financial engineering, which is the use of sophisticated mathematical modeling techniques to design, price and hedge securities and portfolios.
Sp Qtr. Prereq: 822 and 823. Counts toward MBA Degree.

844 Entrepreneurial Finance  GRAD 4
This course is designed to introduce students to the challenges and pitfalls of financing new enterprises.
Wi Qtr. Prereq: MBA 810.

845 Private Equity  GRAD 4
Discusses the private equity market. Focus will be on how funds are organized and raised, and how they manage and exit investments.
Wi Qtr. Prereq: 810.

846 Venture Capital  GRAD 4
Designed to challenge MBA students to critically think about raising capital for new innovative firms.
Sp Qtr. Prereq: 810. Only open to MBA students or by permission of instructor.

847 Business Change of Control Transactions  GRAD 2
A review of the key business and legal issues associated with mergers and acquisitions, and the working relationships of investment bankers and attorneys for the deal participants.
Au Qtr. 1 4-hr cl for 5 weeks. Open only to MBA students or permission of instructor.

849 Financial Spreadsheet Modeling in Excel  GRAD 4
Challenges the student to model financial spreadsheets.
Wi Qtr. Prereq: 810.

850 KAIST Seminar Series  GRAD 2
Seminars are presented weekly to Korean Advanced Institute of Science and Technology (KAIST) students by faculty on current research topics. 1-2 hr cl. Repeatable to a maximum of 4 cr hrs.

870 Real Estate Development  GRAD 4
Au Qtr. Prereq: MBA 810. Not open to students with credit for 870.01 or 870.02.

871 Real Estate Development  GRAD 4
Capstone real estate course taught from a multidisciplinary perspective. Focusing on real estate development through a real world case study.
Wi Qtr. 2 2-hr cl.

872 Real Estate Finance  GRAD 4
Examines real estate as investments. Analysis of the mortgage market, mortgage derivatives, and bond portfolio management when mortgage-backed securities and derivatives are used.
Sp Qtr. 2 2-hr cl. Prereq: 810.
490 New Venture Creation UGRD 4
Examines the creation of businesses in the face of uncertainty. Analyzes market opportunities, entrepreneurial strategies, innovative business concepts, business plans and financing new ventures.
Au, Wi, Sp Qtr. 2-2 hr cl. Prereq: 290.

493 Individual Studies UGRD 1-10
Individual study projects in selected areas in management and human resources.
Su, Au, Wi, Sp Qtr. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

494 Group Studies UGRD 1-10
Group study projects in selected areas in management and human resources.
Su, Au, Wi, Sp Qtr. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

566 Diversity in the Workplace UGRD 4
An examination of the historical and social theories of difference (gender, race, class, sexual orientation) in order to understand diversity in the workplace and possible organizational responses.
* Prereq: 400, or 660 or 701 or equiv; jr standing or second writing course.

590 Leading High Performance Ventures UGRD 4
Explores key managerial practices for leading successful growing businesses. Examines issues in human resources management, business law, financial management, competitive strategy and organizational design.
Wi Qtr. 2-2 hr cl. Prereq: Econ 200 or AED Econ 200 or equiv.

651 Human Resource Management in a Market UGRD 4
Economy
Application of economic theory to organizations and labor markets; emphasis on the role of labor market analysis in human resource decision-making.
Au, Sp Qtr. 2-2 hr cl. Prereq: Econ 200 and 201 or permission of instructor.

652 Employee Benefits UGRD 4
Analyzes private and public benefits offered to employees including healthcare, pensions, leave, unemployment insurance and Workers Compensation; examines alternatives for administering employer benefit plans.
2 2 hr cl. Prereq: 701or 400; or permission of instructor.

653 Human Resource Practices and the Law UGRD 4
Review of federal laws and administrative bodies regulating employee management in the workplace; emphasis on gaining practical skills for managing human resource issues legally.
Wi Qtr. 2-2 hr cl. Prereq: 701 or 400; or permission of instructor.

660 Managing Human Resources UGRD 4
Overview of human resource skills for non-HR managers; emphasis on practices and techniques for hiring, developing, compensating, and appraising employees.
Au, Sp Qtr. 2-2 hr cl. Prereq: Econ 200 or equiv.

693 Individual Studies UGRD 1-6
Individual study projects in selected areas in management and human resources.
Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

693.51 Group Studies UGRD 1-6
Group study projects in selected areas in management and human resources. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

693.52 Group Studies UGRD 1-6
Group study projects in selected areas in management and human resources. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

693.53 Group Studies UGRD 1-6
Group study projects in selected areas in management and human resources. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

693.54 Group Studies UGRD 1-6
Group study projects in selected areas in management and human resources. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

693.55 Group Studies UGRD 1-6
Group study projects in selected areas in management and human resources. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

701 Managing Individuals in Organizations: UGRD 5
Organizational Behavior and Human Resources
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.
Su, Au, Wi, Sp Qtr. 2-2 hr cl. 701H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Jr standing. Not open to students with credit for 400. H701: Open only to students in the Honors Business Administration Cohort Program.

703 Human Resource Training and Development UGRD 4
Introduction to concepts and organization practices associated with designing, implementing, and evaluating different types of employee training and development programs.
Au, Sp Qtr. 2-2 hr cl. Prereq: 701, Bus-Mgt 330, and Bus Adm 499; or permission of instructor.

704 Concepts and Competencies for Managing People UGRD 4
Application of concepts for managing oneself and others in real world situations; includes practice of behavioral skills such as delegation, persuasion and performance feedback.
Wi, Sp Qtr. 2-2 hr cl. Prereq: 701 or 400 and BA 499; or permission of instructor.

756 Staffing Organizations UGRD 4
Introduction to the scientific, legal, and administrative issues associated with the recruitment, hiring, and placement of individuals by organizations.
Sp Qtr. 2-2 hr cl. Prereq: 653, Bus-Mgt 330, and Bus Adm 499; or permission of instructor.

761 Labor Relations and Collective Bargaining UGRD 4
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.
Au Qtr. 2-2 hr cl. Prereq: Jr standing.

762 Compensation Administration UGRD 4
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.
Wi Qtr. 2-2 hr cl. Prereq: 701, Bus-Mgt 330, and Bus Adm 499; or permission of instructor.

763 Employment Relationships around the World UGRD 4
Overview and comparison of employment practices and labor-management relations in other industrialized countries including Europe, East Asia, Central and South America and Canada.
Au, Wi Qtr. 2-2 hr cl. Prereq: Jr standing, Bus-Mgt 330, and Bus Adm 499; or permission of instructor.

764 Negotiation and Conflict Management UGRD 4
Introduction to the psychology of bargaining and negotiation, the dynamics of interpersonal and intergroup conflict and its resolution; emphasis on analyzing bargaining and conflict relationships.
2 2 hr cl. Prereq: 701 or 400; or permission of instructor.

765 International Human Resource Management UGRD 4
Examination of the human resource challenges that emerge in multi-national organizations; emphasis on issues to be considered when preparing oneself and others for international assignments.
Sp Qtr. 2-2 hr cl. Prereq: 701, Bus-Mgt 330, and Bus Adm 499; or permission of instructor.

769 Strategic Human Resource Management UGRD 4
Examination of a strategic perspective for managing employees that emphasizes the use of ethical practices and evaluates how practices fit together and with organizational objectives.
Au Qtr. 2-2 hr cl. Prereq: 701 or 400; or permission of instructor.

783H Honors Research UGRD 1-5
Special topics research in management and human resources; research evaluated through papers, thesis, and/or special examinations.
Su, Au, Wi, Sp Qtr. Arr. Prereq: Jr or sr standing in business, 3.40 CPHR, and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is Progress (P) graded.

801 Self-Management, Professional Development and Career Success GRAD 4
Uses behavior modeling techniques to teach students a variety of interpersonal skills needed by generalist managers.
1-4 hr cl.

802 Managerial Negotiations GRAD 4
Exploration of the major concepts and theories of the psychology of bargaining and negotiation, and the dynamics of interpersonal and intergroup conflicts and their resolution.
Au, Wi, Sp Qtr. Prereq: Enrollment in MBA, MLHR, MAcc, Accounting Program, or MBLE.

803 Organization Theory and Design GRAD 4
An examination of the theories and practices involved in the design of formal organizations.
^ 2 1.5 hr cl. Not open to students in structured MBA.
806 Management and Individual Behavior  
A focus on the manager’s role in dealing with individuals and work teams. Other topics include: work design, communications, leadership and motivation.  
Wi Qtr. 1-4 hr cl. Prereq: Grad standing. Not open to MBA and PT MBA.

807 Organization Development and Change for Human Resources  
A practical and pragmatic investigation into the conduct of change in organizations in order to improve organization performance.  
Wi Qtr. 1-4 hr cl. Prereq: Grad standing.

808 Mergers, Acquisitions and Corporate Development  
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.  
Wi, Sp Qtr. Prereq: Graduate standing.

809 Leading and Managing Change in Organizations  
The course focuses on the issues and challenges of successfully leading and managing organizational change. Although this course focuses on both the design and implementation of change, the emphasis is primarily on successful implementation.  
Au Qtr. 2-2 hr cl. Prereq: MBA 860 or permission of instructor.

811 Human Resource Management Research Methods  
Examination of the concepts, methods, and tools needed to conduct and evaluate research for effective Human Resources Management decision making.  
Wi Qtr. 1-4 hr cl. Prereq: Grad standing.

815 Enhancing Written Communication  
Familiarize students with tools and techniques for enhancing and improving written skills in business settings; written projects cover leadership and management roles in business.  
Wi Qtr. 1-2 hr cl. Open only to MBA students or permission of instructor.

822 Advanced Managerial Negotiation  
The purpose of this course is to extend and enhance knowledge about, and skills in negotiation processes in a managerial context.  
Sp Qtr. 1-4 hr cl. Prereq: 802. Open only to MBA students or permission of instructor.

824 Building Professional Services  
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.  
Au Qtr. 1-4 hr cl. Prereq: Graduate student.

825 Entrepreneurship and Business Plan Development  
Provides student experiences in entrepreneurship and entrepreneurial concepts and provides the opportunity to develop entrepreneurial skills.  
Sp Qtr. 2-2 hr cl. Open only to MBA students or permission of instructor.

826 International Business Simulation  
Utilizes the Super Tycoon Simulation to teach concepts of International Business.  
Wi Qtr. 2-2 hr cl. Prereq: Completion of MBA core courses.

827 The Globalization of Smaller Firms  
An interdisciplinary course with international business as the core, the class will be grounded in theory with an in depth investigation of a case study.  
Wi, Sp Qtrs. 2-2 hr cl. Only open to MBA students or permission of instructor.

828 Developing High Performance Teams  
High performance organizations lead who adapt, work with others, understand/influence team behavior, align teams, understand organizational change, develop/achieve a vision; interpersonal behavior; influence strategies.  
Wi, Sp Qtrs.

829 Insights into Executive Leadership  
Provides participating students with a better understanding of the realities of leadership in corporate environments.  
Wi, Sp Qtrs. 1-2 hr cl. Open only to MBA students or permission of instructor. Repeatable to a maximum of 2 cr hrs. This course is Progress (P) graded. This course is graded S/U.

830 International Negotiations and Deal Making  
How to effectively negotiate and make deals in cross-cultural contexts. Issues covered include: culture of negotiators, strategies, government involvement, structure of international business deals, ethics.  
Sp Qtr. Prereq: Major MBA, PT-MBA, MLHR, or permission of instructor.
847 Advanced Topics in Leadership Effectiveness: Strategy Implementation and Execution
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.
Wi Qtr. Open only to MBA students or permission of instructor.

848 Technology Strategy and Innovation Management
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.
Wi Qtr. 2 2-hr cl. Open only to MBA students or permission of instructor.

849 Performance Management
Measure & develop performance of individuals & groups & align performance with organization's strategic objectives; methods, theories, research findings, issues regarding employee performance in organizations.
Sp Qtr. Prereq: Grad standing.

850 Leadership and Competitive Analysis for Action
Creation and maintenance and long term value for the organization.
Sp Qtr. Prereq: Enrollment in EMBA. Distance Learning course (Web taught).

851 Conceptual and Historical Foundations of Labor and Human Resources I
Appraisal of theories, principles, and concepts related to macro labor and human resources.
Au Qtr. 1 4-hr cl. Prereq: Grad standing.

852 Conceptual and Historical Foundations of Labor and Human Resources II
Examination of micro labor human resources issues including the role of the HR professional and the structure of the HR department.
Wi Qtr. 1 4-hr cl. Prereq: 851 or permission of instructor.

853 Human Resource Information Systems
Examination of the practical and conceptual issues in the development, acquisition, implementation and application of Human Resource Information Systems and other data management techniques.
Sp Qtr. 1 4-hr cl. Prereq: Bus-Mgt 801.01 or equiv, or permission of instructor.

854 Seminar in Human Resource Policy
The employment relationship from an economic perspective; economic analysis applied to important managerial decisions involving the coordination and motivation of organizational members.
Sp Qtr. 1 4-hr cl. Prereq: Grad standing. Not open to MBA or PT-MBA majors.

855 Employee Training and Development
Study of training processes including strategic training, needs assessment, transfer of training, learning, training methods, evaluation and employee development; based on theory, research and best practices.
Sp Qtr. 1 4-hr cl. Prereq: Grad standing. Not open to students with credit for 703.

856 Staffing the Organization
Examination of the scientific, legal, and administrative issues associated with the recruitment, selection, employment and retention of individuals by organizations.
Au Qtr. 1 4-hr cl. Prereq: Grad standing. Not open to students with credit for 756.

858 International Human Resources
Survey of human resource management practices of selected countries. Economics, politics and culture examined to understand the peculiarities of human resource management in each situation.
Sp Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor.

859 Business Ethics
Overview of moral issues in business. Focuses on unethical theories and traditions bearing on these activities.
Au Qtr. 1 3-hr cl. Prereq: Grad standing.

860 Management of Human Resources
Analysis of human resources practice and policies, value configurations, leadership, job design, motivation, and reward systems as these relate to individual performance and organizational effectiveness.
Wi Qtr. 2 1.25-hr cl. Not open to students with credit for 660 or H660.

861 Human Resources Negotiations
Examination of major concepts and theories of bargaining and negotiations as they relate to labor and human resources.
Au Qtr. 1 4-hr cl. Prereq: Grad standing.

862 Seminar in Human Resource Management
Special topics in selecting, developing, retaining, motivating, utilizing, and allocating human resources within complex organizations.
Au Qtr. 1 4-hr cl. Prereq: Grad standing.

863 Business Practices and the Human Resource Manager
Introduction to business practices for the human resource practitioner.
Au Qtr. 1 4-hr cl. Prereq: Grad standing.

864 Labor Dispute Settlement
Analysis of the functional role of labor conflict in the industrial relations system; evaluation of institutions for dispute resolution in the public and private sectors.
1 2-hr cl. Prereq: 761 or 861.

865 Compensation Theory and Practice
Introduction to pay systems; including job evaluation, pay surveys, performance appraisals, and benefits.
Sp Qtr. 1 4-hr cl. Prereq: Grad standing. Not open to students with credit for 762.

867 Statistical Analysis for Labor and Human Resources Management II
Second quarter of a sequence preparing students to analyze and use Human Resource data in decision-making, focusing on hierarchical regression, moderated regression, ANOVA with multiple independent variables, non-parametric analysis.
Wi Qtr. 1 4-hr cl. Prereq: Bus-Mgt 801.01 or equiv or permission of instructor.

868 Contemporary Employment Practices and the Law
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 are discussed.
Wi Qtr. 2 2-hr cl. Prereq: 612 or permission of instructor. Not open to students with credit for Bus-Fin 866. Cross-listed in Business Administration: Finance.

869 Strategic Management of Human Assets
Acquaint students with theory and research regarding teamwork and leadership, and apply concepts to enhance understanding/build skills in team leadership, membership, change and fellowship.
Au Qtr. 2 2-hr cl. Prereq: Grad standing.

870 The Business of College Sports
Course provides business analysis of intercollegiate athletics, including an in depth look at OSU athletic program; develop understanding or college sports administration educational, business missions.
Au Qtr. Prereq: Major MBA, PT-MBA, MLHR, MAAC, or permission of instructor. Cross-listed in Education: Physical Activity and Educational Services 842.

883 Washington Campus
Week-long program with presentations by Washington policy-makers, trips to agencies & buildings, and participation in congressional simulation. Final exam and/or project required for course completion.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. This course is graded S/U.
http://www.washcampus.edu/index.php?src=events&category=MBA%20Courses

890 Technology Entrepreneurship and Commercialization
Focuses on proven techniques and business development strategies for evaluating the commercial potential of leading technologies that have significant new business development potential.
Au Qtr. 1 4-hr cl.

891 Technology Ventures
Course introduces technology analysis, market research tools, legal analysis, operational analysis, team issues, and financial analysis for commercial assessments technologies from Bus-MHR 890.
Wi Qtr. 1 4-hr cl. Open only to MBA students or permission of instructor.

893 Individual Studies
Individual study projects in related areas in labor and human resources.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. Bus-MHR major 253 limited to 4 hrs. Bus-MHR major 753 limited to 15 hrs. This course is graded S/U.

894.60 Group Studies
Group study projects in related areas in management and human resources.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

894.61 Group Studies
Group study projects in related areas in management and human resources.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

894.62 Group Studies
Group study projects in related areas in management and human resources.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

64
989.64   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.65   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.66   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.67   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.68   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.69   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.70   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.71   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.72   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.73   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.74   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.75   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.76   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.77   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.78   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.79   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.80   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.81   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.84   Group Studies   GRAD 1-6
Group study projects in related areas in management and human resources.
PreReq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

989.01   Seminar in Entrepreneurship-BA   GRAD 4
Lecture, discussion, and case analysis on managing growth in the new or emerging firm.
Au Qtr. Prereq: BA core and permission of instructor. Not open to students with credit for 895 or 895.02.

989.02   Seminar in Entrepreneurship-NB   GRAD 4
Lecture, discussion, and case analysis on managing growth in the new or emerging firm.
Open to non-business graduate students only. Not open to students with credit for 895 or 895.01.

991   Introduction to Behavioral Research   GRAD 5
Methods in Business
Introduction to research design and methodology as it relates to the study of business
and organizational phenomena.
1 5-hr cl.

992.01 Advanced Micro-Behavioral Research   GRAD 5
Methods
Seminar in advanced evaluation of research design, methods, and analysis relevant to
micro-behavioral organizational theory.
* Sp Qtr. 1 5-hr cl. Prereq: 911 or permission of instructor.

993.01 Seminar: Foundations of Human Resources/Organizational Behavior
Discussions of theory and research that serve as a foundation for the fields of human
resources and organizational behavior.
* 1 5-hr cl.

993.02 Seminar: Topics in Human Resources
Discussions of theory and research on human resource management.
* Wi Qtr. 1 5-hr cl. Prereq: 913.01 or permission of instructor.

993.03 Seminar: Topics in Organizational Behavior
Discussions of theory and research on organizational behavior.
* Sp Qtr. 1 5-hr cl. Prereq: 913.02 or permission of instructor.

994.01 Advanced Seminar: Advanced Topics in Human Resources
Advanced discussions of theory and research on human resource management.
* Au Qtr. 1 5-hr cl. Prereq: 913.03 or permission of instructor.

994.02 Advanced Seminar: Advanced Topics in Organizational Behavior
Advanced discussions of theory and research on organizational behavior.
* Wi Qtr. 1 5-hr cl. Prereq: 914.01 or permission of instructor.

995 Advanced Organizational Theory
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.
1 5-hr cl.

992.01 Management Seminars: Strategic Management
An examination of the concepts, models, theories, and research underlying
contemporary thinking on strategic management.
1 3-hr cl. Prereq: Permission of instructor. Offered Odd years.

992.02 Management Seminars: Strategic Management Problems
An examination of current theoretical developments and research in the business
policy and strategic management field.
* 1 3-hr cl. Prereq: Permission of instructor. Offered Even years.

925.01 International Management Seminars: Seminar in International Business
A critical study of current theories and research methodologies and findings in the
field in international business.
* 1 3-hr cl. Prereq: Permission of instructor.

925.02 International Management Seminars: Selected Issues in International Business
Current and key issues in international management analyzed from an interdisciplinary
perspective.
1 3-hr cl. Prereq: Permission of instructor.

950.01 Advanced Experience in Labor and Human Resources: Internship
Supervised practical experience relating to labor and human resources.
Prereq: 12 cr hrs in Bus-MHR.

950.02 International Management Seminars: Tutorial
Preparation of investigative paper relating course work to specific problem in labor
and human resources.
Prereq: 12 cr hrs in Bus-MHR.

998 Research in Labor and Human Resources: Thesis
Research for thesis purposes only.
Su, Au, Wi, Sp Qtr. Arr. Prereq: 12 cr hrs in BUS-MHR at 800 level or above.
Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

999 Research in Labor and Human Resources: Dissertation
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.
**Business Admin: Management Sciences**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>330</td>
<td>Decision Sciences: Statistical Techniques</td>
<td>UGRD 5</td>
<td>Examination of the use of statistical techniques in managerial decision-making processes: confidence intervals, hypothesis testing, simple and multiple regression, quality control. Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: CSE 200 and Stat 133 or equiv.</td>
</tr>
<tr>
<td>331</td>
<td>Decision Sciences: Operations Research,</td>
<td>UGRD 4</td>
<td>Modeling and Applications Examination of the use of operations research models in managerial decision making processes: linear programming, decision analysis and simulation applications. Emphasis on formulation and interpretation of models; supported by spreadsheet based software. Su, Au, Wi, Sp Qtrs. 2-2-hr cl. Prereq: CS&amp;E 200 and Stat 133 or equiv.</td>
</tr>
<tr>
<td>430</td>
<td>Foundations of Operations Management</td>
<td>UGRD 4</td>
<td>A survey of operations management for non-business students including discussion of operations management issues in both manufacturing and service organizations including management and purchasing. Focus on new approaches to managing operations and logistics that promise strategic advantage. Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Math 130, CS&amp;E 100, and Econ 200 or equiv. Not open to students with credit for Bus-Mgt 630; or for students enrolled in the College of Business. Credit does not count toward the BSBA degree.</td>
</tr>
<tr>
<td>493</td>
<td>Individual Studies</td>
<td>UGRD 1-10</td>
<td>Individual study projects in selected areas in management sciences. Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>494</td>
<td>Group Studies</td>
<td>UGRD 1-10</td>
<td>Group study projects in selected areas in management sciences. Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.</td>
</tr>
<tr>
<td>630</td>
<td>Introduction to Operations Management:</td>
<td>UGRD 4</td>
<td>Improving Competitiveness in Organizations Key operating issues in service and manufacturing organizations that have strategic and tactical implications. Students participate in discussions relating current business events to operations management and case analysis. Su, Au, Wi, Sp Qtrs. 2 2-hr cl. 630H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Jr standing and Stat 133 or equiv. H630: Open only to students in the Honors Business Administration Cohort Program.</td>
</tr>
<tr>
<td>693</td>
<td>Individual Studies</td>
<td>UGRD 1-6</td>
<td>Individual study projects in selected areas in management sciences. Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>694.31</td>
<td>Group Studies</td>
<td>UGRD 1-6</td>
<td>Group study projects in selected areas in management sciences. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>694.32</td>
<td>Group Studies</td>
<td>UGRD 1-6</td>
<td>Group study projects in selected areas in management sciences. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.</td>
</tr>
<tr>
<td>694.33</td>
<td>Group Studies</td>
<td>UGRD 1-6</td>
<td>Group study projects in selected areas in management sciences. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.</td>
</tr>
<tr>
<td>694.34</td>
<td>Group Studies</td>
<td>UGRD 1-6</td>
<td>Group study projects in selected areas in management sciences. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.</td>
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<tr>
<td>694.35</td>
<td>Group Studies</td>
<td>UGRD 1-6</td>
<td>Group study projects in selected areas in management sciences. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.</td>
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<tr>
<td>710</td>
<td>Six Sigma Principles</td>
<td>UGRD 4</td>
<td>Technical and managerial body of knowledge for Six Sigma. Prereq: MBA 850 and 870.</td>
</tr>
<tr>
<td>711</td>
<td>Six Sigma Projects</td>
<td>UGRD 4</td>
<td>Course allows teams of students to apply Six Sigma principles and concepts. Prereq: 710.</td>
</tr>
<tr>
<td>732</td>
<td>Operations Planning and Control</td>
<td>UGRD 4</td>
<td>An analysis of the planning and control of materials as they flow within an organization; topics include production planning, material requirements planning (MRP), capacity management, master production scheduling, and just-in-time techniques. Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 330, 331, 630 and Bus Adm 499, or permission of instructor.</td>
</tr>
<tr>
<td>733</td>
<td>Information Systems in Operation Management</td>
<td>UGRD 4</td>
<td>A study of the impact that information systems have on strategic and tactical decision of operations managers; emphasis on applying decision support systems to problems faced by these managers. Sp Qtr. 2 2-hr cl. Prereq: 630 and a course in computer programming and Bus Adm 499, or permission of instructor.</td>
</tr>
<tr>
<td>735</td>
<td>Purchasing and Supply Chain Management</td>
<td>UGRD 4</td>
<td>Explores the industrial-institutional purchasing cycle for operating supplies, raw materials components and capital equipment within the context of the materials management organization concept. Au Qtr. 2 2-hr cl. Prereq: 630 and Bus-M&amp;L 650 and Bus Adm 499.</td>
</tr>
<tr>
<td>736</td>
<td>Purchasing Strategy</td>
<td>UGRD 4</td>
<td>Focus on the importance of developing an integrated purchasing management strategy which is consistent and congruent with the business firm's strategy. Purchasing is viewed as a competitive tool. Wi Qtr. 2 2-hr cl. Prereq: 330, 331, 630 and Bus Adm 499.</td>
</tr>
<tr>
<td>737</td>
<td>International Operations Management</td>
<td>UGRD 4</td>
<td>A course focuses on managing manufacturing and service operations across national boundaries to provide an organization with a competitive advantage. Sp Qtr. 2 2-hr cl. Prereq: 630 and Bus Adm 499 or permission of instructor.</td>
</tr>
<tr>
<td>739</td>
<td>Managing Process Improvement</td>
<td>UGRD 4</td>
<td>Examines process reengineering and quality management for manufacturing and service organizations. Topics covered include process flow and waiting line analysis, quality by design, service/quality guarantees, team problem solving tools, Malcolm Baldrige National Quality Award criteria and statistical process control. Wi, Sp Qtrs. 2 2-hr cl. Prereq: 330, 331, 630 and Bus Adm 499, or permission of instructor.</td>
</tr>
</tbody>
</table>

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**Additional Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Units</th>
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</tr>
</thead>
<tbody>
<tr>
<td>783H</td>
<td>Honor's Research</td>
<td>GRAD 1-5</td>
<td>Special topics research in management sciences; research evaluated through papers, thesis, and/or special examinations. Au, Wi, Sp Qtrs. Prereq: Jr or sr standing in business, 3.40 CPHR, and permission of instructor. Repeatable to a maximum of 15 cr hrs.</td>
</tr>
<tr>
<td>801.01</td>
<td>Business Data Modeling I</td>
<td>GRAD 4</td>
<td>An introduction to quantitative management techniques for first year Masters in Labor an Human Resource candidates. Au Qtr. 1 4-hr cl. Prereq: Stat 133 or equiv or permission of instructor. Prereq: Grad standing in MLHR or permission of instructor.</td>
</tr>
<tr>
<td>811</td>
<td>Six Sigma Projects</td>
<td>GRAD 2-4</td>
<td>Course allows teams of students to apply Six Sigma Principles and Concepts. Au Qtr. Prereq or concur: 810. Repeatable to a maximum of 6 cr hrs. This course is Progress (P) graded.</td>
</tr>
<tr>
<td>814</td>
<td>The Business of Health Care</td>
<td>GRAD 4</td>
<td>Focuses on the evolving and competitive issues facing the health care industry today. Sp Qtr. Prereq: Permission of instructor. Enrolled in MBA Program.</td>
</tr>
<tr>
<td>820</td>
<td>Project Management</td>
<td>GRAD 4</td>
<td>Examines the management of complex projects and the tools that are available to assist managers with such projects. Au Qtr. 1 4-hr cl. Prereq: Students who enjoy applying a spreadsheet based on modeling approaches to business decisions.</td>
</tr>
<tr>
<td>830</td>
<td>Service/Quality Management</td>
<td>GRAD 4</td>
<td>Study of the strategic and tactical issues concerning services in both service and manufacturing industries. Topics include service process re-engineering, performance measurement, service/quality, standards, and employee empowerment. Sp Qtr. 2 2-hr cl. Prereq: MBA 850 or permission of instructor.</td>
</tr>
<tr>
<td>832</td>
<td>Matching Supply with Demand</td>
<td>GRAD 4</td>
<td>Examination of major issues in planning and scheduling in an information systems context; production database, requirements planning, and scheduling processing. Au Qtr. 2 2-hr cl. Prereq: MBA, MAcc, MBLE or MLHR Program.</td>
</tr>
<tr>
<td>834</td>
<td>Strategic Design of Operations/Logistics Systems</td>
<td>GRAD 4</td>
<td>Managing systems of people and technology to create capabilities in operations. Emphasis is on new approaches to managing operations and logistics that promise strategic advantage. Wi Qtr. 2 2-hr cl. Prereq: MBA 850 or 851, and 870; or permission of instructor.</td>
</tr>
</tbody>
</table>

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66
835 Operations Planning and Control for Supply Chain Management

The major responsibilities of materials managers: including aggregate planning and master scheduling, inventory management, and scheduling; major issues and strategies including tactical purchasing methods, techniques for analysis, and Japanese manufacturing philosophies will be discussed.

Au Qtr. 2 1.5-hr cl. Prereq: MBA 850 or 851, and 871; or permission of instructor.

836 Customer Driven Manufacturing in Global Market

Development of effective linkages between the marketing and manufacturing function in strategic planning for a business; application to case studies involving U.S. and overseas firms.

Au Qtr. 2 2-hr cl. Lecture, case discussion, projects. Prereq: 2nd yr standing in MBA or permission of instructor.

837 Global Sourcing

This course first investigates the "make-buy" decision. Then it studies the management of products and/or services "bought" with an international focus.

Wi Qtr. Prereq: MBA 850.

840.01 Lean Enterprise Leadership

An attractive, high visibility course that provides students with academic context and practical skills on lean manufacturing and supply chain practices.

Wi Qtr. 1 4-hr cl. Prereq: Enrollment in the MBA program. This course is graded S/U.

840.02 Lean Enterprise Leadership II

An attractive, high visibility course that provides students with academic context and practical skills on lean manufacturing and supply chain practices.

Sp Qtr. Prereq: Enrollment in the MBOE program.

841 Lean Enterprise Leadership II

An attractive, high visibility course that presents students with academic context and practical skills on lean manufacturing and supply chain practices.

Su Term 1, Su Term 2, Wi, Sp Qtrs. Repeatable to a maximum of 8 cr hrs. This is a Progress graded course. Course withdrawn sp 2005 reinstated wi 2009.

842 Value Stream Management

The objective of this course is to present students with the state-of-the-art strategic and operational approaches to planning and implementing effective change across an enterprise.

Wi Qtr.

843 Stabilizing Operations

The objective of this course is to present students with the state-of-the-art tools for stabilizing operations and maintaining stability.

Sp Qtr.

844 Leading Operations

The Toyota Production System creates a community of scientists. Toyota uses a rigorous problem-solving process to test any proposed changes.

Sp Qtr.

845 Creating and Managing Flow

This course focuses on the concept of flow in both service and manufacturing environments as it exists in operational excellence.

Su Qtr. MBOE students only.

847 Change and Innovation for Operational Excellence

Examination of the major accounting and design control structures as well as behavioral approaches to leading change in organizations.

Au Qtr. MBOE students only.

848 Managing the Extended Value Stream

A focus on working across functions, companies and cultures and managing the Extended Value Stream.

Au Qtr. MBOE students only.

855 Simulation, Risk Analysis, and Decision Making

Focus on analyzing management decisions that involve uncertainty, risk, and complexity by using modeling tools.

Sp Qtr. 2 2-hr cl. Prereq: Enrollment in MBA Program.

870 Data Analysis for Managers

This course develops the quantitative thinking and skills needed for managerial data analysis.

Sp Qtr. Repeatable to a maximum of 4 cr hrs.

871 Modeling for Decision Making

Causes of poor decision making, strategies to overcome them, and techniques to improve decision making.

Wi Qtr.

893 Individual Studies

Individual study projects in selected areas in management sciences.

Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

894.01 Group Studies

Group study projects in selected areas in management sciences.

Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

894.02 Group Studies

Group study projects in selected areas in management sciences.

Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

894.03 Group Studies

Group study projects in selected areas in management sciences.

Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

894.04 Group Studies

Group study projects in selected areas in management sciences.

Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

894.05 Group Studies

Group study projects in selected areas in management sciences.

Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

901 PhD Seminar in Decision Sciences I

PhD seminar in Decision Sciences I.

1 5-hr cl. Repeatable to a maximum of 15 cr hrs. This class is required for students in Management Sciences PhD programs. Others need permission of instructor.

902 PhD Seminar in Decision Sciences II

PhD seminar in Decision Sciences II.

Au Qtr. 1 5-hr cl. Repeatable to a maximum of 15 cr hrs. This class is required for students in Management Sciences PhD programs. Others need permission of instructor.

929 Current Research in Operations Management

A series of weekly lectures and seminar discussions on current research topics in operations management.

Au Qtr. 1 5-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

930 Special Topics in Operations Management

A critical study of selected topics in operations management focusing on the status of research efforts to date; topics vary.

Wi Qtr. 1 5-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

931 Seminar in Operations Management

A critical review of the literature in the field of operations management; in odd-numbered years, the review covers the process design, location, and layout areas while the production planning and control topics are covered in even-numbered years.

Sp Qtr. 1 5-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

998 Research in Management Sciences: Thesis

Research for thesis purposes only.

Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

999 Research in Management Sciences: Dissertation

Research for dissertation purposes only.

Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Business Admin: Marketing & Logistics

450 Foundations of Marketing Management

A survey of marketing for non-business students including discussion of marketing practice tools and concepts and their applications in profit and non-profit organization.

Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Math 130; Econ 200 and CS&E 100 or equivs. Not open to students with credit for Bus-M&L 494 (Summer 2001) or 650; or to students enrolled in the BSBA program. Credit does not count toward the BSBA degree.

490 Entrepreneurship Marketing

Focuses on marketing concepts of entrepreneurs leading growth-oriented companies.

Typically these are small, young companies with ambitions to become major enterprises.

Au Qtr. 2 2-hr cl. Prereq: Econ 200, or AED Econ 200, or equiv; Math 130 or equiv.

493 Individual Studies

Individual study projects in selected areas in marketing.

Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

494 Group Studies

Group study projects in selected areas in marketing.

Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

553 Retail Management

Principles and methods of management applied to retailing for non-business students.

* 2 2-hr cl. Prereq: 650 or 450. Not open to students with credit for 494 (Wi 2002) or 753; or to students enrolled in the BSBA program. Credit does not count toward the BSBA degree.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Type</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>555</td>
<td>Promotional Strategy</td>
<td>UGRD</td>
<td>4</td>
</tr>
<tr>
<td>650</td>
<td>Marketing</td>
<td>UGRD</td>
<td>4</td>
</tr>
<tr>
<td>693</td>
<td>Individual Studies</td>
<td>UGRD</td>
<td>1-6</td>
</tr>
<tr>
<td>694.41</td>
<td>Group Studies</td>
<td>UGRD</td>
<td>1-6</td>
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<td>694.42</td>
<td>Group Studies</td>
<td>UGRD</td>
<td>1-6</td>
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<td>694.43</td>
<td>Group Studies</td>
<td>UGRD</td>
<td>1-6</td>
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<tr>
<td>694.44</td>
<td>Group Studies</td>
<td>UGRD</td>
<td>1-6</td>
</tr>
<tr>
<td>750</td>
<td>Consumer Behavior</td>
<td>UGRD</td>
<td>4</td>
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<tr>
<td>751</td>
<td>Managerial Marketing</td>
<td>UGRD</td>
<td>4</td>
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<td>752</td>
<td>Cases in Managerial Marketing</td>
<td>UGRD</td>
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<td>753</td>
<td>Retail Management</td>
<td>UGRD</td>
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<td>754</td>
<td>Principles of Electronic Marketing</td>
<td>UGRD</td>
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<td>755</td>
<td>Promotional Strategy</td>
<td>UGRD</td>
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<td>756</td>
<td>Product Design and Development</td>
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<td>757</td>
<td>International Marketing</td>
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<td>Marketing Research</td>
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<td>759</td>
<td>Sales Management</td>
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<td>Services Marketing</td>
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<td>761</td>
<td>Personal Selling</td>
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<td>763</td>
<td>Honors Research</td>
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<td>780</td>
<td>Logistics Management</td>
<td>UGRD</td>
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<td>781</td>
<td>Analysis and Design of Logistics Systems</td>
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<td>782</td>
<td>Logistics Decision Making</td>
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<td>Honors Research</td>
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<td>784</td>
<td>Transportation Management</td>
<td>UGRD</td>
<td>4</td>
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<td>841</td>
<td>Principles of Electronic Marketing</td>
<td>GRAD</td>
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<td>842</td>
<td>Product Management Strategy</td>
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<td>843</td>
<td>Services Marketing</td>
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<td>844</td>
<td>Applied Marketing Planning</td>
<td>GRAD</td>
<td>4</td>
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<td>845</td>
<td>Global Management and Sustainability</td>
<td>GRAD</td>
<td>2-4</td>
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<td>846</td>
<td>Advertising and Promotion Management</td>
<td>GRAD</td>
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555 Principles of promotional strategy for non-business students, including fundamentals of communication, creative and media strategy.

650 Critical survey of field of marketing; structure, functions, policies, costs, and problem analyzed from consumer and other view points; emphasis on principles, trends, and quantitative expression.

693 Individual study projects in related areas in marketing.

694.41 Group study projects in selected areas in marketing.

694.42 Group study projects in selected areas in marketing.

694.43 Group study projects in selected areas in marketing.

694.44 Group study projects in selected areas in marketing.

750 A review and synthesis of behavioral sciences applied to understanding consumer decision process; emphasis on the impact of consumer decisions upon the strategies of business, government, and consumer business cases.

751 Marketing policies and strategy, organization, demand analysis, product planning, pricing, physical distribution, and promotion from a managerial viewpoint.

752 Analysis of marketing policies and strategy, with emphasis on actual business cases.

753 Principles and methods of management as applied to retailing, including location, organization, personnel, buying, inventory control, selling and advertising, services, expenses, and profits.

754 Focus on marketing management and strategy, marketing research, advertising and services as they relate to use of World Wide Web technologies.

755 Consumer behavior, fundamentals of communication, setting goals and objectives, creative strategy, media strategy, and social and economic issues.

756 Introduction to new product design processes and state of the art tools and strategies for development of new products.

757 Theory and practice 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.

758 The role of research in the solution of marketing problems; emphasis on available data analysis and methods of the field of investigation.

759 The sales force and its managerial hierarchy.

760 Market research on the field of services. Issues addressed include service promotion, understanding service failure and recovery, management of service employees and service culture.

761 Principles of effective professional personal selling; current practices that integrate personal selling into marketing programs; application of personal selling experience to broader business contexts.

780 Management of logistics activities and costs, including customer service, inventory, transportation, lot quantity costs, warehousing and information systems.

781 A quantitative course in logistics covering forecasting, vehicle routing, facility locatio and network design.

782 Analysis of decision making in the current logistics environment and the methods needed for finding solutions to integrated logistics problems.

783H Special topics research in marketing and/or transportation and logistics; research evaluated through papers, thesis, and/or special examinations.

784 Study of general economic characteristics and government regulation of rail, motor, water, air, and pipeline carriers; consideration of competitive relations between modes of transportation, basic aspects of traffic management.

785 Distinguishes logistics and supply chain management and discusses supply chain management processes and related topics.

841 Focus on marketing management and strategy, marketing research, advertising and services as they relate to use of World Wide Web technologies.

842 Comprehensive examination of product and communication design decisions facing product managers in consumer and industrial firms; case studies and industry-sponsored project; new product development and positioning.

843 Designed to equip students to become more effective executives of service organizations as well as more enlightened customers of service firms.

844 Basic, practical elements of integrated strategic planning, current, and future planning techniques.

845 Review core concepts of global marketing including, pricing, research, positioning, strategy, social responsibility, communicating with world consumers, and management team development.

846 Discussion of specific consumer behavior theories that deal with consumer response to advertising and sales promotion tactics application of these theories in practice.
847 Analysis for Marketing Decisions GRAD 4
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.
Au Qtr. 2 2-hr cl. Prereq: MBA 840 or permission of instructor.

848 Business-to-Business Marketing GRAD 4
Exploring the value process in business to business relationships. Leading such relationships; facilitating alliances; leading customer solutions; understanding interfaces with other functions; quantifying/measuring value.
Au Qtr. 1 4-hr cl. Prereq: MBA 840 or permission of instructor.

849 Marketing Field Studies GRAD 4
An advanced marketing course in which the students act as a consulting team and work with a client firm on a marketing problem.
Au Qtr. 2 2-hr cl. Prereq: 844 and 847. Open only to MBA students with 40 cr hrs.

851 Pricing Strategy and Tactics GRAD 4
Focus on principles of pricing decision making and the integration of pricing decision with product, promotion, and channel decisions.
Au Qtr. 2 2-hr cl. Prereq: MBA 840. Open only to MBA students or permission of instructor.

852 Brand Management GRAD 2-4
An overview of the brand management process including concepts, methods and applications.
Au, Wi Qtrs. 2 2-hr cl. Prereq: Enrollment in the MBA Program or permission of instructor.

853 Strategies in Sales Force Management GRAD 4
Focuses on management of the sales function and its coordination with other components of marketing strategy including pricing, product development, promotion and distribution.
Wi, Sp Qtr. 2 2-hr cl. Prereq: MBA 840 or permission of instructor.

854 Consumer Behavior GRAD 4
Development of the consumer decision process and its application to marketing strategy decisions.
Au Qtr. 2 2-hr cl. Prereq: MBA 840 or permission of instructor.

855 Marketing Innovation Practice: Theory, Process & Application of Innovation GRAD 4
Provides the opportunity to develop skills, and understanding of, the theory and application of Innovation processes including a framework for commercial application across various businesses.
Wi, Sp Qtr. This class will explore emerging trends in Innovation methodologies and how it has been successfully applied to the evolution and development of new and existing production, services, brands, business concepts and processes.

856 Introduction to Statistical and Experimental Design Concepts and Methods for Marketing Research GRAD 4
Course which presents various basic statistical analysis and experimental design methodologies as related to marketing research.
Au, Wi, Su Qtrs. Prereq: Stats 504 or permission of instructor. Two substantive marketing research projects will be selected and teams of students will outline, conduct, and present final results.

880 Logistics Management GRAD 4
Management of movement services and coordination of demand and supply patterns for optimization of physical systems in terms of cost and customer service.
Au, Sp Qtr. 2 2-hr cl.

881 Analysis and Design of Logistics Systems GRAD 4
Examination of algorithms for managerial decision making in the design and operation of integrated logistics systems.
Wi Qtr. 2 2-hr cl. Prereq: 880 and MBA 871 or 872.

882 Logistics Software and Technology GRAD 4
To provide strong knowledge and understanding of the tools and software being used in logistics and supply chain management; and interaction with industry professionals.
Sp Qtr. 2 2-hr cl. Prereq or concur: 880.

884 Field Problems in Logistics GRAD 4
Provide students with supervised opportunity to test their problem solving skills on an actual business problem through developing, executing and evaluating a research design.
Wi Qtr. 2 2-hr cl. Prereq: 880.

885 Supply Chain Management GRAD 4
Deals with the cross-functional integration of key business processes within the firm and across the network of firms that comprise the supply chain.
Au Qtr. 2 2-hr cl. Prereq: MBA student or permission of instructor.

886 Advanced Supply Chain Management GRAD 4
Focus on the integration of cross-functional key business processes within the firm across the network of firms that comprise the supply chain.
Wi Qtr. 1 4-hr cl. Prereq: 885.
Chemical and Biomolecular Engineering

200 Chemical and Biomolecular Engineering UGRD 3 Process Calculations I
The application of physico-chemical principles to problems of the chemical industry; emphasis on graphical methods, stoichiometry, heat, and material balances. Au, Wi Qtr. S 2 cl, 2 comp lab hrs. Prereq: Chem Eng 123 and a minimum CPHR of 2.00, and prereq or concur: Math 254 and Physics 131.

201 Chemical and Biomolecular Engineering UGRD 3 Process Calculations II
Continuation of 200. Wi, Sp Qtrs. 2 cl, 2 comp lab hrs. Prereq: 200 or Chem Eng 200 and prereq or concur: Math 415 and Physics 132.

294 Group Studies UGRD 1-6

420 Elements of Chemical and Biomolecular Engineering Transport Phenomena I
Introduction to momentum, mass, and heat transfer with emphasis on the analogies between them; practical applications of momentum transfer (fluid flow). Sp Qtr. 3 cl, 2 comp lab hrs. Prereq: 201, Math 415, Physics 132, or equiv with written permission of instructor.

489 Professional Practice in Industry UGRD 2
Preparation of a comprehensive report based on employment experience in a co-op job in industry. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Admission to co-op program in chbe. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

508 Chemical and Biomolecular Engineering UGRD 3 Thermodynamics I
Application of the fundamental concepts and laws of thermodynamics to problems of the chemical industry; stress on computational problem work. Au Qtr. 2 cl, 2 comp lab hrs. Prereq: 201 or Chem Eng 201 and 420 or Chem Eng 420.

509 Chemical and Biomolecular Engineering UGRD 3 Thermodynamics II
Continuation of 508. Wi Qtr. 2 cl, 2 comp lab hrs. Prereq: 508 or Chem Eng 508.

520 Transport Phenomena UGRD 3
Momentum, mass, and heat transfer with emphasis on the analogies between them; practical applications of momentum transfer (fluid flow). Sp Qtr. 3 cl. Prereq: Math 415. Not open to students with credit for 420 or Chem Eng 420.

521 Elements of Chemical and Biomolecular Engineering Transport Phenomena II
Continuation of transport theory with emphasis on heat transfer and introduction to radiation; basic principles developed and illustrated with problems from chemical and biomolecular engineering practice. Au Qtr. 2 cl, 2 comp lab hrs. Prereq: 420 or 520 or Chem Eng 420 or 520, and a second writing course. GEC course.

522 Elements of Chemical and Biomolecular Engineering Transport Phenomena III
Continuation of the study of transport theory; emphasis on mass transfer and stagewis operations with applied computational problems. Wi Qtr. 2 cl, 2 comp lab hrs. Prereq: 521 or Chem Eng 521.

523 Chemical and Biomolecular Engineering UGRD 4 Unit Operations
The application of transport phenomena such as fluid, heat, and mass transfer to the chemical and biomolecular engineering operations of evaporation, distillation, drying, etc. Sp Qtr. 3 cl, 2 comp lab hrs. Prereq: 522 or Chem Eng 522 and Chem 532.

510 Chemical and Biomolecular Engineering UGRD 4 Kinetics
Chemical and engineering principles for the design and operation of chemical reactors kinetics of simple homogeneous systems and introduction to heterogeneous catalysis. Sp Qtr. 3 cl, 2 comp lab hrs. Prereq: 509 or Chem eng 509 or Chem 532, and 522 or Chem eng 522.

624 Chemical and Biomolecular Process UGRD 4 Dynamics and Control I
Study of the dynamics and control of chemical and biomolecular processes; mathematical models of simple processes, including feedback control, are derived, analyzed, and simulated. Au Qtr. 3 cl, 2 comp lab hrs. Prereq: 523 or Chem Eng 523, 610 or Chem Eng 610.

626 Digital Control Techniques in Chemical and Biomolecular Engineering
Study of real-time data acquisition and digital control techniques as applied to chemical processes. Sp Qtr. 2 cl, 3 lab hrs. Prereq: 624 or Chem Eng 624 and En Graph 200, or permission of instructor.

630 Chemical and Biomolecular Engineering UGRD 3-6 Unit Operations Laboratory
The fundamental laboratory course in the chemical and biomolecular engineering operations; laboratory investigation of processes such as distillation, fermentation, filtration, etc. Su, Wi, Sp Qtrs. 1-3 cl, 6-15 lab hrs. Prereq: 523; prereq or concur: 610; or permission of instructor. Repeatable to a maximum of 6 cr hrs. GEC course.

632 Introduction to Nanofabrication and Nanomanufacturing
Novel nanomanufacturing techniques will be introduced with a focus on top down approaches and a brief introduction of bottom up approaches. Au Qtr. 3 cl. Prereq: ECE 331 or MatSc&En 205 or permission of instructor. Not open to students with credit for Biomed E 662 or ECE 632 or Ind Eng 652.02. Cross-listed with Biomed E 662, ECE 632, and Ind Eng 652.02.

693 Individual Studies in Chemical and Biomolecular Engineering
Individual Studies in Chemical and Biomolecular Engineering. Su, Au Qtr. 3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies in Chemical and Biomolecular Engineering
Group Studies in Chemical and Biomolecular Engineering. Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs.

702 Multiphase Flow Dynamics UGRD 3
An introduction to science and engineering principles associated with multiphase flows and their applications to chemical engineering processes. Prereq: 521 or Mech Eng 510 or grad standing or permission of instructor.

712 Catalysis and Catalytic Processes UGRD 3
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. Sp Qtr. 3 cl. Prereq: 522 or Chem Eng 522 and 610 or Chem eng 610.

713 Fuel Cells and Catalysis UGRD 3
An introduction to the basic principles involved in fuel cells with special emphasis on catalytic phenomena. Prereq: 508 or Chem 531 or Mech Eng 500 or Mech Eng 501 or MatSc&En 401; Chem 610 or Chem 532 or MatSc&En 526; or permission of instructor.

715 Particle Technology UGRD 3
An introduction to engineering processes involving particulates and powders. Multiphase transport phenomena and fluidization are emphasized. Sp Qtr. 2 cl, 2 comp lab hrs. Prereq: 523 or Chem eng 523; Math 415, or grad standing or permission of instructor.

717 Colloids and Surfaces UGRD 3
Introduction to various aspects of colloids and surfaces, including sedimentation, diffusion, thermodynamics, light scattering, surface tension, contact angle, and surfactants. Su, Au Qtrs. 3-2 hr cl. Prereq: 509 or Chem eng 509 or Chem 531, Math 255, Chem 253.

726 Chemical and Biomolecular Process UGRD 3 Dynamics and Control II
Further development of process dynamics and control topics begun in 624. Sp Qtr. 3-3 hr cl. Prereq: 624 or Chem eng 624 or permission of instructor.

733 Novel Separation Processes UGRD 3
Provides further depth beyond 523 in the area of separations applied to chemical and biomolecular processing and introduces some novel techniques that are at the leading edge of separations research. Su, Sp Qtrs. 3 cl. Prereq: 509 or Chem eng 509, 523 or Chem eng 523, or grad standing, or permission of instructor.

734 Molecular Informatics for Engineers UGRD 3
Overview of molecular informatics with emphasis on its use in modern drug discovery and exploration of chemical structure-property relationships. Prereq: Senior or graduate standing in engineering or permission of instructor. Only open to students enrolled in chemical engineering.
735 Cellular Nanotechnology UGRD 3
An introduction and overview of the role of nanotechnology in soft materials and biotechnology. Applications in polymer devices for biomedical and diagnostics are emphasized. Prereq: Sr or grad standing in engineering or permission of instructor. Not open to students with credit for Biomed E 765. Cross-listed with Biomed E 765.

739 Knowledge-Based Systems in Engineering UGRD 3
Application of knowledge-based system principles to engineering problems, including practical knowledge engineering, techniques for problem assessment, and implementation.

Wi, Sp Qtrs. 2.5-hr cl. Prereq: Cpr/Inf 630 or CS&E 630 or permission of instructor. Cross-listed in Computer Science and Engineering; Civil Engineering.

750 Profession of Chemical and Biomolecular Engineering UGRD 0-1

Engineering
The roles in professional activities performed by chemical engineers, code of ethics, professional registration, professional societies, responsibilities to management and to labor, and as an administrator.

Prereq: Jr or sr standing in ENG or grad standing in engineering or permission of instructor.

755 Chemical Process Safety UGRD 3
Familiarizes students with varied topics relating to chemical and industrial process safety. Covers PHA methods and tools.

Wi Qtr. 3 cl. Prereq: Jr standing. Repeatable to a maximum of 2 cr hrs. This course is Progress (P) graded. Progress graded Sp Qtr, credit/grade awarded upon completion of Au Qtr.

760 Chemical and Biomolecular Engineering UGRD 3

Economy and Strategy
Economic and strategy considerations in research, development, design, and manufacturing in the chemical process industry; cost estimation and economic optimization of chemical and biomolecular engineering operations and processes.

Au Qtr. 3 cl. 1 recitation. Prereq: 610 or Chem eng 610. GEC course.

761 Chemical and Biomolecular Engineering UGRD 3

Processes
Integration of fundamentals of chemistry, chemical and biomolecular engineering operations, thermodynamics, reaction kinetics, and economics for optimum design and operation of chemical process plants.

Au Qtr. 2 cl, 2 comp lab hrs. Prereq: Sr standing in chem eng or chem.

762 Chemical and Biomolecular Engineering UGRD 4

Process Development
Library, laboratory, and pilot plant research and development of chemical and biomolecular processes of industrial potential justified by preliminary economic studies; preparation of optimum process flow sheets; plant design studies.

Sp Qtr. 1 cl, 11 lab hrs. Prereq: 624 or Chem Eng 624, 760 or Chem Eng 760. GEC course.

764 Chemical and Biomolecular Engineering UGRD 4

Process Design
Process design studies on selected chemical and biomolecular processes encompassing a broad spectrum of fundamental engineering principles; optimization studies utilizing economic and technical simulation.

Wi Qtr. 2 cl, 2 4-hr labs. Prereq: 624 or Chem Eng 624, 760 or Chem Eng 760. GEC course.

765 Principles of Biochemical Engineering UGRD 3

The application of biochemical engineering principles for modern bioprocesses and in the area of industrial biotechnology.

Au Qtr. 2 1.5-hr cl. Prereq: 523 or Chem eng 523, 610 or Chem eng 610, or grad standing or permission of instructor.

766 Biotechnology and Bioprocess Engineering UGRD 3

Fundamentals of biotechnology and their applications to bioprocessing with emphasis on fermentation and bioseparation.

Wi Qtr. 3 1-hr cl. Prereq: 765 or BioChem 511 or Microbiol 520 or Chem eng 765, or permission of instructor.

769 Biomedical Nanotechnology UGRD 3
Survey of biomedical technology with particular emphasis on nanoscale mass transport, nanomechanics, nanofluidics and medical therapeutics.

Sp Qtr. 2 1.5-hr cl. Prereq: Chem 231 or Math 153 or Physics 133 or Biomed E 400/600 or grad standing. Cross-listed with Biomed E 761.

771 Air Pollution UGRD 3

Sources of air pollutants, properties of small particles, chemistry of air pollution, dispersion and deposition of air pollutants, and air pollution control.

Sp Qtr. 3 cl. Prereq: ENG or standing or permission of instructor.

772 Principles of Sustainable Engineering UGRD 3

Introduce systematic methods for evaluating broader impact of engineering activities on the environment and society, with emphasis on sustainability of emerging technologies and management strategies.

Prereq: 760 or permission of instructor.
Advanced Chemical and Biomolecular Engineering Kinetics II
Continuation of 812.
Wi Qtr. 3 cl. Prereq: 812 or Chem eng 812.
815.01 Advanced Chemical and Biomolecular Engineering Science and Applications: Advanced Mass Transfer-I
Advanced concepts of science and engineering as applied to the chemical and biomolecular engineering field under various topics.
Prereq: Chem eng grad standing or permission of instructor. Repeatable to a maximum of 45 cr hrs. Subdivisions are not repeatable.
815.05 Advanced Chemical and Biomolecular Engineering Science and Applications: Heat Transfer-I
Advanced concepts of science and engineering as applied to the chemical and biomolecular engineering field under various topics: Conduction, radiation, and convection.
Prereq: Chem eng grad standing or permission of instructor. Repeatable to a maximum of 45 cr hrs. Subdivisions are not repeatable.
815.08 Advanced Chemical and Biomolecular Engineering Science and Applications: Momentum Transfer-I
Advanced concepts of science and engineering as applied to the chemical and biomolecular engineering field under various topics: Basic theory, laminar flow, and phenomenological turbulence.
Prereq: Chem eng grad standing or permission of instructor. Repeatable to a maximum of 45 cr hrs. Subdivisions are not repeatable.
815.09 Advanced Chemical and Biomolecular Engineering Science and Applications: Momentum Transfer-II
Advanced concepts of science and engineering as applied to the chemical and biomolecular engineering field under various topics: Turbulence, mixing, and chemical reaction.
Prereq: Chem eng grad standing or permission of instructor. Repeatable to a maximum of 45 cr hrs. Subdivisions are not repeatable.
815.15 New or Unusual Chemical and Biomolecular Engineering Unit Operations
Advanced concepts of science and engineering as applied to the chemical and biomolecular engineering field under various topics. Examples: adsorption, atomization, dialysis exclusion, sublimation.
Prereq: Chem eng grad standing or permission of instructor. Repeatable to a maximum of 45 cr hrs. Subdivisions are not repeatable.
881 Research Communications in Chemical and Biomolecular Engineering
Analysis and critique of chemical and biomolecular engineering research literature.
Training and practice in written and oral communication of research ideas.
Su, Sp Qtrs. 3 conf hrs. Prereq: Grad standing in chem eng. Repeatable to a maximum of 12 cr hrs.
894 Group Studies in Chemical and Biomolecular Engineering
Course will provide special topics in Chemical and Biomolecular Engineering.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.
899 Teaching Practicum in Chemical and Biomolecular Engineering
Teaching and instructional development under faculty guidance in the chemical and biomolecular engineering curriculum.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Grad standing. International students for whom English is not the first language must first become certified by passing English 105 or the mock-teaching test. Repeatable to a maximum of 20 cr hrs. Provides teacher training and evaluation that is recognized on transcript. This course is graded S/U.
981 Research Proposal in Chemical and Biomolecular Engineering
Formal report or proposal in preparation for the candidacy examination in chemical and biomolecular engineering.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing in chem eng.
995 Seminar in Chemical and Biomolecular Engineering
Formal lectures and discussion of state of the art research and development in chemical and biomolecular engineering.
Au, Wi, Sp Qtrs. 1.5- hr cl. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.
999 Research in Chemical and Biomolecular Engineering
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Chemical Physics
880.01 Frontiers in Spectroscopy
An overview of both fundamental and applied topics on the frontier of spectroscopy.
Wi Qtr. 2.1-5 hr cl, 1.1-5 hr recit. Prereq: Chem 862 or Physics 828 or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
880.02 Frontiers in Spectroscopy
An overview of both fundamental and applied topics on the frontier of spectroscopy.
Wi Qtr. 2.1-5 hr cl, 1.1-5 hr recit. Prereq: Chem 862 or Physics 828 or permission of instructor. Repeatable to a maximum of 15 cr hrs.
894 Group Studies
Group studies on special topics in chemical physics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Varies with the topic. Repeatable to a maximum of 15 cr hrs.
999 Research in Chemical Physics: Dissertation
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Arr. Repeatable. This course is graded S/U.

Chemistry
100 Chemistry and Society
Terminology, methods, and principles of chemistry; examination of the roles of chemistry in our modern technological society.
Au, Wi, Sp Qtrs. 5 cl. Prereq: Math 075 or 076 or satisfactory score on Ohio State Math Placement Test. Not open to students with credit for 101, 121 or H201, or chem courses having these as prereqs. GEC phys sci course. This course may be available in a distance learning format.
101 Elementary Chemistry
Introductory general chemistry for non-science majors, including dimensional analysis, atomic structure, bonding, chemical reactions, states of matter, solutions, chemical equilibrium, and acids and bases.
Su, Au, Wi, Sp Qtrs. 4 cl, 3 lab hrs. Prereq: Eligibility to enroll in Math 116. Not open to students with credit for 121 or H201. Safety glasses must be worn in lab. This course is available for EM credit with permission. GEC phys sci course. NS Admis Cond course.
102 Elementary Chemistry
Introductory organic and biological chemistry, including saturated and unsaturated hydrocarbons, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines, stereochemistry, carbohydrates, lipids, proteins, and nucleic acids.
Au, Wi, Sp Qtrs. 4 cl, 3 lab hrs. Prereq: 101. Safety glasses must be worn in lab. This course is available for EM credit with permission. GFC phys sci course. NS Admis Cond course.
121 General Chemistry
First course for science majors and engineering students, covering dimensional analysis, atomic structure, the mole, stoichiometry, chemical reactions, thermochemistry, electron configuration, periodicity, bonding, and molecular structure.
Su, Au, Wi, Sp Qtrs. 4 cl, 3 lab hrs. Prereq: One unit of high school chem and eligibility to enroll in Math 150. Not open to students with credit for H201. Safety glasses must be worn in lab. This course is available for EM credit with permission. GEC phys sci course. NS Admis Cond course.
122 General Chemistry
Continuation of 121 for science majors, covering acids and bases, redox reactions, gases, liquids, solids, solutions, colligative properties, kinetics, and chemical equilibrium.
Su, Au, Wi, Sp Qtrs. 4 cl, 3 lab hrs. Prereq: 121 or completion of 101 with a grade of A or A- and eligibility to enroll in Math 150. Not open to students with credit for 125 or H202. Safety glasses must be worn in lab. This course is available for EM credit with permission. GEC phys sci course. NS Admis Cond course.
123 General Chemistry
Continuation of 122 for science majors, covering solubility and ionic equilibria, qualitative analysis, thermodynamics, electrochemistry, descriptive chemistry, coordination compounds, and nuclear chemistry.
Su, Au, Wi, Sp Qtrs. 3 cl, 6 lab hrs. Prereq: 122. Safety glasses must be worn in lab. This course is available for EM credit with permission. GEC phys sci course.
125 Chemistry for Engineers
Continuation of 121 for engineering students (other than chemical engineering), covering states of matter, solutions, thermodynamics, kinetics, equilibrium, acids, bases, and electrochemistry.
Wi, Sp Qtrs. 3 cl, 3 lab hrs. Prereq: 121 or prereq or concur: Math 151. Not open to students with credit for 122, 123, or H202. Safety glasses must be worn in lab. This course is available for EM credit with permission.
161 General Chemistry for Majors UGRD 5
First course for chemistry and biochemistry majors, covering dimensional analysis, atomic structure, the mole, stoichiometry, chemical reactions, thermochemistry, electron configuration, periodicity, bonding, and molecular structure. Au Qtr. 4 cl, 3 lab hrs. Prereq: One unit of high school chem and eligibility to enroll in Math 150 and Chemistry or Biochemistry major or permission of Department. Not open to students with credit for H201. Safety glasses must be worn in lab. The goal of this course is mastery of the basic principles of general chemistry. This course will be used in conjunction with Chemistry 162 and 163. The format of the course will involve inquiry and problem solving.

162 General Chemistry for Majors UGRD 5
Continuation of 161 for Chemistry and Biochemistry majors, covering acids and bases, redox reactions, gases, liquids, solids, solutions, colligative properties, kinetics and chemical equilibrium. Wi Qtr. 4 cl, 3 lab hrs. Prereq: 161 or 121 and eligibility to enroll in Math 150 and Chemistry or Biochemistry major or permission of Department. Not open to students with credit for 125 or H202. Safety glasses must be worn in lab.

163 General Chemistry for Majors UGRD 5
Continuation of 162 for Chemistry and Biochemistry majors, covering solubility and ionic equilibria, qualitative analysis, thermodynamics, electrochemistry, descriptive chemistry, coordination compounds, and nuclear chemistry. Sp Qtr. 3 cl, 6 lab hrs. Prereq: 162 or 122; Chemistry or Biochemistry major or permission of Department. Safety glasses must be worn in lab.

201H General Chemistry UGRD 5
Fundamental chemical principles for selected students. Au Qtr. 4 cl, 3 lab hrs. Prereq: ACT mathematics score of 30 or above and ACT science reasoning score of 28 or above; prereq or concur: Math 151; or permission of instructor. Safety glasses must be worn in lab. GEC sci phys course. NS Admis Cond course.

202H General Chemistry UGRD 5
Continuation of H201; fundamental principles and nonmetal chemistry. Wi Qtr. 4 cl, 3 lab hrs. Prereq: H201. Safety glasses must be worn in lab. GEC sci course.

203H General Chemistry UGRD 5
Continuation of H202; fundamental principles and chemistry of metals. Sp Qtr. 3 cl, 6 lab hrs. Prereq: H202. Safety glasses must be worn in lab. GEC phys sci course.

211 Quantitative Chemical Analysis for Biological and Medicinal Sciences UGRD 5
Quantitative chemical analysis with particular focus on bioanalytical and pharmaceutical applications. Su, Wi Qtrs. 4 cl, 4 lab hrs. Prereq: 123 or equiv. Not open to students with credit for 221.

221 Analytical Chemistry I UGRD 5
Analytical chemistry for chemistry majors; quantitative analysis of the elemental and molecular composition of complex systems. Au, Sp Qtrs. 3 cl, 8 lab hrs. Prereq: 123 or equiv and eligibility to enroll in Math 151; Safety glasses must be worn in lab. GEC data analysis course.

221H Analytical Chemistry I UGRD 5
Analytical chemistry for chemistry majors; quantitative analysis of the elemental and molecular composition of complex systems. Prereq: 123 or equiv and eligibility to enroll in Math 151; Honors program or permission of instructor. GEC data analysis course.

231 Introductory Organic Chemistry UGRD 3
A condensed presentation of organic chemistry organized by functional groups with an emphasis on practical applications. Sp Qtr. 4 cl. Prereq: 122 or 125. Not open to students with credit for 102 or 251.

245 Organic Chemistry Laboratory UGRD 2
Introduction to the scientific writing, computational chemistry and laboratory techniques of organic chemistry, including synthesis, isolation, purification, and identification of organic compounds. Su, Au, Wi, Sp Qtrs. 1 cl, 1-3 hr lab. Prereq: 231 or 251. Not open to students with credit for 254. Safety glasses must be worn in lab.

246 Organic Chemistry Laboratory UGRD 2
Further development of scientific writing, computational chemistry and laboratory techniques of organic chemistry as related to the organic compounds studied in 251 and 252. Su, Au, Wi, Sp Qtrs. 1 cl, 1-3 hr lab. Prereq: 252, and 245 or 254. Not open to students with credit for 255. Safety glasses must be worn in lab.

251 Organic Chemistry UGRD 4
Introduction to structure, nomenclature, physical properties, preparation and reactions of alkanes, alkenes, alkanes, alcohols, ethers, epoxides. Other topics include stereochemistry, acids and bases, reaction mechanisms. Au, Wi, Qtrs. 4 cl. Prereq: 123 or H203.

251H Organic Chemistry UGRD 4
Introduction to structure, nomenclature, physical properties, preparation and reactions of alkanes, alkenes, alkanes, alcohols, ethers, epoxides. Other topics include stereochemistry, acids and bases, reaction mechanisms. Au, Wi Qtrs. 4 cl. Prereq: 123 or H203; Honors program or permission of department or instructor.

252 Organic Chemistry UGRD 4
Conjugated systems, aromatics, aldehydes, ketones, carboxylic acids, organometallic chemistry, radical reactions. Spectroscopic methods of organic chemistry including mass spectrometry, infrared spectroscopy, nuclear magnetic resonance spectroscopy. Wi, Sp Qtrs. 4 cl. Prereq: 251.

252H Organic Chemistry UGRD 4
Conjugated systems, aromatics, aldehydes, ketones, carboxylic acids, organometallic chemistry, radical reactions. Spectroscopic methods of organic chemistry including mass spectrometry, infrared spectroscopy, nuclear magnetic resonance spectroscopy. Wi, Sp Qtrs. 4 cl. Prereq: 251H; Honors program or permission of department or instructor.

253 Organic Chemistry UGRD 4

253H Organic Chemistry UGRD 4
Aldehydes, ketones, carboxylic acid derivatives, substitution reactions of carbonyl compounds, amines, carbon-carbon bond forming reactions; polymers. Introduction to carbohydrates, amino acids, nucleic acids, lipids. Su, Au, Sp Qtrs. 4 cl. Prereq: 252H; Honors program or permission of department or instructor.

254 Organic Chemistry Laboratory UGRD 3
Introduction to scientific writing, computational chemistry, laboratory techniques of organic chemistry, including synthesis, isolation, purification, and identification of organic compounds. Su, Au, Wi, Sp Qtrs. 1 cl, 2-3 hr labs. Prereq or concur: 252. Safety glasses must be worn in lab.

254H Organic Chemistry Laboratory UGRD 3
Introduction to scientific writing, computational chemistry, laboratory techniques of organic chemistry, including synthesis, isolation, purification, and identification of organic compounds. Wi Qtr. 1 cl, 2-3 hr labs. Prereq or concur: 252, and permission of instructor. Safety glasses must be worn in lab.

255 Organic Chemistry Laboratory UGRD 3
Introduction to scientific writing, computational chemistry, laboratory techniques of organic chemistry, including synthesis, isolation, purification, and identification of organic compounds. Su, Au, Wi, Sp Qtrs. 1 cl, 2-3 hr labs. Prereq: 252 and 254. Safety glasses must be worn in lab.

255H Organic Chemistry Laboratory UGRD 3
Introduction to scientific writing, computational chemistry, laboratory techniques of organic chemistry, including synthesis, isolation, purification, and identification of organic compounds. Sp Qtr. 1 cl, 2-3 hr labs. Prereq: 252, 254, and permission of instructor. Safety glasses must be worn in lab.

294 Group Studies UGRD 3-5
Special studies in chemistry. Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

500 Physical Chemistry UGRD 3
The principles of physical chemistry for students in the biological sciences and for BA students majoring in chemistry. Wi Qtr. 3 cl. Prereq: 211 or 221 or 251, Math 153, and Physics 113 or 133. Not open to students with credit for 531.

512 Physical Chemistry UGRD 3
Quantum chemistry. Au Qtr. 3 cl. Prereq: 221 or 251 or equiv; Physics 113 or 133; Math 254; prereq or concur: Math 255. Not open to students with credit for 533.

531 Physical Chemistry UGRD 3
Statistical mechanics and thermodynamics. Wi Qtr. 3 cl. Prereq: 530.

532 Physical Chemistry UGRD 3
Thermodynamic equilibrium and chemical kinetics. Sp Qtr. 3 cl. Prereq: 531.
541 Physical Chemistry Laboratory  UGRD  3
Quantitative measurements of chemical phenomena and the application of chemical principles to their interpretation. Au, Wi, Sp Qtr. 1 cl, 8 lab hrs. Prereq or concur: 520 or 530; but desirable to have 1 or more physical chemistry courses completed. Safety glasses must be worn in lab.

542 Physical Chemistry Laboratory  UGRD  3
Continuation of 541. ^ Au, Wi, Sp Qtrs. 8 lab hrs. Prereq: 541; or prereq or concur: 521 or 531. Safety glasses must be worn in lab.

585 Research Principles in Chemistry  UGRD  1-5
Independent chemical investigation under the direction of a faculty member, culminating in written and oral reports. ^ Su, Au, Wi, Sp Qtrs. Arr. Prereq: 15 cr hrs in chem at the 200 level or above and written permission of instructor under whose direction the student will work. Repeatable to a maximum of 20 cr hrs.

587 Analytical Chemistry II: Instrumental Analysis  UGRD  3
Applications of physico-chemical problems in qualitative and quantitative chemical analysis. Sp Qtr. 3 cl. Prereq or concur: 521 or 532, and 541.

588 Laboratory Practice in Instrumental Analysis  UGRD  3
Laboratory applications of physico-chemical principles to instrumental analysis. Sp Qtr. 2 3-hr labs. Prereq or concur: 587 or permission of instructor. Safety glasses must be worn in lab.

594 Group Studies  UGRD  1-5
Group studies of special topics not otherwise offered. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

611 Nanochemistry  UGRD  3
Introduction to fundamental concepts of nanoscience, exploring strategies for complex assemblies of molecules and developing computational techniques for the investigation of nanotech structures. ^ Sp Qtr. 3 1-hr cl, project on PCs. Prereq: 123 and permission of instructor.

632 Spectroscopic Methods in Organic Chemistry  UGRD  3
Advanced spectroscopic methods in organic chemistry, including proton and carbon NMR, IR, UV, and mass spectrometry. Wi Qtr. 3 cl. Prereq: 253 or permission of instructor.

641 Atmospheric Chemistry  UGRD  3
Chemistry and composition of the lower atmosphere (troposphere and stratosphere), including regional and global perspectives. ^ Wi Qtr. 2 1.5-hr cl. Prereq: 123 and at least jr standing or permission of instructor. Chem 231 or 231 recommended.

644 Computational Chemistry  UGRD  3
An introduction to computational chemistry including a survey of modern computational techniques and applications. Au Qtr. 3 1-hr cl. Prereq: 252.

651 Inorganic Chemistry I  UGRD  3
Introduction to the principles of inorganic structure and bonding, including molecular symmetry, atomic structure, molecular, and ionic bonding. Au Qtr. 3 cl. Prereq: 253 or permission of instructor.

652 Inorganic Chemistry II  UGRD  3
Chemistry of the transition metals, with emphasis on the stereochemistry, reaction mechanisms, and chemical reactivity of coordination complexes and organometallics. Wi Qtr. 3 cl. Prereq: 651 or permission of instructor. Not open to students with credit for 751 or 752.

661.01 Biochemistry  UGRD  3
A survey of biochemistry for the superior advanced undergrad or the beginning grad student who does not necessarily plan to do grad research in biochemistry. ^ Au Qtr. 3 cl. Prereq: 253 and 521 or 532. Not recommended for students with grades of C or below in prereq courses.

661.02 Biochemistry  UGRD  3
A survey of biochemistry for the superior advanced undergrad or the beginning grad student who does not necessarily plan to do grad research in biochemistry. ^ Wi Qtr. 3 cl. Prereq: 253 and 521 or 532. Not recommended for students with grades of C or below in prereq courses.

673 Introduction to Quantum Chemistry and Spectroscopy  UGRD  3
Fundamental quantum chemistry with applications to molecular spectroscopy, suitable for all areas of chemistry. ^ Su Qtr. 3 cl. Prereq: 532 or equiv; or permission of instructor. Not open to students with credit for 861.

685 Safety Seminar  UGRD  2
A survey of safe operational procedures and protocols to be followed in a laboratory environment. Wi Qtr. 2 cl. This course is graded S/U.

693 Individual Studies  UGRD  0-15
A qualified student may conduct a minor investigation in chemistry. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 60 cr hrs. This course is graded S/U.

694 Group Studies  UGRD  1-5
Designed for students to pursue advanced special studies in chemistry. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

699 Undergraduate Research  UGRD  1-10
Undergraduate research or creative activities in various topics. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

701 Seminar in Teaching College Chemistry  GRAD  3
Preparation for teaching lower-division chemistry laboratory and recitation sections. ^ Su Qtr. 2 2-hr cl. Prereq: Permission of Graduate Advising Committee.

720 Principles of Analytical Chemistry  GRAD  3
Introduces advanced topics in analytical chemistry that include: statistics, modeling of data, Fourier transforms, atomic spectroscopy, nuclear magnetic resonance and mass spectrometry. ^ Su Qtr. 3 1-hr cl.

721 Advanced Analytical Chemistry  UGRD  3
Chemical and instrumental aspects of modern methods of analysis, emphasizing commonly used contemporary techniques of value to the research chemist. Au Qtr. 3 cl. Prereq: 587 or equiv or permission of instructor.

722 Principles of Analytical Processes  UGRD  3
Speciation and multicomponent equilibria, analog versus digital data acquisition, applications of Fourier transforms, modeling chemical systems. ^ Wi Qtr. 3 cl. Prereq: 531.

730 Intermediate Organic Chemistry  UGRD  3
Intermediate-level course for advanced undergraduates and beginning graduate students in organic reactions and mechanisms. Au Qtr. 3 cl. Prereq: 253. Recommended for entering grad students in organic chemistry. 730, 731, 831, 832, 833 comprise the first year graduate organic sequence.

731 Advanced Organic Chemistry I  UGRD  3
Fundamental aspects of physical organic chemistry. Au Qtr. 3 cl. Prereq: 253, 521 or 532, or permission of instructor. 730, 731, 831, 832, and 833 comprise the first-year graduate organic sequence.

733 Chemistry of Bio-Organic Catalysts and Enzymes  UGRD  3
Mechanisms of organic catalysts and enzymes; for students majoring in organic chemistry and biochemistry. Wi Qtr. 3 cl. Prereq: 253 or equiv; also desirable to have undergraduate level physical chemistry and biochemistry.

734 Chemistry at the Interface of Biology  GRAD  3
Introduction to the fundamentals of biological chemistry and discussion of a variety of developments in the application of chemistry to biological processes; chemical approaches to biology. ^ Su Qtr. Prereq: 253 or equiv. Recommended for incoming graduate students as a refresher to biochemical and biological applications.

740 Introduction to Astrochemistry  UGRD  3
A treatment of the chemistry occurring in regions outside of the solar system including interstellar clouds, areas of star formation, and envelopes and atmospheres of stars. Wi Qtr. 3 1-hr cl. Prereq: Introductory courses in quantum mechanics, thermodynamics, and basic kinetics. Not open to students with credit for Astron 740 or Physics 740. Cross-listed in Astronomy and Physics.

750 Fundamental Principles of Inorganic Chemistry  UGRD  3
Theory and application of modern inorganic chemistry for students who intend to take additional courses in chemistry. ^ Su Qtr. 3 cl. Prereq: Undergraduate degree in chemistry or permission of instructor.

751 Transition-Metal Organometallic Chemistry  UGRD  3
Preparation, structure and bonding, reactivity, and applications to stoichiometric synthesis and catalysis of transition-metal compounds that contain metal-carbon bonds, including metal carbenes, pi complexes, and metal alkyls. Au Qtr. 3 cl. Prereq: Permission of instructor or an undergraduate degree with a major in chem.

752 Inorganic Biochemistry  UGRD  3
Roles of metal ions as biological redox and catalytic cofactors; coordination chemistry; spectroscopy and electrochemistry. Au Qtr. 3 cl. Prereq: undergraduate degree with a major in chemistry, or permission of instructor.
753 Inorganic Cluster Chemistry UGRD 3
Bonding, structures, and chemistry of cluster and ring compounds of the transition and main group elements with applications to heterogeneous catalysis and inorganic polymers.
Wi Qtr. 3 cl. Prereq: undergraduate degree with a major in chemistry, or permission of instructor.

754 Solid State Inorganic Chemistry UGRD 3
Survey of the principles and concepts underlying the synthesis, structure, bonding, reactivity, and properties of solids.
Sp Qtr. 3 cl. Prereq: Undergraduate degree with a major in chem or equiv or permission of instructor.

755 Inorganic Chemistry Laboratory UGRD 3
Preparation and characterization of inorganic compounds employing a variety of synthetic techniques.
Wi, Sp Qtr. 2 cl, 6 lab hrs. Prereq: 531, permission of instructor, or an undergraduate degree with a major in chemistry. Safety glasses must be worn in lab. Not open to students with credit for 655.

761 Advanced Biochemistry: Proteins UGRD 3
An advanced treatment of protein biochemistry.
Au Qtr. 3 cl. Prereq: 253, 255, and 521; and Biochem 615; or equivs. Not open to students with credit for Biochem 761 or Molbioch 761. Cross-listed in Molecular and Cellular Biochemistry.

762 Advanced Biochemistry: Enzymes UGRD 3
Advanced treatment of enzymology.
Au Qtr. 2 1.5-hr cl. Prereq: 253, 255, and 521; and Biochem 615; or equivs. Not open to students with credit for Biochem 762 or Molbioch 762. Cross-listed in Molecular and Cellular Biochemistry.

763 Advanced Biochemistry: Membranes and Bioenergetics UGRD 2
An advanced treatment of membranes and bioenergetics.
Wi Qtr. 2 cl. Prereq: 253, 255, and 521; and Biochem 615; or equivs. Not open to students with credit for Biochem 763 or Molbioch 763. Cross-listed in Molecular and Cellular Biochemistry.

775 Introduction to Thermodynamics and Kinetics GRAD 3
Fundamental treatment of the thermodynamics and kinetics of chemical systems.
Au Qtr. 3 1-hr cl. Prereq: 532 or equiv.

783H Honors Research UGRD 3-10
Independent investigation in chemistry culminating in a thesis and an oral examination.
Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing with a grade of A in at least half of the chem courses 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. Repeatable to a maximum of 15 cr hrs. Satisfaction completion of at least 8 cr hrs is required for candidates for an undergrad degree with distinction in chem. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

821 Electroanalytical Chemistry GRAD 3
Advanced level discussion of electrochemical principles and mass transport processes discussion of applications to organic and inorganic systems.
Au Qtr. 3 cl. Prereq: 532 or permission of instructor.

822 Principles and Practice of Separation Processes GRAD 3
Principles and applications of equilibrium and kinetic separation processes such as precipitation, solvent extraction, ion exchange, liquid-liquid chromatography, gas-liquid chromatography, and zone refining.
Wi Qtr. 3 cl. Prereq: 821 or permission of instructor.

823 Analytical Spectroscopy GRAD 3
Advanced course in the principles of measurement of the interaction of electromagnetic radiation with matter.
Sp Qtr. 3 cl. Prereq: 821 or permission of instructor.

824 Nuclear Magnetic Resonance Spectroscopy GRAD 3
Introduces advanced topics in nuclear magnetic resonance spectroscopy including Bloch equations, relaxation, multidimensional NMR, density operator formalism solid state NMR, and other related concepts.
Sp Qtr. 2 1.5-hr cl, lab hrs arr. Prereq: Grad standing in chem or physics or permission of instructor.

825 Mass Spectrometry: Principles and Applications GRAD 3
Introduction to the theory and principles of ionization, fragmentation, and mass analysis.
Wi Qtr. 3 cl, 5 lab hrs arr. Prereq: Physics 132 or equiv, and permission of instructor.

831 Physical Organic Chemistry GRAD 3
Thermodynamics, kinetics, and mechanisms of organic reactions with a particular focus on organic reactive intermediates.
Wi Qtr. 2 1.5-hr cl. Prereq: 731.

832 Advanced Organic Chemistry II GRAD 3
An advanced course in the fundamental principles of chemistry covering alicyclic, hydroaromatic, and aromatic compounds.
Wi Qtr. 3 cl. Prereq: 731.

833 Advanced Organic Chemistry III GRAD 3
An advanced course in the fundamental principles of chemistry covering a survey of heterocyclic compounds, carbohydrates, proteins, and enzymes.
Sp Qtr. 3 cl. Prereq: 832.

835 Advanced Organic Chemistry Laboratory GRAD 3-5
An advanced course in fundamental reactions and procedures with emphasis on recent advances in technique.
Sp Qtr. 9 lab hrs. Prereq: Permission of student's grad adviser. Safety glasses must be worn in lab.

836 Advanced Organic Chemistry Laboratory GRAD 3-5
Continuation of 835.
Sp Qtr. 9 lab hrs. Prereq: Permission of student's grad adviser. Safety glasses must be worn in lab.

851 Advanced Inorganic Chemistry GRAD 3
A survey of modern theories of valence and their application to the problems of structural inorganic chemistry.
Wi, Sp Qtrs. 3 cl. Prereq: 532 and 652 or 752 or permission of instructor.

861 Quantum Chemistry I GRAD 3
Basic quantum mechanics as a foundation for quantum chemistry; postulates, operators, eigenfunctions, eigenvalues, and Schroedinger wave equations; one-dimensional problems including the harmonic oscillator.
Au Qtr. 3 cl. Prereq: 532, Math 255 or 415 or equiv, and Physics 133.

862 Quantum Chemistry II GRAD 3
Angular momentum; matrix elements and representations; the hydrogenic atom; perturbation and variation methods, electron spin, and the helium atom; atomic structure and multiplet theory.
Wi Qtr. 3 cl. Prereq: 861 or equiv.

863 Quantum Chemistry III GRAD 3
Electronic structure of molecules; hydrogen molecule and ion, methane, ethylene, benzene, etc.; molecular orbital, valence bond, and self-consistent field methods.
Sp Qtr. 3 cl. Prereq: 862.

866 Electronic Spectra and Structure of Molecules GRAD 3
Application of quantum mechanics to the description and interpretation of molecular spectroscopic data with an emphasis on electronic transitions of polyatomic molecules.
Sp Qtr. 3 cl. Prereq: 863 or equiv or permission of instructor.

876 Chemical Dynamics GRAD 3
Advanced chemical kinetics.
Wi Qtr. 3 cl. Prereq: 775 and 861 or equiv.

880 Statistical Thermodynamics GRAD 3
Statistical thermodynamics of chemical systems.
Sp Qtr. 3 1-hr cl. Prereq: 775 or equiv.

885 Colloquium in Chemistry GRAD 1
A discussion of current research in chemistry; all divisions.
Au, Wi, Sp Qtrs. 1 cl. Prereq: Grad standing in chem. Required every qtr of all registered grad students in chem. Repeatable. This course is graded S/U.

941 Theoretical Organic Chemistry GRAD 3
An advanced course in a special topic in organic chemistry; topic to be announced.
Au Qtr. 3 cl. Prereq: 832 and 2nd yr grad standing, or permission of instructor.

942 Theoretical Organic Chemistry GRAD 3
An advanced course in a special topic in organic chemistry; topic to be announced.
Wi Qtr. 3 cl. Prereq: 832 and 2nd yr grad standing, or permission of instructor.

943 Theoretical Organic Chemistry GRAD 3
An advanced course in a special topic in organic chemistry; topic to be announced.
Sp Qtr. 3 cl. Prereq: 2nd yr grad standing and 831-832, or permission of instructor.

944 Computational Chemistry GRAD 3
A practical and theoretical introduction to computational chemistry.
Sp Qtr. 3 cl. Prereq: Permission of instructor.

990 Seminar on Topics in Biochemistry GRAD 3
Advanced topics in the biological aspects of chemistry.
Au, Wi, Sp Qtrs. 3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

991 Seminar in Analytical Chemistry GRAD 3
Topic to be announced.
Sp Qtr. 3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.

992 Seminar in Organic Chemistry GRAD 3
Topic to be announced.
Au, Wi, Sp Qtrs. 3 cl. Prereq: 832 and chem 2nd yr grad standing; or equivs and permission of instructor. Repeatable to a maximum of 12 cr hrs.
995 Seminar in Inorganic Chemistry  
GRAD 3
Topic to be announced.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 752 or equiv and permission of instructor. Repeatable to a maximum of 6 cr hrs.

996 Seminar in Theoretical Chemistry  
GRAD 3
Advanced topics in theoretical chemistry including quantum mechanics of molecular wave functions, energies, rate processes, and quantum and statistical mechanics of condensed phases.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 863 or equiv. Repeatable to a maximum of 9 cr hrs.

997 Seminar in Physical Chemistry  
GRAD 3
Seminar course of special topics in experimental physical chemistry. 
Au, Wi, Sp Qtrs. 3-1 hr cl. Prereq: 861 or permission of instructor. Repeatable to a maximum of 9 cr hrs.

999 Research in Chemistry  
GRAD 1-15
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

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### Chinese

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>101.01</td>
<td>Level One Chinese I</td>
<td>UGRD 5</td>
</tr>
<tr>
<td></td>
<td>Mandarin Chinese spoken communication and writing system.</td>
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<td></td>
<td>Au Qtr. 5 cl. Not open to native speakers of this language or to students with credit for 101 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. GEC for lang courses. FL Admis Cond courses. Students register for and complete 5 cr hrs during the qtr.</td>
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### 101.02 Level One Chinese I: Summer Intensive  
Track

Mandarin Chinese spoken communication and writing system.
Su Qtr. 20 cl 3 wks. Prereq: Application and admission to SPEAC program. Not open to native speakers of this language or to students with credit for 101 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. GEC for lang courses. FL Admis Cond courses. Students register for and complete 1 to 5 cr hrs during the qtr.  

### 101.51 Level One Chinese I: Individualized Track  
UGRD 1-5

Mandarin Chinese spoken communication and writing system.
Su, Au, Wi, Sp Qtrs. Not open to native speakers of this language or to students with credit for 101 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. GEC for lang courses. Progress is sequential from one cr hr to the next with a demonstrated proficiency of 80% required for advancement.

### 102.01 Level One Chinese II  
UGRD 5
Continuation of 101.
Wi Qtr. 5 cl. Prereq: 101 or 101.01 or 5 cr hrs of 101.51. Not open to native speakers of this language or to students with credit for 102 through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

### 102.02 Level One Chinese II: Summer Intensive  
UGRD 5
Continuation of 101.
Su Qtr. 20 cl 3 wks. Prereq: 101 or 101.01 or 5 cr hrs of 101.51. Prereq: Application and admission to SPEAC program. Not open to native speakers of this language or to students with credit for 102 through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. Students must register for and complete the course at the beginning of the quarter and complete 5 cr hrs during the second 3 weeks of the quarter. This course is available for EM credit.

### 102.51 Level One Chinese II: Individualized Track  
UGRD 1-5
Continuation of 101.
Su, Au, Wi, Sp Qtrs. Prereq: 101 or 101.01 or 5 cr hrs of 101.51. Prereq: Application and admission to SPEAC program. Not open to native speakers of this language or to students with credit for 102 through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. Students must register for and complete 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next with a demonstrated proficiency of 80% required for advancement.

### 103.01 Level One Chinese III  
UGRD 5
Continuation of 102.
Sp Qtr. 5 cl. Prereq: 102 or 102.01 or 5 cr hrs of 102.51. Not open to native speakers of this language or to students with credit for 103 through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

### 103.02 Level One Chinese III: Summer Intensive  
UGRD 5
Track
Continuation of 102.
Su Qtr. 20 cl 3 wks. Prereq: 102 or 102.01 or 5 cr hrs of 102.51. Prereq: Application and admission to SPEAC program. Not open to native speakers of this language or to students with credit for 103 through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. Students must register for the course at the beginning of the quarter and complete 5 cr hrs during the third 3 weeks of the quarter. This course is available for EM credit.

### 103.51 Level One Chinese III: Individualized Track  
UGRD 1-5
Continuation of 102.
Su, Au, Wi, Sp Qtrs. Prereq: 102 or 102.01 or 5 cr hrs of 102.51. Not open to native speakers of this language or to students with credit for 103 through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 104.01 or 104.51. Progress is sequential from one cr hr to the next with a demonstrated proficiency of 80% required for advancement to next level.

### 104.01 Level Two Chinese I  
UGRD 5
Mandarin Chinese intermediate level spoken communication, development of reading skills, and written composition.
Su Qtr. 5 cl. Prereq: 103 or 103.01 or 5 cr hrs of 103.51. Not open to native speakers of this language or to students with credit for 104 through regular course enrollment or EM credit. GEC for lang courses. Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

### 104.51 Level Two Chinese I: Individualized Track  
UGRD 1-5
Mandarin Chinese intermediate level spoken communication, development of reading skills, and written composition.
Su, Au, Wi, Sp Qtrs. Prereq: 103 or 103.01 or 5 cr hrs of 103.51. Prereq: 103 or 103.01 or 5 cr hrs of 103.51. Students register for and complete 1 to 5 cr hrs during the qtr. Repeatable to a maximum of 5 cr hrs. Not open to native speakers of this language or to students with credit for 104 through regular course enrollment or EM credit.

### 205 Level Two Chinese II  
UGRD 5
Continuation of 104.
Wi Qtr. 5 cl. Prereq: 104 or written permission of instructor. This course is available for EM credit.

### 206 Level Two Chinese III  
UGRD 5
Continuation of 205.
Sp Qtr. 5 cl. Prereq: 205 or written permission of instructor. This course is available for EM credit.

### 210 Intensive Second Level Chinese I – Oral  
UGRD 5
First course in the sequence of intensive intermediate Chinese language courses focusing on speaking and listening.
Au Qtr. 5 cl. Prereq: 103 or 103.01 or 5 cr hrs of 103.51, or permission of instructor. Not open to students with credit for 104, 111, or 205.

### 210.02 Intensive Second Level Chinese I – Oral: Summer track  
UGRD 5
First course in the sequence of intensive intermediate Chinese language courses focusing on speaking and listening.
Su Qtr. Prereq: 103.01 or 103.02 or 103.51, or the equivalent and permission of instructor. Not open to students with credit for 104, 111 or 205. GEC foreign language course.

### 211.01 Intensive Second Level Chinese I – Written  
UGRD 5
First course in the sequence of intensive intermediate Chinese language courses focusing on written Chinese.
Au Qtr. 5 cl. Prereq: 103 or 103.01 or 5 cr hrs of 103.51, or permission of instructor. Not open to students with credit for 104 or 205 or 211 or 5 cr hrs of 211.51.

### 211.51 Intensive Second Level Chinese I – Written: Individualized Track  
UGRD 1-5
First course in the sequence of intensive intermediate Chinese language courses focusing on written Chinese.
Su, Au, Wi, Sp Qtrs. Prereq: 103 or 103.01 or 5 cr hrs of 103.51, or permission of instructor. Not open to students with credit for 104 or 205 or 211 or 5 cr hrs of 211.51.

### 231 Traditional Chinese Culture  
UGRD 5
Chinese institutions, philosophical trends, religion, art, and literature prior to the 20th century.
Su, Wi, Sp Qtrs. 5 cl. Taught in English. GEC arts and humanities courses and ideas course.
232 Modern Chinese Culture  UGRD  5
Modern Chinese culture as reflected in family life, language, literature, art, etc. 
Au, Wi, Sp Qtrs. 5 cl. Taught in English. GEC arts and hums culture and ideas course.

251 Chinese Literature in Translation  UGRD  5
Representative masterpieces from 3,000 years of Chinese literature, fiction, drama, prose, and poetry in English translation. 
Au, Wi, Sp Qtrs. 5 cl. GEC arts and hums lit course.

283 Chinese Calligraphy  UGRD  3
Techniques of writing Chinese characters with a brush; practice in different styles from oracle bone to grass. 
Au, Wi, Sp Qtrs. 3 cl. Knowledge of Chinese not required. VPA Admis Cond course.

293 Individual Studies  UGRD  1-5
Individual investigation of problems in Chinese culture, language, and literature. 
Au, Su, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

294 Group Studies  UGRD  1-5
Group Studies. 
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs.

310 Intensive Second Level Chinese II -- Oral UGRD  5
Second course in the sequence of intensive intermediate Chinese language courses focusing on speaking and listening. 
Wi Qtr. 5 cl. Prereq: 210, and 211 or 211.01 or 5 cr hrs of 211.51; or permission of instructor.

310.02 Intensive Second Level Chinese II -- Oral  UGRD  5
Summer track
Series of intensive intermediate Chinese language courses focusing on speaking and listening. 
Su Qtr. Prereq: 104.01 or 104.51 or 210 or 210.01 or 210.02 or equivalent, and permission of instructor.

311.01 Intensive Second Level Chinese II -- Written UGRD  5
Second course in the sequence of intensive Chinese language courses focusing on written Chinese. 
Wi Qtr. 5 cl. Prereq: 210, and 211 or 211.01 or 5 cr hrs of 211.51; or permission of instructor. Not open to students with credit for 311 or 5 cr hrs of 311.51.

311.51 Intensive Second Level Chinese II -- Written: Individualized UGRD  1-5
Second course in the sequence of intensive Chinese language courses focusing on written Chinese. 
Su, Au, Wi, Sp Qtrs. Prereq: 211 or 211.01 or 5 cr hrs of 211.51; or permission of instructor. Not open to students with credit for 311 or 311.01. Repeatable to a maximum of 5 cr hrs. Students must register for and complete 1 to 5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 511.51. Progress is sequential from one cr hr to the next with a demonstrated proficiency of 80% required for advancement to the next level.

501 Chinese Poetry in Translation  UGRD  5
Major genres of Chinese poetry from 600 B.C. to the 13th century A.D. 
Au, Wi, Sp Qtrs. 5 cl. Taught in English. GEC arts and hums lit course.

502 Chinese Fiction in Translation  UGRD  5
Novels and short stories from the Ming and Qing dynasties. 
Au, Wi, Sp Qtrs. 5 cl. Taught in English. GEC arts and hums lit course.

503 Modern Chinese Literature in Translation  UGRD  5
Chinese literature from the 1900's to the present day. 
Au, Wi, Sp Qtrs. 5 cl. Taught in English. GEC arts and hums lit course.

504 Chinese Drama in Translation  UGRD  5
The development of Chinese drama from the Yuan dynasty to modern times. 
Au, Wi, Sp Qtrs. 5 cl. Taught in English. GEC arts and hums and lit course.

505 China in Chinese Film  UGRD  5
An overview of Chinese cinema, with a focus on how film represents issues of nationhood, national identity, and national trauma. 
Prereq: English 110 or equiv. Taught in English, no Chinese required.

506 China Pop! Contemporary Pop Culture and Media in Greater China  UGRD  5
Introduces students to contemporary popular culture and media from Greater China, encouraging independent research and critical discussion of topics covered. 
Sp Qtr.

507 Level Three Chinese I  UGRD  5
Continued study of spoken communication, including broadcast media, reading Chinese publications, and development of written composition. 
Au Qtr. 5 cl. Prereq: 206 or equiv with written permission of instructor.

508 Level Three Chinese II  UGRD  5
Continuation of 507. 
Wi Qtr. 5 cl. Prereq: 507 or permission of instructor.

509 Level Three Chinese III  UGRD  5
Continuation of 508. 
Sp Qtr. 5 cl. Prereq: 508 or permission of instructor.

510 Intensive Third Level Chinese III -- Oral UGRD  5
Third course in the sequence of intensive intermediate Chinese language courses focusing on speaking and listening. 
Sp Qtr. 5 cl. Prereq: 310, and 311 or 311.01 or 5 cr hrs of 311.51; or permission of instructor.

510.02 Intensive Third Level Chinese III -- Oral: Summer track UGRD  5
Series of intensive intermediate Chinese language courses focusing on speaking and listening. 
Sp Qtr. 5 cl. Prereq: 310, and 311 or 311.01 or 5 cr hrs of 311.51; or permission of instructor. Not open to students with credit for 311 or 5 cr hrs of 311.51.

511.01 Intensive Third Level Chinese III -- Written UGRD  5
Third course in the sequence of intensive intermediate Chinese language courses focusing on written Chinese. 
Su, Au, Wi, Sp Qtrs. Prereq: 310, and 311 or 311.01 or 5 cr hrs of 311.51; or permission of instructor. Not open to students with credit for 311 or 511.01. Repeatable to a maximum of 5 cr hrs. Students must register for and complete 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next with a demonstrated proficiency of 80% required for advancement to the next level.

511.51 Intensive Third Level Chinese III -- Written: Individualized Track UGRD  1-5
Third course in the sequence of intensive intermediate Chinese language courses focusing on written Chinese. 
Su, Au, Wi, Sp Qtrs. Prereq: 310, and 311 or 311.01 or 5 cr hrs of 311.51; or permission of instructor. Not open to students with credit for 311 or 511.01. Repeatable to a maximum of 5 cr hrs. Students must register for and complete 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next with a demonstrated proficiency of 80% required for advancement to the next level.

580 The Chinese Language: Description and Analysis  UGRD  5
Important elements of the Chinese language, its structure, dialects, writing system, as well as language use and planning; taught in English. 
Au, Wi, Sp Qtrs. 2 2- to 3-hr cl. Prereq: 103 or equiv or permission of instructor. GEC third writing course.

600 Performance Traditions of China  UGRD  5
Introduction to the panorama of oral and orally-related performance traditions of China; explores local traditions of professional storytelling, epic singing, folksongs, and local drama. 
Au, Wi, Sp Qtrs. 2 2.5-hr cl. Prereq: 231 or 251 or 252, or EALL 131, or Japanese 231 or 251 or 252, or Korean 231 or 251; or permission of instructor.

601 Classical Chinese I  UGRD  5
Selected readings from representative authors of classical times. 
Au, Wi Qtrs. 5 cl. Prereq: 206 or equiv with written permission of instructor.

602 Classical Chinese II  UGRD  5
Continuation of 601. 
Wi, Sp Qtrs. 5 cl. Prereq: 601 or equiv with written permission of instructor.

603 Classical Chinese III  UGRD  5
Continuation of 602. 
Sp Qtr. 5 cl. Prereq: 602 or equiv with written permission of instructor.

610.01 Fourth-Level Chinese I  UGRD  5
Level Four Chinese; continuation of 510 and 511. 
Au Qtr. 3 1.5-hr cl. Prereq: 509, or 510 and 511 or 511.01 or 5 cr hrs of 511.51; or written permission of instructor. Not open to students with credit for 610 or 5 cr hrs of 610.51.

610.51 Fourth-Level Chinese I: Individualized UGRD  1-5
Track 
Level Four Chinese; continuation of 510 and 511. 
Su, Au, Wi, Sp Qtrs. Prereq: 509, or 510 and 511 or 511.01 or 5 cr hrs of 511.51; or written permission of instructor. Not open to students with credit for 610 or 610.01. Repeatable to a maximum of 5 cr hrs.

611.01 Fourth-Level Chinese II  UGRD  5
Level Four Chinese; continuation of 610. 
Wi Qtr. 5 cl. Prereq: 610 or 610.01 or 5 cr hrs of 610.51 or written permission of instructor. Not open to students with credit for 611 or 5 cr hrs of 611.51.

611.51 Fourth-Level Chinese II: Individualized UGRD  1-5
Track 
Level Four Chinese; continuation of 610. 
Su, Au, Wi, Sp Qtrs. Prereq: 610 or 610.51 or written permission of instructor. Not open to students with credit for 611 or 611.01. Repeatable to a maximum of 5 cr hrs.

612.01 Fourth-Level Chinese III  UGRD  5
Level Four Chinese; continuation of 611. 
Sp Qtr. 5 cl. Prereq: 611 or 611.01 or 5 cr hrs of 611.51; or written permission of instructor. Not open to students with credit for 612 or 5 cr hrs of 612.51.
612.51 Fourth-Level Chinese III: Individualized UGRD 1-5
Track
Level Four Chinese; continuation of 611.
Su, Au, Wi, Sp Qtr. Prereq: 611 or 5 cr hrs of 611.51 or written permission of instructor. Not open to students with credit for 612 or 612.01. Repeatable to a maximum of 5 cr hrs.

615 China's Perspectives on Chinese Civilization UGRD 5
Mainstream Chinese perspectives on major issues in Chinese civilization and major ways of developing and presenting viewpoints and arguments in discourse of Chinese civilization.
Prereq: 612.01 or 612.51 or equiv. Repeatable to a maximum of 10 cr hrs. Taught in Chinese.

651 History of Chinese Literature I UGRD 5
Chinese literature from antiquity to the end of Six Dynasties; various aspects of the classical tradition and new developments in the Age of Disunity.
Au, Wi, Sp Qtr. 2 hr cl. Prereq: Written permission of instructor. Taught in English. Partial texts in Chinese optional. Open to nonmajors.

652 History of Chinese Literature II UGRD 5
Chinese literature from Sui to the present; literary trends and achievements of the Sui T'ang period; rise of vernacular writings; modern literature under western impact.
Au, Wi, Sp Qtr. 2 hr cl. Prereq: Written permission of instructor. Taught in English. Partial texts in Chinese optional. Open to nonmajors.

653 Classical Chinese Literature in Modern China UGRD 5
Examine adaptations and uses of classical Chinese literature (novel, plays, poems, prose) in the modern Chinese-speaking world in order to better understand Chinese culture.
2 hr cl.

674 Chinese Opera UGRD 5
An introduction to Chinese (Peking) opera as dramatic literature and performing art; study of selected plays and illustrated discussions of various aspects of the theatre.
Au, Wi, Sp Qtrs. 5 cl.

678 Studies in Chinese-American Literature UGRD 5
Critical study of modern Chinese-American literature in historical and cultural context; topics vary: gender issues, genre studies, women's writing.
Au, Wi, Sp Qtrs. 2 hr cl. Prereq: 10 hr hrs in any literature or grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs. Including cr hrs earned in Comp Std 678 or English 681.03. Cross-listed in Comparative Studies and with English 681.03.

680 Introduction to Chinese Linguistics UGRD 5
Investigation of the phonology, morphology, syntax, lexicon, and writing system of Chinese language.
Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 103 and Linguist 601, or permission of instructor.

681 History of the Chinese Language UGRD 5
An investigation of the relations between modern Chinese and its earlier stages, ancient and archaic Chinese.
Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 680 or permission of instructor.

683 Study of the Chinese Writing System UGRD 5
A critical study of the origin, classification, composition, and development of the Chinese writing system, including problems in simplification and alphabetization.
Au, Wi, Sp Qtrs. 3 cl. Prereq: 103 or permission of instructor.

690 Chinese Translation Workshop UGRD 3
Investigations of problems and techniques of translating Chinese into English and English into Chinese; practice of translation of selected passages; individual assignments and group discussion.
Au, Wi, Sp Qtrs. 2 cl. Prereq: 509 and 603, or equivs with written permission of instructor.

693 Individual Studies UGRD 1-5
Directed study to meet individual research needs of students in area studies and East Asian programs.
Su, Au, Wi, Sp Qtrs. Prereq: 509 or 603, and written permission of instructor. Repeatable to a maximum of 15 cr hrs. Not a substitute for regular language courses. This course is graded S/U.

694 Group Studies GRAD 1-5
Investigation of minor problems in Chinese language and literature.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. Not a substitute for regular language courses.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

717 Analysis of Contemporary Chinese Media UGRD 5
Understanding the divisions and configuration of contemporary Chinese media and becoming able to analyze a chosen topic of contemporary Chinese media.
Prereq: 612 or equiv. Repeatable to a maximum of 10 cr hrs. Taught in Chinese.

750 Negotiating in Chinese Culture UGRD 5
Fifth-year-and-up Chinese in spontaneous professional discourse. Parallel to Chinese 751, 752 and 753, emphasizing oral presentation instead of reading and writing.
Su, Au, Wi, Sp Qtrs. Prereq: 612, 612.51 or equiv.

751 Selected Readings in Scholarly Chinese Texts I UGRD 3
Academic writings in the humanities and social sciences by modern Chinese scholars in both the wen-yen and pai-hua styles.
Au Qtr. 3 cl. Prereq: 509 or permission of instructor.

752 Selected Readings in Scholarly Chinese Texts II UGRD 3
Continuation of 751.
Wi Qtr. 3 cl. Prereq: 751 or permission of instructor.

753 Selected Readings in Scholarly Chinese Texts III UGRD 3
Continuation of 752.
Sp Qtr. 3 cl. Prereq: 752 or permission of instructor.

755 Language in China UGRD 5
Language issues in China, including language variation, writing systems, minority languages, and Chinese language issues in the information age.
Prereq: 613 or equiv. Taught in Chinese.

760 Interpersonal Relations and Professional Networking UGRD 5
Exploration of assumptions and expectations motivating behaviors in different culture when developing interpersonal relations and professional networks.
2-2 hr cl. Prereq: 612.01 or 612.51 or equiv. Repeatable to a maximum of 10 cr hrs. Conducted in Chinese and English with Chinese cohort.

761 Modern Chinese Poetry UGRD 3
Lectures and readings covering major poets since 1919.
* Au Qtr. 3 cl. Prereq: 652 or permission of instructor.

762 Modern Chinese Prose UGRD 3
Studies of various types of prose literature from the 1900's to the present.
* Sp Qtr. 3 cl. Prereq: 652 or permission of instructor.

763 Modern Chinese Fiction UGRD 5
Readings in twentieth-century Chinese fiction.
* Au Qtr. 2-2 hr cl. Prereq: 651 or 652 or permission of instructor.

764 Modern Chinese Drama UGRD 3
Lectures on and readings in works by major 20th-century playwrights including Hung Shen and Ts'ao Yu.
* Wi Qtr. 3 cl. Prereq: 652 or permission of instructor.

770 Literary Language in Modern Chinese UGRD 5
Employment of literary language in spoken discourse among Chinese professionals - unscripted spoken discussions on topics in related domains such as business, education, and government.
Prereq: 612.01 or 612.51 or equiv. Repeatable to a maximum of 20 cr hrs. Taught in Chinese.

771.51 Studies of Domain Resources UGRD 1-5
A study of the major categories of resources for the student's chosen domain (I).
Prereq: 612 or equiv. Repeatable to a maximum of 5 cr hrs.

772.51 Research and Presentation in a Domain UGRD 1-5
Study of major categories of resources for student's chosen domain (II). Research and presentation a research topic that addresses a general or characteristic issue in chosen domain.
Prereq: 771.51 or equiv. Repeatable to a maximum of 5 cr hrs.

773.51 Developing a Project in a Domain UGRD 1-5
A study of the major categories of resources for the student's chosen domain (III). Develop and propose a project in the student's chosen domain based on Chinese resources in the domain.
Prereq: 772.51 or equiv. Repeatable to a maximum of 5 cr hrs.

782 Chinese Phonology UGRD 3
Mandarin phonology and Chinese dialectology.
* Au, Wi, Sp Qtrs. Prereq: 681 or permission of instructor.

783H Honors Research UGRD 3-5
A program of reading arranged for each student, with individual conferences, reports, and honors thesis.
Au, Wi, Sp Qtrs. Prereq: 4th yr standing; a grade of A in at least half of Chinese 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. Open only to Chinese majors. Failure to receive a mark of S in this course is a disqualification for special honors. This course is graded S/U.
784 Chinese Syntax
An investigation of the syntactic structure of Mandarin Chinese.
* Au, Wi, Sp Qtr. 3 cl. Prereq: 680 or 681 or permission of instructor.

785 Modern Chinese Dialects
Investigation of the phonology, morphology, lexicon, and syntax of the major modern Chinese dialects from a cross-dialectal, comparative approach.
Au, Wi, Sp Qtr. 2 1.5-hr cl. Prereq: 680 or permission of instructor.

792 Interdepartmental Studies in the Humanities
Two or more departments present colloquia on subjects of mutual interest; topics to be announced.
Su, Au, Wi, Sp Qtr. Prereq: Grad standing or permission of instructor(s). Repeatable to a maximum of 15 cr hrs. With permission of dept.

800 Chinese Bibliography and Research Methods
An introduction to bibliographies and reference works in the Chinese humanities; general and specific problems for research.
Au, Wi, Sp Qtr. 5 cl. Prereq: 509 and 603, or equivalv with written permission of instructor.

804 Advanced Classical Chinese I
GrAD 3
Designed for further study of the syntax and vocabulary of classical Chinese; texts are selected from literature, history, and philosophy.
* Au Qtr. 2 2-hr cl. Prereq: 651 and 652, or permission of instructor.

805 Advanced Classical Chinese II
GrAD 3
Continuation of 804.
Wi Qtr. 3 cl. Prereq: 804.

806 Advanced Classical Chinese III
GrAD 3
Continuation of 805.
Sp Qtr. 3 cl. Prereq: 805.

871 Traditional Chinese Poetry
GrAD 5
Lectures and readings from ancient odes and songs and the later shih and ts'a poetry.
* Au Qtr. 2 2-hr cl. Prereq: 651 and 652, or permission of instructor.

872 Traditional Chinese Prose
GrAD 5
Lectures on and readings in various types of non-fiction prose in ku-wen and yu-lu-fi styles of early times.
* Sp Qtr. 2 2-hr cl. Prereq: 651 and 652, or written permission of instructor.

873 Traditional Chinese Fiction
GrAD 5
Lectures and readings in classical and vernacular fiction.
* Au Qtr. 2 2-hr cl. Prereq: 651 and 652, or permission of instructor.

874 Traditional Chinese Drama
GrAD 5
A lecture and reading course in Yuan, Ming, and Ch'ing drama.
* Sp Qtr. 2 2-hr cl. Prereq: 651 and 652, or permission of instructor.

875 Chinese Literary Criticism
GrAD 5
The historical development of critical theories, with concentration on major critics.
* Sp Qtr. 2 2-hr cl. Prereq: 3 Chinese literature courses at the 700 level or above, or equiv with written permission of instructor.

879 Seminar in Chinese Literature
GrAD 1-5
An intensive reading course in Chinese literature with a selected topic for each offering and research projects for individual students; topic to be announced.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

882 Studies in Chinese Historical Phonology
GrAD 5
Critical study of the rhyming dictionaries, the reconstruction of the phonology of old Chinese and its relations to modern Chinese dialects.
* Au, Wi, Sp Qtr. 2 2-hr cl. Prereq: 782 or permission of instructor.

884 Studies in Chinese Historical Syntax
GrAD 3
Problems of Chinese historical syntax; grammatical structures of classical Chinese; syntactic rules found in selected texts from various ancient writings.
* Au, Wi, Sp Qtrs. 3 cl. Prereq: 784 or permission of instructor.

889 Seminar in Chinese Linguistics
GrAD 1-5
Topics include the history of Chinese linguistics and related areas, specific studies in Chinese dialects, etc.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

899 Interdepartmental Seminar
GrAD 3-5
Two or more departments present seminars on subjects of mutual interest; topics to be announced.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor(s). Repeatable to a maximum of 15 cr hrs. With permission of dept.

998 Research in Chinese: Thesis
GrAD 1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

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Circulation Technology

210 Information Technology in Medicine
UGRD 5
An overview of computer-assisted technology in medicine in the areas of teleradiology, telemedicine, remote diagnosis and automated pharmaceutical dispensing.
Au, Sp Qtr. 2 2-hr cl, 1 3-hr lab. Prereq: Math 148 or equiv.

400 The Practice of Circulation Technology
UGRD 5
An introduction to the practice of Circulation Technology with an emphasis on the student's function within the medical-surgical team.
Au Qtr. 2 cl, 2 3-hr labs. Prereq: Enrollment in Circulation Technology or permission of instructor.

415 Applied Circulation Technology-Physiological Principles
UGRD 5
The presentation of cardiac, respiratory, and renal physiology and their relationship to extracorporeal devices and technology.
Wi Qtr. 5 cl. Prereq: 400 or permission of instructor.

420 Circulation Technology Instrumentation
UGRD 5
The application of mechanical and electronic principles to the instrumentation unique to circulation technology with emphasis on design and selection of equipment.
Wi Qtr. 3 cl, 2 2-hr labs. Prereq: 400 or permission of instructor.

430 Clinical Management of the Cardiac Patient
UGRD 5
The presentation of cardiac anatomy, pathophysiology, and diagnosis and treatment of cardiac disease including the use of extracorporeal devices.
Sp Qtr. 2 2-hr cl, 1 1-hr cl. Prereq: 400 or permission of instructor.

450 Cardiopulmonary Monitoring and Assessment
UGRD 5
Lectures and laboratories involving invasive and non-invasive techniques of cardiopulmonary assessment and data interpretation.
Sp Qtr. 2 2-hr cl, 1 3-hr lab. Prereq: 420 or permission of instructor.

460 Applied Circulation Technology-Phase 1
UGRD 5
An introduction to cardiopulmonary bypass circuits, components, and ancillary devices associated with the practice of extracorporeal technology.
Wi Qtr. 2 2-hr cl, 2 1.5-hr labs. Prereq: 400 or permission of instructor.

470 Applied Circulation Technology-Phase II
UGRD 6
Principles and practices of cardiopulmonary bypass; focus on physiological aspects of perfusion; laboratory simulation of cardiopulmonary bypass.
Sp Qtr. 2 2-hr cl. Prereq: 460 or permission of instructor.

500 Circulation Technology Clinical Preparation
UGRD 5
Principles and practices of perfusion; focus on special procedures and adjunctive techniques.
Su Qtr. 5 8-hr cl for 2 weeks. Prereq: 470 or written permission of instructor.

505 Circulation Technology Pre CPBP Clinical Rotation
UGRD 3
Concurrent clinical experiences augmenting principles and practices of perfusion; focus on special procedures and adjunctive techniques.
Su Qtr. 5 8-hr cl, 2 2-week rotations. Prereq: 470 or written permission of instructor. This course is graded S/U.

510 Applied Circulation Technology-Cardiovascular
UGRD 8
The presentation of cardiovascular physiology, pathology, and treatment of cardiovascular disease by the use of extracorporeal devices.
Au Qtr. 2 3-hr cl, 1 2-hr cl. Prereq: 460 or permission of instructor.

512 Applied Circulation Technology-In Vitro Lab
UGRD 4
The study of various extracorporeal devices and techniques in a controlled in vitro laboratory environment.
Au Qtr. 1 6-hr lab, 1 2-hr conf. Prereq: 460 or permission of instructor.

513 Applied Circulation Technology-In Vivo Lab
UGRD 5
The study of various extracorporeal devices and techniques in a controlled in vivo laboratory environment.
Au Qtr. 1 9.5-hr lab, 1 1-hr conf. Prereq: 460 or permission of instructor.

560 Surgical Support Systems: Phase I
UGRD 5
Case studies relating circulation technology to the clinical use of extracorporeal circulation devices and monitoring instrumentation in surgery.
Wi, Sp Qtrs. Arr. Prereq: 510 or permission of instructor.
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<td>561</td>
<td>Surgical Support Systems-Clinical Experience: Phase I</td>
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<td>Surgical Support Systems: Phase II</td>
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<td>10</td>
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<td>593</td>
<td>Individual Studies in Circulation Technology</td>
<td>UGRD</td>
<td>1-5</td>
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<td>601</td>
<td>Project and Policy Analysis in Planning</td>
<td>UGRD</td>
<td>5</td>
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<td>Fundamentals of Geographic Information Systems</td>
<td>GRAD</td>
<td>5</td>
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<td>4</td>
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<td>UGRD</td>
<td>4</td>
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<td>643</td>
<td>American City Planning since 1900 A.D.</td>
<td>GRAD</td>
<td>4</td>
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<tr>
<td>650</td>
<td>Advanced Computer Based Analysis and Visualization Tools for Planners</td>
<td>GRAD</td>
<td>4</td>
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<td>Geographic Information Systems in Professional Planning Practice</td>
<td>GRAD</td>
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<td>670</td>
<td>Survey of City and Regional Planning</td>
<td>UGRD</td>
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<td>1-5</td>
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<td>700</td>
<td>Orientation to City and Regional Planning</td>
<td>GRAD</td>
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<td>Internship in City and Regional Planning</td>
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<td>Introduction to Urban and Regional Planning</td>
<td>UGRD</td>
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<td>Theory of City and Regional Planning</td>
<td>GRAD</td>
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<td>715</td>
<td>Integration of Science and Mathematics Learning Using Real Data Sets</td>
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**City and Regional Planning**

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<td>110</td>
<td>Local Issues in City Planning</td>
<td>UGRD</td>
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<td>Introduction to City Planning History</td>
<td>UGRD</td>
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<td>Planning for Housing</td>
<td>UGRD</td>
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<td>Planning and Urban Design</td>
<td>UGRD</td>
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<td>Data Analysis and Forecasting in Planning</td>
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<td>Legal and Institutional Framework for Planning</td>
<td>UGRD</td>
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<td>Service Learning in City Planning</td>
<td>UGRD</td>
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<td>City Planning in the Contemporary World</td>
<td>UGRD</td>
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<td>700</td>
<td>Orientation to City and Regional Planning</td>
<td>GRAD</td>
<td>1</td>
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<td>701</td>
<td>Internship in City and Regional Planning</td>
<td>GRAD</td>
<td>1</td>
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<tr>
<td>710</td>
<td>Introduction to Urban and Regional Planning</td>
<td>UGRD</td>
<td>3</td>
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<tr>
<td>712</td>
<td>Theory of City and Regional Planning</td>
<td>GRAD</td>
<td>4</td>
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<tr>
<td>715</td>
<td>Integration of Science and Mathematics Learning Using Real Data Sets</td>
<td>GRAD</td>
<td>3</td>
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720 Introduction to Analysis of Energy Factors in City and Regional Planning
Covers the resource, technological, environmental, economic, and institutional dimensions related to coal, natural gas, electricity, solar, geothermics, environmental impacts, and energy conservation in cities.
Wi Qtr. 2 cl.

721 Seminar on Mathematical Models of Energy Management and Planning
Mathematical models in coal, electricity, energy storage and curtailment, solar energy, energy/environment interactions, and comprehensive urban and regional energy planning.
Au Qtr. 2 cl.

722 Introduction to Analysis and Use of Environmental Factors in City and Regional Planning
Introduction to application and utilization of environmental considerations in the formulation of land use policy and development plans.
Wi Qtr. 2 cl.

724 Introduction to Planning for Sustainable Development
Introduction to sustainable development and planning; focuses on the relationship between land use and sustainability.
Wi Qtr. 1 3-hr seminar. Prereq: Rank 3, 4, or grad standing.

731 Outlines of Urban Design
Urban design as an area of specialization in urban planning; theories and processes in urban design; evaluation of criteria.
Sp Qtr. 3 cl.

732 Urban Planning and Urban Form: Psychological Functions
Urban planning for the organization and character of the physical environment as significant variables in psychological processes basic to effective individual functioning; emphasis on implications for urban design.
Au Qtr. 3 cl.

733 Urban Planning and Urban Form: Social Functions
Urban planning for the organization and character of the physical environment as significant variables in social processes basic to effective individual functioning; emphasis on implications for urban design.
Wi Qtr. 2 2-hr cl.

734 Research and Analytic Methods for Urban Designers
Use of research and analytic methods in assisting the urban designer in problem formulation, search, prediction, evaluation, and choice.
Sp Qtr. 2 cl.

735 Programming Environments for Human Use
Introduction to user oriented environment programming for planners and designers; application of several methods for specifying the characteristics required of an environmental setting to support user behavior.
* Sp Qtr. Distance Learning Course (Web-taught).

741 Urban Sector and Project Planning in Developing Countries
Issues in urban sector planning with a focus on housing and service delivery, including financial intermediation, municipal finance and cost recovery, local administration, an urban land.
Wi Qtr. 2 2-hr cl.

742 Cities of the World: International Planning Innovations
Analysis of international planning ideas, policies, implementation projects and their resulting impacts with particular regard to the concept of innovation.
Au, Wi Qtrs. Prereq: Rank 3, 4, or graduate standing.

745 Physical Element of Urban Development
Physical components of urban areas; residential, commercial, industrial, pedestrian, and vehicular circulation; other community facilities; analysis of design criteria and standards.
Wi Qtr. 3 cl, 3 lab hrs. Not open to students with credit for 845.

746 Managing the Urban Spatial Environment: Regulatory Techniques
Physical planning, environmental and urban design policy design and implementation in central city and suburban settings; emphasis on innovative regulatory approaches.
* Wi Qtr. 2 cl.

749 Studio in Planning for Developing Countries
A studio with group projects on planning issues in developing countries.
Wi Qtr. Prereq: 741. Service Learning course.

750 Resolving Social Conflict
A multidisciplinary examination of social conflict, its dynamics, and its negotiated and consensual resolution; offers a broad-based framework for diagnosing and managing conflict; applied to legal, environmental, organizational, and geopolitical conflicts.
Au Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor. Cross-listed in Business Administration: Interdisciplinary and Natural Resources.

752 Urban Planning for Housing
Introduction to urban planning issues related to housing with regard to urban structure markets, reform, suburbanization, new towns, urban renewal, and rehabilitation.
Au Qtr. 3 cl.

753 Outlines of Regional Planning
State, national, and regional planning; components of regional development; regional analysis and design.
Au Qtr. 3 cl. Not open to students with credit for 813.

755 State Planning of Regional Growth and Development
Rationale for state intervention in regional economics, growth centers and neoclassica models, development planning in foreign countries; comparison and evaluation of models and evidence.
Wi Qtr. 3 cl. Prereq: 753 or equiv with written permission of instructor. Not open to students with credit for 820.

761 Land-Use Controls
Legal basis of land-use controls in the United States, provisions, procedures and issues in zoning, subdivision regulation, urban renewal, building and housing codes, and acquisition of real property for public use.
Wi Qtr. 3 cl. Not open to students with credit for 861.

762 Urban Planning Data and Forecasting
Sources of information, data handling, forecasting, and basic studies in urban planning.
Sp Qtr. 6 lab hrs. Not open to students with credit for 832.

763 Consequence Analysis in Urban Planning
Urban planning studies using cost-benefit, cost-effectiveness, systems analysis, and PBBS approaches.
Au Qtr. 2 cl, 2 lab hrs.

764 City Planning Administration
Administration of official urban planning agencies; zoning administration; subdivision review practices; capital improvement programming; budget and work program preparation.
Wi Qtr. Not open to students with credit for 862. Distance Learning Course (Web-taught).

765 Social Policy Law
Studies of law and social policy; topics vary.
Wi Qtr. 4 cl. Not open to students with credit for 865.

766 Environmental Planning Law
The interaction between law and environmental planning and protection.
Wi Qtr. 4 cl. Prereq: 761 or equiv with written permission of instructor. Not open to students with credit for 866.

770 Introduction to Quantitative Methods in Urban Planning
Introduction of mathematical models in urban planning; descriptive statistics, probability, decision theory, and use of digital computer.
Au Qtr. 4 cl. Prereq: Permission of instructor.

771 Applications of Quantitative Methods in Urban Planning
Applications of statistical analysis in urban planning; hypothesis testing and parameter examination methods; computer analysis of urban planning data.
Au Qtr.

774 Transportation in City and Regional Planning
Concepts and issues in urban transportation planning.
Wi Qtr. 1 3-hr cl.

775 Urban Transportation Planning
Discussion and examples of urban transportation planning processes, emphasizing quick-response models of locational and travel behavior, development and evaluation of alternatives, policies, and citizen reaction and participation.
Au Qtr. 3 cl, 1 3-hr lab. Prereq: Civil En 670 or equiv with written permission of instructor or grad standing in C&R Plan. Not open to students with credit for Civil En 775. Cross-listed in Civil Engineering.

776 Topics in Urban Transportation and Planning
Survey of major topics in urban transportation planning, emphasizing policy concerns and analytical tools necessary to address these concerns.
Wi Qtr. 1 2-hr cl. Prereq: 781 or equiv; or permission of instructor.
777 Transport Regulation GRAD 3
Current U.S. transport regulation and tools needed to evaluate its desirability.
* Sp Qtr. 1 2-hr cl. Prereq: 781 or equiv; or permission of instructor.

780 Workshop in Urban and Regional Planning GRAD 3-5
Techniques
Techniques in the urban and regional planning process: spatial distribution and management of population and economic growth in the city and the region, stressing the applied aspects of the techniques as used in the profession.
Su Qtr. Distance Learning Course (Web-taught).

781 Spatial Models in Urban Planning GRAD 4
Urban planning applications of theories of spatial equilibrium and rent theory; impact on spatial distribution of zoning, property taxation, and infrastructural investment.
Sp Qtr. 4 cl. Not open to students with credit for 880.

783 Municipal Functions in City and Regional Planning GRAD 4
This course explores infrastructure and public facilities. Students learn how planners interact with other professionals relative to public facilities.
Wi Qtr.

793 Individual Studies in Urban Planning GRAD 1-5
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

794 Group Studies in Urban Planning GRAD 1-5
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 20 cr hrs.

815 Case Studies in Urban Planning for Housing GRAD 4
Review of empirical studies in urban planning for housing including aspects of density, spatial production, housing services, and price formation.
Sp Qtr. 2 cl, 2 lab hrs. Prereq: 752 or permission of instructor.

816 Seminar in Urban Planning for Housing GRAD 3
Presentation and discussion of research related to urban planning for housing, including theoretical studies, modeling, simulation, and statistical testing.
Sp Qtr. 3 cl. Prereq: 752 or permission of instructor.

821 Regional Planning Studio GRAD 5
Application of economic and environmental analysis to regional development projects.
Sp Qtr. 2 cl, 3 lab hrs. Prereq: 723. Repeatable to a maximum of 10 cr hrs.

824 Planning for Sustainable Development GRAD 5
Preparation of sustainability-oriented plan with a local community; identification of challenges and opportunities, indicators, and state of practice in a detailed document.
Sp Qtr. Prereq: 724 or permission of instructor. Service Learning course.

834 Decision Analysis in Urban Planning GRAD 3
Application of decision theory and analysis to case studies in urban planning.
Sp Qtr. 3 cl.

835 Land Use, Environmental Quality, and Regional Analysis GRAD 4
Introduction of land use and environmental models as tools in the planning process and as techniques for improving the quality of physical development plans.
** Sp Qtr.

837 Grant Writing for Planners GRAD 4
Provides process and skills necessary to be successful in writing grants targeted at planning projects.
Wi Qtr. Cross-listed in PubAffs 880.02.

851 Urban Precinct Planning GRAD 5
Preparation of detailed physical development plans for a small section of a city.
Au, Wi Qtrns. 3 cl, 6 lab hrs. Prereq: 745 or 762 or permission of instructor. Service Learning course.

852 Urban Project and Policy Planning GRAD 5
Identification of options among planning policies and projects; development of analyses to aid in making choices between options in urban development.
Wi Qtr. 2 cl, 9 lab hrs. Prereq: 745 or 762. Service Learning course.

853 The Urban General Plan GRAD 5
Current practice in preparation of the urban general plan; laboratory exercise in the preparation of a general plan for an urban community.
Au, Sp Qtrns. 3 cl, 6 lab hrs. Prereq: 745, 762, and 781; or permission of instructor. Service Learning course.

864.01 Urban Planning Theory Seminar: History of Planning Thought GRAD 5
Examination of how planning thought evolved in relation to different stages of our civilization.
* Sp Qtr. 2 2-hr cl. Prereq: Permission of instructor.

867 Land Use Policy GRAD 4
Law and administration in land use planning programs.
** Sp Qtr. Prereq: 761 or permission of instructor.

870.01 Research on Quantitative Methods in Urban Planning: Static Optimization in Planning GRAD 5
Workshop application of mathematical programming techniques to solve an urban or regional planning problem.
* Au Qtr. 2 2-hr cl, arr.

870.02 Research on Quantitative Methods in Urban Planning: Dynamic Optimization in Planning GRAD 5
Workshop application provides advanced graduate students with a sound foundation on a set of quantitative planning techniques in a dynamic context.
* Wi Qtr. 2 2-hr cl.

870.03 Research on Quantitative Methods in Urban Planning: Forecasting and Simulation in Planning GRAD 5
Overview of advanced methods in forecasting and simulation and application to urban and regional planning.
* Sp Qtr. 2 2-hr cl. Prereq: 770 or permission of instructor. Prereq: 762 and 771, or permission of instructor. Not open to students with cr for 870.

871.01 Research Seminar in Environmental Planning: Environmental Planning GRAD 5
Processes and concepts for the design planning and management of the natural and built environment.
Prereq: Permission of instructor. Not open to students with credit for 871. Repeatable to a maximum of 15 cr hrs.

871.02 Research Seminar in Environmental Planning: Development Planning GRAD 5
Research problems associated with urban and regional development including economic development, planning in developing countries, and related issues; topics vary.
Prereq: Permission of instructor. Not open to students with credit for 872. Repeatable to a maximum of 15 cr hrs.

871.03 Research Seminar in Environmental Planning: Regional Science GRAD 5
Development of theoretical and methodological issues in regional science as they pertain to urban and regional planning.
Prereq: Permission of instructor. Not open to students with credit for 873. Repeatable to a maximum of 15 cr hrs.

871.04 Research Seminar in Environmental Planning: Planning Processes GRAD 5
Institutional factors which affect the field of planning; topics vary.
Prereq: Permission of instructor. Not open to students with credit for 874. Repeatable to a maximum of 15 cr hrs.

871.05 Research Seminar in Environmental Planning: Mathematical Planning GRAD 5
Developmental topics in mathematical planning, and its applications to selected planning problems.
Prereq: Permission of instructor. Not open to students with credit for 875. Repeatable to a maximum of 15 cr hrs.

871.06 Research Seminar in Environmental Planning: Energy Planning GRAD 5
Developmental topics in energy planning and its application to selected energy problems.
Prereq: Permission of instructor. Not open to students with credit for 876. Repeatable to a maximum of 15 cr hrs.

871.07 Research Seminar in Environmental Planning: Transportation Planning GRAD 5
Survey of current literature, structured around a general theme which varies.
Prereq: Permission of instructor. Not open to students with credit for 877. Repeatable to a maximum of 15 cr hrs.

871.08 Research Seminar in Environmental Planning: Public Services Planning GRAD 5
In-depth review of selected recent literature in the field; focus varies.
Prereq: Permission of instructor. Not open to students with credit for 878. Repeatable to a maximum of 15 cr hrs.

871.09 Research Seminar in Environmental Planning: Environment-Behavior/Urban Design GRAD 5
Research on empirical aesthetics; seminal works, theories, and empirical findings.
Su, Au, Wi, Sp Qtrns. Prereq: 4-hr cl. Prereq: Permission of instructor. Not open to students with credit for 301 and 302. Repeatable to a maximum of 15 cr hrs.

879 Seminar in Planning Research GRAD 1-5
Topics to be announced each quarter.
Su, Au, Wi, Sp Qtrns. Arr cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
Civil Engineering

400 Introduction to Geomatics UGRD 4
An introduction to geomatics, with an emphasis on basic data collection using ground based measurement and basic engineering mapping techniques.

405 Observational Analysis UGRD 4
Theory and application of observational analysis.

410 Environmental Pollution and Control UGRD 3
Environmental pollution: the causes and control of air, water, and land pollution in relation to their effects on health, aesthetics, economics, and ecology.

413 Fluid Mechanics UGRD 4
Fluid properties; fluid statics; flow concepts; continuity, energy, and momentum equations; dimensional analysis and dynamic similarity; viscous effects; drag; basic pipe flow; lab demonstrations and experiments.

431 Structural Engineering Principles UGRD 3
Structural forms, analysis of statically determinate structures, approximate analysis of indeterminate structures, and moving loads.

434 Behavior of Structural Elements UGRD 4
Design of steel beams, columns, tensile members, beams-columns, connections, and plate-girders.

435 Basic Reinforced Concrete Design UGRD 5
Analysis and proportioning of reinforced concrete members.

500 Principles of Hydraulics UGRD 3
Fluid properties; hydrostatics; flow concepts; continuity, energy, and momentum equations and applications; flow measurements, pipe and channel flow.

516 Water Resources Engineering UGRD 4
Pipe systems, introduction to open channel flow, basic hydrology, demographic studies, water supply, and wastewater flows.

510 Introduction to Geomatics UGRD 4
An introduction to geomatics, with an emphasis on basic data collection using ground based measurement and basic engineering mapping techniques.

518 Geomatics

519 Special Topics: Steel Bridge Building Development UGRD 2
Studies in analysis, design, test, fabrication, and construction.

520 Design of Treatment Facilities UGRD 4
Selection and design of processes for the purification of natural and used waters.

527 Transportation Engineering and Analysis UGRD 4
Introduction to topics in transportation engineering and analysis; geometric design, traffic flow, freeway capacity, traffic signals, demand-performance equilibrium, pricing, and design under uncertainty.

532 Structural Steel Design UGRD 4
Design of steel beams, columns, tensile members, beams-columns, connections, and plate-girders.

534 Behavior of Structural Elements UGRD 4
Mechanics of beams, shear center, unsymmetrical bending, columns, plastic bending, limit loads, properties of structural metals, and proportioning beams for flexure.

535 Geotechnical Engineering UGRD 4
Properties of natural soil deposits and subsoil exploration; engineering solutions to problems of slope stability, foundation settlement, and earth pressure.

550 Civil and Environmental Engineering Systems UGRD 4
Basic concepts and methods of systems engineering and applications to civil engineering problems in transportation and water resources planning, structural design, and construction management.

554 Geotechnical Engineering UGRD 4
Properties of natural soil deposits and subsoil exploration; engineering solutions to problems of slope stability, foundation settlement, and earth pressure.

565 Master's Thesis GRAD 1-18
Individual studies for Ph.D. students in civil and regional planning.

566 Doctoral Dissertation GRAD 1-18
PhD Dissertation
603 Remote Sensing of Environment UGRD 4
The energies of the natural and cultural environment; current remote sensing systems and case histories of applications in measuring the environment.
Wi Qtr. 3 cl, 1.5-hr lab. Prereq: 405 or Survey 450 or equiv with written permission of instructor. Not open to students with credit for Geod Sci 603. Cross-listed in Geodetic Science.

604 Terrain Analysis UGRD 4
Principles and applications of photo pattern analysis, geologic and geomorphologic patterns, terrain studies, and land use suitability and capability mapping. 
Au Qtr. 3 cl, 1.5-hr lab. Prereq: 405 or Survey 450 or equiv with written permission of instructor. Not open to students with credit for Geod Sci 604. Cross-listed in Geodetic Science.

606 Quantitative Remote Sensing UGRD 4
An introduction to computer processing of digital image data from Landsat satellites; emphasis on concepts, techniques, and statistics important to numerical analysis. 
Wi Qtr. 3 cl, 1.2-hr lab. Prereq: 405 or equiv, 603 or 604 or 605, and En Graph 200 or 167 or equiv.

607 Fundamentals of Geographic Information Systems UGRD 5
Basic principles of geographic and land information systems and their use in spatial analysis and information management.
Au Qtr. 3 cl, 1.3-hr lab. Prereq: Sr standing. Not open to students with credit for Geog 685; or 607 in C&R Plan, Geod Sci, Geol Sci, or Nat Res. Cross-listed in City and Regional Planning, Geodetic Science, Geography, Geological Sciences, and Natural Resources.

608 Spatial Analysis Techniques in Civil Engineering UGRD 4
Principles of spatial analysis techniques for application to civil engineering, particularly in the water resources and geotechnical areas.
* Sp Qtr. 3 cl, 1 lab. Prereq: 405; 607; or equiv with written permission of instructor. Even years.

613 Applied Hydrology UGRD 4
Hydrologic cycle, meteorology, streamflow, evapotranspiration, hydrographs, runoff relations, runoff hydrographs, groundwater, unit hydrographs, flood routing, frequency, and duration studies, and application of hydrologic techniques.
Au Qtr. 4 cl. Prereq: 510 or 516 or Env Eng 516. Not open to students with credit for Env Eng 613. Cross-listed in Environmental Engineering.

624 Coastal and Ocean Engineering UGRD 4
Linear and nonlinear waves, water level and wave forecasting spectra, forces on fixed structures; beach processes, littoral drift, and transport; shoreline protection.
Wi Qtr. 4 cl. Prereq: 516 or Env Eng 516. Not open to students with credit for Env Eng 624. Cross-listed in Environmental Engineering.

640 Civil and Environmental Systems Engineering UGRD 4
Critical path method; linear, integer, and nonlinear programming simulation; mathematical modeling and optimization with design applications in civil and environmental engineering; research paper.
Au Qtr. 4 cl. Prereq: Permission of instructor. Not open to students with credit for 540 or Env Eng 540 or 640. Cross-listed in Environmental Engineering.

651 Soil Mechanics UGRD 4
Stress-strain properties and shear strength of soils; settlement and stability analyses.
Au Qtr. 3 cl, 1.3-hr lab. Prereq: 554.

653 Principles of Rock Mechanics UGRD 4
Engineering properties of rock and their measurement; in-situ stresses; analysis of rock slopes, tunnels, underground openings, and foundations.
Sp Qtr. 3 cl, 1.1-hr lab, 1.1-day field trip. Prereq: 554. Not open to students with credit for Mng Engr 653.

660.01 Civil Engineering Capstone Design I UGRD 3
First course in a two course capstone design sequence.
Au, Wi, Sp Qtr. 3 cl. Prereq: Sr standing in Civil Engineering. Must be taken as close to graduation as possible.

660.02 Civil Engineering Capstone Design II UGRD 3
Second course in a two course capstone design sequence.
Au, Wi, Sp Qtrs. 3 cl. Prereq: Sr standing in Civil Engineering. Must be taken as close to graduation as possible.

662 Introduction to Mechanics of Composite Structures UGRD 4
An introduction to the macromechanical analysis of anisotropic composite structures including governing constituent equations, strength and stiffness advantages, and failure envelopes.
Au Qtr. 4 cl. Prereq: Eng Mech 440 or Mech Eng 420 or 440 or equiv, or permission of instructor. Not open to students with credit for Eng Mech 662 or Mech Eng 662. Cross-listed with Mechanical Engineering.

670 Urban Public Transportation UGRD 4
Planning, analysis, and operation of urban public transportation systems; description and analysis of novel systems.
Wi Qtr. Prereq: 570 or grad standing.

672 Traffic Engineering Studies UGRD 3
Methods of collecting and analyzing traffic flow data, parking, driver and pedestrian behavior; reduction and evaluation of traffic data for applications in traffic engineering.
Au Qtr. Prereq: 570 or grad standing.

673 Highway Location and Design UGRD 4
Methods of highway route location; design standards for highways, intersections, freeways, and interchanges; discussion of computer programs for highway design.
Wi Qtr. Prereq: 570 or grad standing.

675 Instrumentation, Signals, and Control UGRD 3
Transportation Applications
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.
Au Qtr. 2.5-hr cl. Prereq: Elec Eng 301 and Math 415; or Civil En 570; or grad standing in elec eng or civil en; or permission of instructor. Not open to students with credit for 6941 or Elec Eng 6941. Cross-listed in Electrical Engineering.

681 Construction Methods, Equipment and Performance UGRD 4
Procedures for selection, operation, quality control, and production estimating of construction equipment and construction methods for roads, bridges, hi-rise buildings and other structures using software tools.
^ Au Qtr. 2.2-hr cl. Prereq: 431.

682 Introduction to Construction: Buildings and Bridges UGRD 4
Construction operations of various foundations, concrete and steel high-rises, and long span bridges.
Au Qtr. 2.2-hr cl, 1.3-hr lab and field trips. Prereq: 431 or permission of instructor.

683 Construction Safety: Avoiding Failures and Accidents UGRD 4
Spectacular collapses of buildings and bridges around the world; injuries and fatalities in construction sites; maintaining safety in construction operations.
Wi Qtr. 2.2-hr cl. Prereq: 431 or permission of instructor.

684 Construction Network Analysis UGRD 4
Planning, scheduling, and supervision of engineering construction projects; use of Critical Path Method, bar charts, and other techniques.
Wi Qtr. 2 cl, 2.2-hr lab. Prereq: 540.

685 Deterministic Construction Estimating and Pricing UGRD 4
Generally accepted models and methods of estimating and pricing; identification of causes of underestimating and underpricing.
Au Qtr. 2.2-hr cl. Prereq: 576.

686 Construction Contracts and Claims UGRD 4
Contract documents and specifications; formulation of contracts; offer, acceptance, breach, and damages; responsibilities and liabilities; claims; labor agreements.
Sp Qtr. 2.2-hr cl. Prereq or concur: 576 or equiv with written permission of instructor.

687 Construction Project Administration UGRD 4
Duties of professional construction managers in project administration; CM practices and methods; practical forms for project and office use.
^ Sp Qtr. 2.2-hr cl. Prereq: 576.

688 Construction Forensics UGRD 4
Investigating construction failures and accidents, participating in Mock trials, and presenting testimony as an expert witness.
Sp Qtr. 2.2-hr cl. Prereq: 431 or permission of instructor.

693 Individual Studies UGRD 1-5
Individual conferences, assigned readings, and reports on minor investigations.
Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Limitations on number of cr hrs applicable toward degrees are governed by departmental rules. This course is graded S/U.

694.01 Group Studies: Structural Engineering UGRD 1-5
The student must register for particular decimals from fields of civil engineering lists the topics, cr hrs, and instructors will be announced in quarter previous to the quarter offered.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs, not more than 10 of which shall be in any one of the decimals.

694.02 Group Studies: Geotechnical Engineering UGRD 1-5
The student must register for particular decimals from fields of civil engineering lists the topics, cr hrs, and instructors will be announced in quarter previous to the quarter offered.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs, not more than 10 of which shall be in any one of the decimals.
694.04 Group Studies: Highway and Transportation Engineering
The student must register for particular decimals from fields of civil engineering listed. The topics, cr hrs, and instructors will be announced in quarter previous to the quarter offered.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs, not more than 10 of which shall be in any one of the decimals.

694.05 Group Studies: Remote Sensing and Environmental Surveys
The student must register for particular decimals from fields of civil engineering listed. The topics, cr hrs, and instructors will be announced in quarter previous to the quarter offered.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs, not more than 10 of which shall be in any one of the decimals.

694.06 Group Studies: Construction
The student must register for particular decimals from fields of civil engineering listed. The topics, cr hrs, and instructors will be announced in quarter previous to the quarter offered.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs, not more than 10 of which shall be in any one of the decimals.

694.07 Group Studies: Materials
The student must register for particular decimals from fields of civil engineering listed. The topics, cr hrs, and instructors will be announced in quarter previous to the quarter offered.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs, not more than 10 of which shall be in any one of the decimals.

694.08 Group Studies: Hydraulics and Hydrology
The student must register for particular decimals from fields of civil engineering listed. The topics, cr hrs, and instructors will be announced in quarter previous to the quarter offered.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs, not more than 10 of which shall be in any one of the decimals.

698.01 Study Tour: Domestic
Study Tour. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign
Study Tour. Repeatable for different titled study tours only.

699 Undergraduate Research in Civil and Environmental Engineering
Opportunity for undergraduate student to conduct research in Civil and Environmental Engineering. Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

722 Open Channel Hydraulics
Flow classifications, channel properties, energy and momentum principles, critical flow, uniform flow formulas, erodible and nonerodible channel design, and gradually varied flow profile computations.
Sp Qtr. 4 cl. Prereq: 516 or Env Eng 516 and Math 516 or 518. Not open to students with credit for Env Eng 722. Cross-listed in Environmental Engineering.

723 Transport Phenomena in Water Resources Engineering
Water environment momentum mass energy transport, laminar and turbulent mixing; applications include river and lake pollutant dispersal, heated effluent plumes, eutrophication processes.
Au Qtr. 4 cl. Prereq: 516 or Env Eng 516 and Math 255 or 415, or equivs. Not open to students with credit for 614 or Env Eng 723. Cross-listed in Environmental Engineering.

731 Intermediate Reinforced Concrete Design
Analysis and design of reinforced concrete systems.
* Sp Qtr. 4 cl. Prereq: 535, offered in an odd year

734 Structural Analysis and Design for Dynamic Disturbances
Structural dynamics; principles and practice of dynamic design; numerical and graphical methods.
* Au Qtr. 5 cl. Prereq: or concur: 532, Eng Mech 410, and grad standing, or standing with permission of instructor. Not open to students with credit for 834.

735 Matrix Structural Analysis
Analysis of skeletal structures by force and displacement methods using matrices.
* Wi Qtr. 4 cl. Prereq: 531 or equiv with written permission of instructor. offered in Even years.

736 Bridge Engineering
Principles and methods used in design and construction of bridge structures.
* Sp Qtr. 4 cl. Prereq: 531, 532, and 535; or equivs. offered in Even years.

737 Prestressed and Precast Concrete Structures
Structural analysis and proportioning of prestressed concrete members and precast structural concrete systems.
* Wi Qtr. 4 cl. Prereq: 531 and 535, offered in an odd year

738 Intermediate Structural Steel Design
Structural behavior in the inelastic range; plastic analysis and design of framed structures; load and resistance factor design of steel structures.
Wi Qtr. 5 cl. Prereq: 531 and 532.

739 Knowledge-Based Systems in Engineering
Application of knowledge-based system principles to engineering problems, including practical knowledge engineering, techniques for problem assessment, and implementation.
Sp Qtr. 2.5-hr cl. Prereq: Cptr/Inf 630 or permission of instructor. Cross-listed in Computer and Information Science and Chemical Engineering.

750 Seepage in Permeable Materials
Analysis of seepage; saturated and partially saturated flow; free surface analysis; introduction to numerical techniques.
Au Qtr. 4 cl. Prereq: 406 and 554.

751 Principles of Foundation Analysis and Design
Subsurface exploration; shallow foundations; piles and caissons; and embankments and excavations.
Wi Qtr. 4 cl. Prereq: 651.

762 Structural Composites
An introduction to the analysis and design synthesis of beams, columns, rods, plates, and panels made of structural composites.
Wi Qtr. 3 cl. Prereq: 662 or Eng Mech 662 or Mech Eng 662 or permission of instructor. Not open to students with credit for Mech Eng 762 or Eng Mech 762. Cross-listed in Mechanical Engineering.

768 Introduction to the Finite Element Method
Basic concepts, formulation, and application of finite element techniques for numeric solution of problems in structural and continuum mechanics, geotechnical engineering and water resources engineering.
Au, Wi Qtr. 4 cl. Prereq: 406 or Math 568 or equiv, and En Graph 167 or equiv. Not open to students with credit for 763 or Mech Eng 763 or Mech Eng 768. Cross-listed in Mechanical Engineering.

774 Design and Operation of Road Traffic Facilities
Traffic laws and ordinances; operational design of streets, intersections, parking, and terminal facilities; design and operation of traffic control devices.
* Sp Qtr. 4 cl, 1-3-hr lab. Prereq: 672.

775 Urban Transportation Planning
Introduces quantitative techniques to model and predict travel flows in urban and regional areas. Concepts in transport economics and the four-step planning process are discussed and presented in detail. Limitations and alternative approaches are also discussed.
Au Qtr. Prereq: 570 or grad standing. Not open to students with credit for C&R Plan 751 or 775. Cross-listed in City and Regional Planning.

776 Network Algorithms in Transportation Systems
The course will cover basic analysis tools including: the time space diagram, queuing theory, and traffic flow theory, and will apply these tools to intersection control (sign timing and coordination) on road networks, additional network theory, and a field study project.
Wi Qtr. 5 cl. Prereq: 405, 540, and En Graph 167 or CSE 202 or CSE 221 or equiv or grad standing.

777 Infrastructure Systems Analysis
A systems approach to infrastructure provision and management. Covers data collection, performance assessment and prediction, inspection and maintenance decision making, and provision standards setting.
Wi Qtr. 2.2-hr cl. Prereq: 540 and 576, or permission of instructor.

783H Honors Research
Supervised research and project work arranged individually for honors students.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Honors standing; permission of instructor. Repeatable to a maximum of 12 cr hrs. Limitations on number of credit hours applicable toward degree are governed by departmental rules. This course is graded S/U.

795 Seminar in Civil Engineering
Lectures and discussions of current topics related to civil engineering presented by faculty, students, and guest speakers; term paper required.
Au, Sp Qtrs. 2-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 1 cr hrs. This course is graded S/U.
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>796</td>
<td>Interdepartmental Seminar Urban</td>
<td>UGRD 1-5</td>
<td>Transportation</td>
</tr>
<tr>
<td>797</td>
<td>Interdepartmental Seminars</td>
<td>UGRD 1-5</td>
<td>Two or more departments may collaborate in presenting seminars in subjects of mutual interest; topics to be announced.</td>
</tr>
<tr>
<td>804</td>
<td>Water Resources Engineering Applications of Remote Sensing</td>
<td>GRAD 5</td>
<td>Principles and techniques of remote sensing for acquisition of data in water resources engineering projects and water quality investigations.</td>
</tr>
<tr>
<td>806</td>
<td>Radiometric Measurements and Modeling</td>
<td>GRAD 5</td>
<td>Theory and models used in remote sensor measurements of spectral radiation.</td>
</tr>
<tr>
<td>808</td>
<td>Integrating Remote Sensing with Engineering Databases</td>
<td>GRAD 5</td>
<td>Techniques and approaches for integrating digital data sources with engineering spatial databases.</td>
</tr>
<tr>
<td>810</td>
<td>Physical Chemical Treatment Processes I</td>
<td>GRAD 4</td>
<td>Principles and design of physical and chemical processes for water and wastewater treatment including mixing, disinfection, nutrient removal, and oxidation-reduction.</td>
</tr>
<tr>
<td>812</td>
<td>Physical Chemical Treatment Processes II</td>
<td>GRAD 4</td>
<td>Principles of physical/chemical treatment processes for water and wastewater, including coagulation, softening, adsorption, filtration, and membrane processes.</td>
</tr>
<tr>
<td>813</td>
<td>Hazardous Waste Site Remediation</td>
<td>GRAD 4</td>
<td>Principles and design of hazardous waste site remediation technologies; removal and transformation processes; cost analysis.</td>
</tr>
<tr>
<td>814</td>
<td>Industrial Wastewater Treatment</td>
<td>GRAD 3</td>
<td>Principles of industrial wastewater treatment including wastewater surveys; flow reduction, and segregation and equalization; batch and continuous treatment; instrumentation; and treatment processes.</td>
</tr>
<tr>
<td>815</td>
<td>Advanced Water Resource Systems: Water Quantity</td>
<td>GRAD 5</td>
<td>Advanced topics in the design and management of surface and groundwater systems; use of mathematical programming, simulation, and economic theory; written and oral presentations.</td>
</tr>
<tr>
<td>816</td>
<td>Environmental Systems Analysis</td>
<td>GRAD 5</td>
<td>Optimization models for water quality and air quality control, solid waste and hazardous waste management, and environmental and energy facility siting.</td>
</tr>
<tr>
<td>817</td>
<td>Applied Mathematical Ecology</td>
<td>GRAD 5</td>
<td>Application of the methods of mathematical ecology to problems of environmental engineering.</td>
</tr>
<tr>
<td>818</td>
<td>Application of Biotechnology to Environmental Engineering</td>
<td>GRAD 5</td>
<td>Application of molecular and microbiological techniques for pathogens and monitoring of hazardous substances; manipulation of microorganisms for remediation of contaminated soil and water.</td>
</tr>
<tr>
<td>819</td>
<td>Colloidal Processes in Aquatic Systems</td>
<td>GRAD 4</td>
<td>Fundamental concepts of colloid science important for understanding the fate of pollutants in natural systems and water treatment processes.</td>
</tr>
<tr>
<td>820</td>
<td>Advanced Hydrology</td>
<td>GRAD 5</td>
<td>Advanced analysis of classical concepts; study of new techniques and concepts developing in modern hydrology; written and oral presentations of critical reviews of current literature.</td>
</tr>
<tr>
<td>821</td>
<td>Sediment Transport and Engineering</td>
<td>GRAD 4</td>
<td>Sediment properties, fall velocity; entrainment, resuspension, bed features, meanders, channel roughness, suspended, and bed load; measurement; siltation ponds; reservoirs channel mechanics, bank protection, and stabilization.</td>
</tr>
<tr>
<td>822</td>
<td>Adsorption of Pollutants in Environmental Systems</td>
<td>GRAD 4</td>
<td>Content focuses on fundamental concepts necessary to understand adsorption/desorption of metal cations, ionic organic compounds, and nonionic organic compounds in natural and engineered systems.</td>
</tr>
<tr>
<td>823</td>
<td>Numerical Models in Water Resources Engineering</td>
<td>GRAD 5</td>
<td>Lake, river, and coastal contaminant or heat numerical transport model formulation; averaging; finite difference, element methods; errors, stability; data requirements, verification procedures.</td>
</tr>
<tr>
<td>824</td>
<td>Advanced Coastal Engineering</td>
<td>GRAD 4</td>
<td>Coastal turbulent transport processes; fluctuation spectra; flood forecasting, storm surge models; harbor oscillations, resonance, and design; erosion processes and protection strategies; topical problems as required.</td>
</tr>
<tr>
<td>825</td>
<td>Engineering Databases</td>
<td>UGRD 1-5</td>
<td>Storage and retrieval of engineering data in databases; data management and data systems.</td>
</tr>
<tr>
<td>826</td>
<td>Intermediate Water Resources Engineering</td>
<td>UGRD 1-5</td>
<td>Advanced topics in the design and management of surface and groundwater systems; use of mathematical programming, simulation, and economic theory; written and oral presentations.</td>
</tr>
<tr>
<td>827</td>
<td>Advanced Structural Dynamics</td>
<td>GRAD 5</td>
<td>Stresses and deflections in structures under dynamic loads; response of large structural systems to earthquake, wind, moving loads; approximate and exact solution techniques.</td>
</tr>
<tr>
<td>828</td>
<td>Advanced Soil Properties</td>
<td>GRAD 4</td>
<td>Detailed study and analysis of the mechanical properties of soils, with applications to foundation behavior.</td>
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<tr>
<td>829</td>
<td>Advanced Soil Mechanics</td>
<td>GRAD 4</td>
<td>Stability of slopes and foundations; use of plasticity theory, numerical methods, and probability methods.</td>
</tr>
<tr>
<td>830</td>
<td>Earthquake Engineering</td>
<td>GRAD 5</td>
<td>Analysis and design of structures subject to seismic loading; design of structures to minimize earthquake damage; highrise buildings; seismic risk analysis; knowledge engineering in earthquake engineering.</td>
</tr>
<tr>
<td>831</td>
<td>Advanced Reinforced Concrete</td>
<td>GRAD 5</td>
<td>Concrete structural analysis and design; special structural systems and elements.</td>
</tr>
<tr>
<td>832</td>
<td>Advanced Behavior and Design of Metal Structures</td>
<td>GRAD 5</td>
<td>Design of steel structures; steel bridges; braced and unbraced frames; tall buildings; connections; load and resistance factor design; computer-aided design; stability of metal structures; torsion; and lateral-torsional buckling.</td>
</tr>
<tr>
<td>833</td>
<td>Finite Element Method in Engineering Science</td>
<td>GRAD 5</td>
<td>Approximation of boundary value and initial value problems; variational methods, hybrid and mixed method; convergence and accuracy of finite element approximations; recent developments, advanced applications.</td>
</tr>
<tr>
<td>834</td>
<td>Advanced Seepage in Permeable Materials</td>
<td>GRAD 4</td>
<td>Analysis of seepage and consolidation in soils by closed form and by numerical methods.</td>
</tr>
<tr>
<td>835</td>
<td>Sediment Transport and Engineering</td>
<td>GRAD 4</td>
<td>Sediment properties, fall velocity; entrainment, resuspension, bed features, meanders, channel roughness, suspended, and bed load; measurement; siltation ponds; reservoirs channel mechanics, bank protection, and stabilization.</td>
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<tr>
<td>836</td>
<td>Adsorption of Pollutants in Environmental Systems</td>
<td>GRAD 4</td>
<td>Content focuses on fundamental concepts necessary to understand adsorption/desorption of metal cations, ionic organic compounds, and nonionic organic compounds in natural and engineered systems.</td>
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<tr>
<td>837</td>
<td>Advanced Structural Dynamics</td>
<td>GRAD 5</td>
<td>Stresses and deflections in structures under dynamic loads; response of large structural systems to earthquake, wind, moving loads; approximate and exact solution techniques.</td>
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<td>Advanced Soil Properties</td>
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<td>Detailed study and analysis of the mechanical properties of soils, with applications to foundation behavior.</td>
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<tr>
<td>840</td>
<td>Soil-Structure Interaction</td>
<td>GRAD 4</td>
<td>Interactions between soil and various structures, walls, bulkheads, foundations, and piles.</td>
</tr>
</tbody>
</table>
858 Soil Dynamics GRAD 4
Stress waves in soils and vibrations in soil masses; liquefaction, determination of dynamic properties of soils; soil behavior under impact, machine, and seismic loads; seismic response of earth structures; design problems. Sp Qtr. 4 cl. Prereq: 851 and Eng Mech 731, or permission of instructor.

859 Advanced Soil Properties Laboratory GRAD 2
Experimental methods to evaluate the engineering properties of soils. Wi Qtr. 1 cl, 1-3 hr lab. Prereq or concurs: 851.

872 Area Traffic Control GRAD 5
Design and performance criteria for area traffic control; design of traffic surveillance and monitoring systems; corridor and network control strategies; on-line computer control algorithms. Wi Qtr. 4 cl, 3-3 hr lab. Prereq: 774 or equiv.

873 Urban Transportation Demand Forecasting GRAD 5
Travel surveys and data needs; applications of statistical methods to develop models of ownership, trip generation, vehicle occupancy and modal choice; disaggregate models.
* Sp Qtr. 4 cl, 1-3 hr lab. Prereq: 775 and Stat 525 or equiv with written permission of instructor. Odd years.

874 Urban Transportation Network Analysis GRAD 5
Network representation methods; minimum-path trees; traffic assignment algorithms and policies; modeling and simulation; distribution models; new directions.
* Sp Qtr. 4 cl, 1-3 hr lab. Prereq: 775 and Stat 525 or equiv with written permission of instructor. Not open to students with credit for Ind Eng 874. Cross-listed in Industrial and Systems Engineering. Even years.

878 Transportation Management Systems GRAD 5
Key concepts in transportation management and the role of network performance and demand. Covers control and guidance systems design and evaluation. Emphasizes methodology and modeling.
Au Qtr. 2.25-5 cl. Prereq or concurs: 776, or permission of instructor.

881 Computer Aided Construction Automation GRAD 5
and Simulation I Computer modeling to automate and simulate construction operations. Wi Qtr. 2-2 hr cl, 1 hr arr. Prereq: 682.

882 Probabilistic Construction Estimating and GRAD 5
Pricing New models and methods of estimating and pricing; the examination of data from construction companies; the utility of percentile distributions, skewness and kurtosis demonstrations.
* Sp Qtr. 3 cl, 6-6 hr lab. Prereq: 685, Stat 525, and Bus Adm 801.05 or equivs.

885 Advanced Civil Engineering GRAD 3-5
Opportunity for advanced students to pursue advanced study; work undertaken may be elected in the fields of civil engineering listed below.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept chairperson. Repeatable to a maximum of 20 cr hrs. No more than 10 credit hrs in any one of the fields listed below.

888 Event Tree, Fault Tree, and Fuzzy Systems GRAD 5
in Construction Event tree and fault tree analyses; fuzzy set/logic concepts; fuzzy expert systems; fuzzy fault tree expert systems in construction.
Sp Qtr. 4 cl, 3-3 hr lab (arr). Prereq: 781.

894 Group Studies in Civil Engineering GRAD 3-5
Advanced topics in the various fields of civil engineering; the particular topics, the number of credit hours, and the instructor will be announced in the quarter previous to the one in which the course is offered.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. No more than 10 cr hrs in any one field of civil engineering.

899 Interdepartmental Seminar GRAD 1-5
Two or more departments may collaborate in presenting seminars on subjects of mutual interest; topics to be announced.

900 Civil Engineering Practicum GRAD 1-5
Supervised field experience in civil engineering; analysis and critique of field experience.
Su, Au, Wi, Sp Qtrs. Prior approval of civil eng grad committee required.

993 Advanced Problems in Civil Engineering GRAD 3-5 Provides the opportunity to pursue special problems in Civil Engineering not otherwise covered. Report required.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

999 Research in Civil Engineering GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Classics

101 Ancient Greek Literature in Translation UGRD 5
Introductory survey of the Greek achievement in literature and its contribution to Western thought; selected readings in English translation in major authors from Home through the Hellenistic age.
Au, Wi, Sp Qtrs. 5 cl. Not open to students with credit for 220. GEC arts and hums lit course.

101H Ancient Greek Literature in Translation UGRD 5
Introductory survey of the Greek achievement in literature and its contribution to Western thought; selected readings in English translation in major authors from Home through the Hellenistic age.
Au, Wi, Sp Qtrs. 5 cl. Prereq: Honors program or permission of department or instructor. Not open to students with credit for 220. GEC arts and hums lit course.

102 Roman Literature in Translation UGRD 5
Introductory survey of Roman literature and its importance in the Western literary tradition; selected readings in English translation in major authors, such as Plautus, Vergil, and Ovid.
Au, Wi, Sp Qtrs. 5 cl. Not open to students with credit for 221. GEC arts and hums lit course. 102E may be available on regional campuses for Honors embedded experience.

102E Roman Literature in Translation UGRD 5
Introductory survey of Roman literature and its importance in the Western literary tradition; selected readings in English translation in major authors, such as Plautus, Vergil, and Ovid.
Au, Wi, Sp Qtrs. 5 cl. Prereq: Honors program or permission of department or instructor. Not open to students with credit for 221. GEC arts and hums lit course. Honors embedded experience at the regional campuses.

210 Classical Background of Scientific Terminology
Study of technical and scientific terms from Greek and Latin sources; roots, word elements, word formation, analysis; helpful in medical, biological, and kindred studies.
Au, Wi, Sp Qtrs.

222 Classical Mythology UGRD 5
Origins and attributes of the Greek and Roman gods and goddesses, their mythology and its influence on Western culture.
Au, Wi, Sp Qtrs. 5 cl. Not open to students with credit for 122H. GEC arts and hums lit course.

222H Freshman/Sophomore Honors Seminar: Topics in Ancient Literature and Society A discussion-oriented exposure to some of the most renowned works of ancient literature and/or ancient cultural issues.
Au, Wi, Sp Qtrs. 2.25-2 hr cl. Prereq: Admission to the honors program.

224 Classical Civilization: Greece UGRD 5
A survey of ancient Greek civilization, concentrating upon important facets of literature, history, art, and archaeology.
Sp Qtr. 5 cl. Not open to students with credit for H124. GEC arts and hums cultures and ideas course.

225 Classical Civilization: Rome UGRD 5
A survey of the civilization of ancient Rome, concentrating upon important facets of literature, history, art, and archaeology.
Au Qtr. 5 cl. Not open to students with credit for H125. GEC arts and hums cultures and ideas course.

226 Byzantine Civilization: Constantinople and the Empire of New Rome A survey of Byzantine civilization, focusing on life in the capital, literature, and the court, Orthodox Christianity, and the formation of Medieval Europe.
5 cl. Not open to students with credit for Medieval 226. Cross-listed in Medieval and Renaissance Studies. GEC arts and hums cultures and ideas course.

230 Medicine in the Ancient World UGRD 5
An introduction to the theory and practice of medicine in ancient Greece and Rome. GEC arts and hums cultures and ideas course.

240 Classical Archaeology UGRD 5
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.
5 cl. Not open to students with credit for History 240 or 306, or Hist Art 240. Cross-listed in History as 306 and in History of Art as 240. GEC arts and hums cultures and ideas course.

250 Sports and Spectacles in the Ancient World UGRD 5
The history and social role of gymnastic and athletic competition in Greece and Rome. The evolution of their modern revivals.
5 cl. GEC arts and hums cultures and ideas course.
294 Group Studies UGRD 1-5
Topics in classical studies.
294H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

301 Greek and Roman Epic UGRD 5
Study of Greek and Roman epic based on extensive readings in English translation of works by authors such as Homer, Apollonius, Vergil and Ovid.
^ Au Qtr. 5 cl. Not open to students with credit for 503.

302 Greek and Roman Drama UGRD 5
Study of Greek and Roman drama based on extensive readings in English translation of the plays of such authors as Sophocles, Euripides, and Plautus.
Wi Qtr. 5 cl. Not open to students with credit for 501.

303 Comic Spirit in Antiquity UGRD 5
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.
5 cl. Not open to students with credit for 502.

310 Topics in Ancient Literature and Culture UGRD 5
In depth analysis of selected topics in ancient literature and culture.
Varies. Repeatable to a maximum of 10 cr hrs.

322 The Hero in Classical Mythology UGRD 5
The development and interpretation of the major cycles of classical saga based on extensive readings in Greek and Roman epic and drama.
5 cl.

323 Ancient Greek Religion UGRD 5
Study of ancient Greek religions, including the beginnings of Christianity.
Au Qtr. GEC Historical Study course.

324 Magic in the Ancient World UGRD 5
An introduction to the practice of magic in the ancient Mediterranean and how people viewed it.

325 Christians in the Greco-Roman World UGRD 5
The origins and development of Christianity in its historical, social, and cultural context.

326 Christian Heroes: Byzantine Saints' Lives UGRD 5
Study of popular Medieval narrative genre in its cultural context; development of the ideal of sanctity in the lives of martyrs, holy fools, and ascetics.
Wi Qtr.

327 Ancient Gods Changing Identities UGRD 5
Study of how the ancient Greek gods were represented in art of literature of their own and later historical periods.
Sp Qtr. 2-2 hr cl. GEC arts and hums lit course.

505 Political Thought and Institutions in the Greco-Roman World UGRD 5
Selected topics concerning the development of ancient political theory.
^ 2-2 hr cl.

506 Greek and Roman Science and Technology UGRD 5
The origins and achievements of Greek and Roman science and technology.
^ 5 cl.

508 Gender and Sexuality in Antiquity UGRD 5
Constructions of gender and sexuality in Greece and Rome.
Sp Qtr. 5 cl.

597 Nationalism Revisited UGRD 5
Aims at rethinking nationalism by questioning perceived notions of the nation, identity, ethnicity, culture, citizenship and globalization.
Au, Wi, Sp Qtrrs. Prereq: Jr or sr standing. GEC contemporary world course.

607 Roman Law through the Reign of Justinian UGRD 5
Studies in the origins and development of Roman Law based on original sources in translation.
^ 5 cl. Not open to students with credit for Law L720. Cross-listed in Law as L720.

611 Studies in Greek or Latin Epigraphy UGRD 5
Studies in Greek or Latin Epigraphy.
^ 2-2 hr cl. Prereq: Permission of instructor. Not open to students with credit for 811. Repeatable to a maximum of 10 cr hrs.

656 Studies in Greek or Roman Topography UGRD 5
The topography and archaeology of ancient Athens, Rome, or other sites important to Greco-Roman literature and civilization.
^ 2-2 hr cl. Not open to students with credit for 856.

692 Workshop UGRD 1-6
Workshop.
Su Qtr. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

694 Group Studies UGRD 1-5
Investigation of particular problems in various areas of classical studies.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress ('P') graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary: contact department for details.
Prereq: Permission of instructor.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary: contact department for details.
Prereq: Permission of instructor.

699 Senior Tutorial and Essay UGRD 5
Individual work leading to the writing of a final paper that will integrate the experience of earlier courses in classics.
Su, Au, Wi, Sp Qtrrs. Open only to Srs majoring in classics.

712 Studies in Greek or Latin Paleography and Textual Criticism UGRD 5
An introduction to the skills of paleography and textual criticism.
2-2 hr cl. Prereq: Latin 625 or Medieval 694 or permission of instructor. Not open to students with credit for 812.

783H Honors Research UGRD 3-5
A program of study arranged for each student, with individual conferences, reports, and an honors thesis.
Su, Au, Wi, Sp Qtrrs. Prereq: 4th yr standing with a grade of A in at least half of the classics 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. Failure to receive a mark of S in this course is a disqualification for special honors. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

792 Interdepartmental Studies in the Humanities UGRD 3-5
Two or more departments present colloquia on subjects of mutual interest.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs. With permission of dept.

800 Materials and Methods of Research GRAD 3
The materials, problems, and methods of classical research.
3 cl. Required of all grad students.

810 Linguistic Studies in Greek and Latin GRAD 5
Topics may include Greek dialects, Italic dialects, or comparative grammar of Greek and Latin.
^ 2-2 hr cl. Repeatable to a maximum of 15 cr hrs.

870 Studies in Greek and Roman Religion and Myth GRAD 5
Focuses on single issues within ancient religion and myth, as chosen by instructor.
Au, Wi, Sp Qtrrs. Prereq: Reading knowledge of Greek and/or Latin preferred; special arrangements can be made for exceptional students without reading knowledge. Repeatable to a maximum of 10 cr hrs.

880 Topics in Classical Antiquity GRAD 5
In-depth examination of issues that are often difficult to address in courses that focus on a single ancient author.
Au, Wi, Sp Qtrrs. 1 3-hr cl. Prereq: Reading knowledge of Greek and/or Latin.

890 Topics in Late Antiquity and Byzantium GRAD 5
Focuses on topics in post-classical Greek and Roman culture and literature.
Su, Au, Wi, Sp Qtrrs. 1 3-hr cl or 2 2-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

899 Interdepartmental Seminar GRAD 3-5
Two or more departments present seminars on subjects of mutual interest; topics to be announced.
Su, Au, Wi, Sp Qtrrs. Prereq: Permission of instructor(s). Repeatable to a maximum of 15 cr hrs. With permission of dept.

Communication UGRD 5
History of human communication from beginning of spoken and written communication to modern mediated and mass communication.
Su, Au, Wi, Sp Qtrrs. 2 2-hr cl. Not open to students with credit for J Com 101. GEC soc indiv and groups course.
105 Communication of Ideas and Attitudes UGRD 5
Analysis, formulation, organization, development, and delivery of ideas and attitudes for speaking with an audience.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Not open to students with credit for J Com 105. VPA Admins Cond course.

200 Communication in Society UGRD 5
Role of communication in society; forms, strategies, theories and issues; interpersonal group, organizations, public and mass communication.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Not open to students with credit for J Com 200. GEC soc sci individuals and groups course.

221 Writing for Media UGRD 5
Introduction to, and instruction and practice in newswriting, reporting, and editing for the news media taught in a laboratory setting.
Prereq: 101, 200 or J Com 101, 200, and major in journal, or comm (stat comm), or agr comm or media prod minor. Not open to students with credit for J Com 221.

240 Introduction to Communication Technology UGRD 5
Processes of communication technology, critical consumption, ethical issues, current problems of the markets, technologies and policies of online communication, the world wide web, and media.
2 2-hr cl. Not open to students with credit for J Com 240.

310 News Design UGRD 5
Provides a basic overview of various forms of visual communication with an emphasis on print media. Explores design principles, perception, critical evaluation, ethics and creativity as they relate to visual media.
2 2-hr cl. Prereq: Journal or Comm major.

311 Visual Communication Design UGRD 5
The examination of visual symbols, graphics, photographs, art, movies and video, and their impact on society.
2 cl. 2 2-hr labs. Prereq: 221 or 367 or J Com 221 or 367, and journal or comm major. Not open to students with credit for J Com 311.

320 Introduction to Interpersonal Communication UGRD 5
Analysis of the role of interpersonal communication to begin relationships, achieve intimacy, sustain a certain relational status and terminate relationships.
2 2-hr cl. Not open for students with credit for J Com 320.

321 Principles of Effective Public Speaking UGRD 5
Introductory 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.
2 2-hr rec. Not open to students with credit for J Com 321.

322 Strategic Communication Practices UGRD 5
Designed to aid students in communicating in a business environment.
2 2-hr cl. Prereq: Journal or Comm major.

325 Introduction to Organizational Communication UGRD 5
Communication plays a vital role in the success and failure of organizations. Addresses prior and current approaches to the study of organizational communication.
2 2-hr cl.

331 Business and Professional Speaking UGRD 5
The purpose of this course is to train students in interpersonal and public speaking in business and professional contexts.
Prereq: COMM 321.

341 Policy Issues in Communication Technology UGRD 5
Theoretic bases for understanding telecommunication and electronic media, mechanisms for the formulation and implementation of policy; social impact of media systems.
2 2-hr cl. Prereq: Journal or comm major. Not open to students with credit for J Com 341.

367 Persuasive Communication UGRD 5
Principles of persuasion as reasoned discourse.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl. 367H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110, 110.01, 110.02, 110.03 or equiv, and soph standing or above. Not open to students with credit for J Com 367. GEC second writing course.

368 Intercultural Communication in Organizational Contexts UGRD 5
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.
2 2-hr cl. Not open to students with credit for J Com 368.

420.01 Journalism Workshop: Lantern Gateway UGRD 1
Workshop
Introduction to the basic principles and skills involved in operating as part of a news-gathering team.
Open to all majors and class ranks; no prerequisites. This course is graded S/U.

420.02 Journalism Workshop: Internet Journalism: A Survival Guide UGRD 1
Introduction to writing techniques used by online journalists.
Open to all majors and class ranks; no prerequisites. This course is graded S/U.

420.03 Journalism Workshop: Previews and Reviews UGRD 1
Introduction to the two basic journalistic forms associated with writing about cultural and entertainment events.
Open to all majors and class ranks; no prerequisites. This course is graded S/U.

421 Reporting and Writing Across News Platforms UGRD 5
Designed to help students develop the fundamentals of news writing and reporting.
2 2-hr cl. Prereq: Journal or Comm or Ag Com major or permission of instructor. Not open to students with credit for 421.01 or J Com 421.01.

422 News Media Presentation UGRD 5
The goal of 422 is to help students become better writers, editors and visual communicators.
Au, Wi, Sp Qtrs. Prereq: 421 and Journal or Comm or Ag Comm major or permission of instructor.

423 Lantern Practicum UGRD 5
Gives students an opportunity to learn journalism by practicing it as members of the staff of the Lantern student daily newspaper and Web news site.
2 2-hr cl. Prereq: Journal or Comm major or permission of instructor. Repeatable to a maximum of 10 cr hrs.

424 Civic Journalism UGRD 5
Examines the role of traditional practices of journalism in contributing to citizen apathy and disengagement, as well as what can be done to enhance citizen understanding, learning and active participation in democratic society.
2 2-hr cl. Prereq: Journal or Comm major, grad standing or permission of instructor.

425 Media Management UGRD 5
Introduction to media management and focuses on how issues of management apply across various media.
2 2-hr cl.

426 Multi-media Journalism UGRD 5
Overview of multi-media journalism, including relevant theories and practices, and hands-on instruction and experience creating an original news-oriented web site.

431 Strategic Communication Principles UGRD 5
The role of strategic communications in business, including basic principles of integrated marketing, theory, and ethical standards.
2 2-hr cl. Not open to students with credit for J Com 431. GEC soc sci individuals and groups course.

449 Foundations of Survey Research UGRD 5
This course introduces students to the principles, techniques and problems involved in conducting survey research.
2 2-hr cl. Not open to students with credit for Politi Sc 449. Cross-listed with Politi Sc 449.

460 Communication Research Methods UGRD 5
Overview of major empirical methods in media research.
Au, Wi, Sp Qtrs. Prereq: Journal or Comm or Agr Comm major; or Media Prod minor; Stat 135 or Stat 145 or permission of instructor. Not open to students with credit for 463 or 660.

460H Honors Communication Research Methods UGRD 5
Honors introduction to methods of research in the scientific study of communication. Includes opportunities for active engagement in faculty research laboratories and programs.
Sp Qtrs. Prereq: Honors standing or permission of instructor.

463 Communication Industry Research Methods UGRD 5
Overview of major empirical methods in communication industry research.
Au, Wi Qtrs. Prereq: Journal or Comm or major; or Media Prod minor; Stat 135 or Stat 145, or permission of instructor. Not open to students with credit for 460 or 663.

494 Group Studies UGRD 1-5
Regular class meetings and group discussion of specified problems.
Prereq: Soph standing or above. Repeatable to a maximum of 20 cr hrs.

500 Quantitative Reasoning for Journalism and Communication UGRD 5
Development of skills for analyzing, evaluating, and reporting news stories with quantitative content.
2 2-hr cl. Prereq: Journal or Comm major, or permission of instructor; STAT 135 or STAT 145. Not open to students with credit for J Com 500.

501 Mass Communication and Youth UGRD 5
Introduction to theories and research on the uses and effects of media on children and adolescents, including discussion of interventions.
2 2-hr cl. Not open to students with credit for J Com 501.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>502</td>
<td>Crime and the News Media</td>
<td>5</td>
<td>Study of the nature of news coverage of crime and criminal justice system, and the</td>
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<td></td>
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<td>implications for individuals, social groups, and society.</td>
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<tr>
<td>512</td>
<td>Communication, Images, and Action</td>
<td>5</td>
<td>The interplay between interpersonal communication systems and technologies from a</td>
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<td></td>
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<td>current as well as an historical perspective.</td>
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<tr>
<td>513</td>
<td>Video Games and the Individual</td>
<td>5</td>
<td>Provides a broad overview of the effects of video game play on the individual.</td>
</tr>
<tr>
<td>531</td>
<td>Communication and Conflict Management</td>
<td>5</td>
<td>An overview of the communication and conflict literature with emphasis on effective</td>
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<tr>
<td></td>
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<td>conflict management.</td>
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<tr>
<td>545</td>
<td>Strategic Media Planning</td>
<td>5</td>
<td>Introduction to media planning for students interested in careers in advertising,</td>
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<td>public relations and other forms of strategic communication.</td>
</tr>
<tr>
<td>597.01</td>
<td>Global Issues and Communication: Media</td>
<td>5</td>
<td>Focuses on the portrayal of terrorism in the media and on how terrorists use the</td>
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<td></td>
<td>and Terrorism</td>
<td></td>
<td>media to influence public opinion.</td>
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<tr>
<td>602</td>
<td>Magazine Writing</td>
<td>5</td>
<td>Non-fiction writing for magazines, commercial and industrial; emphasis on the non-</td>
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<td>technical full-length magazine article.</td>
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<tr>
<td>604</td>
<td>Media Ethics</td>
<td>5</td>
<td>Study of ethical theories and models as they apply to media products and practices;</td>
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<td>case studies, discussion and lectures.</td>
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<tr>
<td>605</td>
<td>Explanatory Reporting</td>
<td>5</td>
<td>Focuses on the process of creating long-form journalism that attempts to describe</td>
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<td></td>
<td>and explain the background, process and consequences of complex policy issues facing</td>
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<td>contemporary society.</td>
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<tr>
<td>606</td>
<td>Development of the Mass Media in America</td>
<td>5</td>
<td>Major currents and trends basic in the shaping of the mass media; famous</td>
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<td></td>
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<td>personalities, foundations, and evolution of a free, responsible press.</td>
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<tr>
<td>607</td>
<td>Mass Communication Law</td>
<td>5</td>
<td>Study of theory, history, and case law related to freedom of expression.</td>
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<tr>
<td>611</td>
<td>Communication and Multimedia</td>
<td>5</td>
<td>Students will learn the concepts and principles of user-centered design and apply</td>
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<td></td>
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<td></td>
<td>these skills to multimedia design.</td>
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<tr>
<td>613</td>
<td>Media Entertainment</td>
<td>5</td>
<td>Explores speculation, theory, and research regarding effects and appeal of media</td>
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<td>entertainment, emphasizing emotional reactions.</td>
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<tr>
<td>614</td>
<td>Issues and Images in Political Communication</td>
<td>5</td>
<td>Analysis of the roles played by the mass media, public leaders, and accidental</td>
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<td>circumstances in the development of issues and images in contemporary American</td>
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<td>political communication.</td>
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<tr>
<td>620</td>
<td>Public Opinion and Communication</td>
<td>5</td>
<td>Investigation of public opinion from social, political, and psychological perspectives,</td>
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<td>and study of the role communication (including the media) plays in the process.</td>
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<tr>
<td>621</td>
<td>Enterprise Reporting in Diverse Communities</td>
<td>5</td>
<td>Instruction and practice in specified topics pertaining to public affairs, such as</td>
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<td>government, courts, politics, finance, urban affairs, science, and culture.</td>
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<tr>
<td>624</td>
<td>Communication in Personal Relationships</td>
<td>5</td>
<td>Advanced level survey of theory and research concerning the role of communication i</td>
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<td>the development, maintenance, and decay of interpersonal relationships.</td>
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<tr>
<td>628</td>
<td>Contemporary Persuasion Theory</td>
<td>5</td>
<td>Persuasive campaigns in mass audience settings; persuasion in interpersonal contexts,</td>
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<td>including organizations, family and personal relationships.</td>
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<tr>
<td>631</td>
<td>Communication in Decision Making</td>
<td>5</td>
<td>Decision-making as a process; comparisons between interpersonal, bargaining-</td>
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<td>negotiation contexts, and groups and organizations; descriptive and prescriptive</td>
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<td>models of decision-making in small groups and organizations.</td>
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<tr>
<td>632</td>
<td>Risk Communication</td>
<td>5</td>
<td>Students will learn how to plan, implement and evaluate a risk communication effort.</td>
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<td>Message design is an integral part of this class.</td>
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<td>634</td>
<td>Creative Message Design</td>
<td>5</td>
<td>Message development for marketing communications - strategic communications writing.</td>
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<tr>
<td>635</td>
<td>Small Group Communication</td>
<td>5</td>
<td>Examination of communication in small groups; effective small group practice.</td>
</tr>
<tr>
<td>636.01</td>
<td>Health Communication in Interpersonal Contexts</td>
<td>5</td>
<td>Study of communication relevant to health care in various face-to-face contexts.</td>
</tr>
<tr>
<td>636.02</td>
<td>Health Communication in Mass Mediated Contexts</td>
<td>5</td>
<td>Overview of theory and research related to the role of mass media as they affect</td>
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<td>the public's health behavior.</td>
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<tr>
<td>637</td>
<td>Public Communication Campaigns</td>
<td>5</td>
<td>Application of management techniques to public relations; public relations strategy;</td>
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<td></td>
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<td>campaign development.</td>
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<tr>
<td>638</td>
<td>Communication and E-Health</td>
<td>5</td>
<td>Focuses on the current and future uses of technology in health communication, with</td>
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<td>an emphasis on technology in both patient-provider relationships and health campaigns.</td>
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<tr>
<td>640</td>
<td>Science Communication</td>
<td>5</td>
<td>Explores the structure, meanings and implications of &quot;science communication&quot; with</td>
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<td>an emphasis on how values, attitudes, social structure and context affect public</td>
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<td>perceptions of science and technology.</td>
</tr>
</tbody>
</table>

Notes: 2 2-hr cl. Not open to students with credit for J Com 512.
Not open to students with credit for J Com 614.
Not open to students with credit for J Com 604.
Not open to students with credit for J Com 602.
Not open to students with credit for J Com 606.
Not open to students with credit for J Com 607.
Not open to students with credit for J Com 631. Repeatable to a maximum of 10 cr hrs.
642 Mass Communication and Society UGRD 5
Analysis of basic issues affecting media performance; especially social, cultural norms, organizational and occupational variables, and the assessment of the effects of the resulting performance.
2-2 hr cl. Prereq: Comm major or permission of instructor. Not open to students with credit for J Com 642.

643 International Communication and the World Press UGRD 5
Examination of international news communication systems and selected media concepts and the role they play in political, economic, and cultural environments.
2-2 hr cl. Not open to students with credit for J Com 643.

644 Advertising and Society UGRD 5
Examination of positive and negative contributions of advertising in the American mass media system to society from political, sociological, and economic perspectives.
2-2 hr cl. Not open to students with credit for J Com 644.

645 Stereotypes in Advertising, News and Entertainment TV UGRD 5
This purpose of this course is to expose students to the existence and impact of stereotypes in various forms of television.
2 2-hr cl.

646 Media Economics UGRD 5
Familiarizes the student with the basic concepts for understanding the economic operation of media organizations and industries.
2-2 hr cl. Prereq: Journal or Comm major; or grad standing; or permission of instructor. Not open to students with credit for J Com 646.

648.01 History of American Newspaper Comic Strips UGRD 5
History of American newspaper comic strips; assessment of their role and impact.
* Not open to students with credit for J Com 648.01.

648.02 History of American Newspaper Political Cartoons UGRD 5
Examination of the history, purpose, form, and spirit of American newspaper political cartoons.
* Not open to students with credit for J Com 648.02.

650 Investigating Communication through Interactive Technologies UGRD 5
Application of electronic research through the design, implementation, and reporting of an online data collection or technology-based project.
2 2-hr cl, 1 2-hr lab.

653 Political Communication and e-Democracy UGRD 5
Designed to explore the role of political uses of the Web and their impacts on political communication processes.
Au, Sp Qtrs.

654 Social Implications of Communication Technology UGRD 5
Advanced study of a current topic in telecommunication and electronic media industry structures.
2-2 hr cl. Not open to students with credit for J Com 654.

655 Computer Interfaces and Human Identity UGRD 5
Surveys anthropomorphic computer phenomena such as agents, avatars and social simulation games and examines their relation to human identities including humanness, race, and gender.
2 2-hr cl. Prereq: Journal or Comm major, grad standing or permission of instructor.

656 Information Technology and Organizational Communication UGRD 5
Focus on the role of various technologies within organizations and for work team members.

657 Technology of Communication UGRD 5
To obtain a basic understanding of the underlying technologies and operational principles of the information society.
Prereq: 240, grad standing or permission of instructor.

659 Communication Systems and Society UGRD 5
Advanced study of a current topic in the relationship between telecommunication and electronic media systems and society.
2-2 hr cl. Prereq: Journal or Comm major, grad standing, or permission of instructor. Not open to students with credit for J Com 659.

661 Statistical Applications in Communication GRAD 5
Fundamental principles of statistics commonly used in communication research.
Prereq: Grad standing or permission of instructor. Not open to students with credit for J Com 661.

662 Communication and Gender UGRD 5
Examination of contemporary communication theory, method, and practice relevant to women's communication.
2 2-hr cl. Prereq: Not open to students with credit for J Com 662.
711 Advanced Design Applications in Human-Computer Interaction
Designing sophisticated media environments that integrate multiple media formats; information architecture, user-centered design and usability testing.
2 2-hr cl. Prereq: Journal or comm major, grad standing, or permission of instructor. Not open to students with credit for J Com 711.

713 Political Communication
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.
2 2-hr cl. Prereq: Grad standing or permission of instructor. Not open to students with credit for J Com 713 or Poli Sc 713. Cross-listed in Political Science.

760 Communication Research Methods
An overview of empirical research methods in communication.
Au Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor. Not open to students with credit for J Com 760.

763 Qualitative Methodologies for Communication Research
Graduate introduction to qualitative methodologies for empirical study of communication phenomena, emphasizing ethnographic participant observation, in-depth interviewing, focus groups, life narratives, text and discourse analysis.
Sp Qtr. Prereq: Grad standing or permission of instructor. Not open to students with credit for J Com 763 or 861.

783H Honors Research
A program of independent study for the student with special aptitudes; individual conferences and reports.
Au, Wi, Sp Qtrs. Prereq: Sr standing in journal or commun with a grade of A in at least half of the Comm courses and an average of B in the remainder, and permission of instructor and the ASC Honors Committee. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

789 Survey Research Practicum
Hands-on applications for students interested in the planning, implementation, and analysis of a scientific sample survey.

790 Statistical Applications in Communication II
Survey of research methods and "hands on" experience in conducting a research project.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 25 cr hrs.

794 Group Studies
Group Studies.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

797 Interdepartmental Seminars
Two or more departments may collaborate in presenting seminars in subjects of mutual interest; topics to be announced.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 12 cr hrs.

801 Advanced Research Methods in Communication
In-depth study of particular methods in the field of communication.
Prereq: 606 or J Com 606 and grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs. Repeatable with different methods.

802 Literature and Journalism
Integrated readings in literary journalism.
1 3.5-hr cl. Not open to students with credit for J Com 802.

805 Communication Law and Policy
An overview of law and policy related to communication.
2 2-hr cl.

806 Contemporary Communication Theory
An overview of contemporary approaches of the study of communication.
Au Qtr. Prereq: Grad standing in communications and permission of instructor. Not open to students with credit for J Com 806.

807 Foundations of Communication Theory
An historical overview of the major theories and research that led to the development of the field of communication.
Wi Qtr. 2 2-hr cl. Prereq: 806 or J Com 806 or permission of instructor. Not open to students with credit for J Com 807.

813 Public Opinion and Communication
Discusses the central role of communication in the concept of public opinion. Review research on influence of communication on public opinion direction and quality.
Prereq: Grad standing or permission of instructor. Not open to students with credit for J Com 813.

820 Foundations of Interpersonal Communication
Survey of historical and current trends in theory and research methodology; examination of various approaches to communication research.
2 2-hr cl. Prereq: 806 or J Com 806. Not open to students with credit for J Com 820.

830 Foundations of Organizational Communication
A survey course covering theory, methodological issues, environment, cultural issues and structures in organizational communication.
Prereq: 820 or J Com 820 and grad standing or permission of instructor. Not open to students with credit for J Com 830.

840 Mass Communication and the Individual
Survey of theory and research in mass communication dealing with psychological aspects of mass communication.
Prereq: 806 and grad standing or permission of instructor. Not open to students with credit for J Com 840.

841 Mass Communication and the Social System
Survey of mass communication theory at the macro or sociological level. Seminar covers social theories shaping media content and theories of media influence or effect.
Prereq: Grad standing or permission of instructor. Not open to students with credit for J Com 841.

850 Advanced Study in Communication Technology
Advanced Study in Communication Technology.
Prereq: 840 or J Com 840 and grad standing or permission of instructor. Not open to students with credit for J Com 850.

860 Seminar in Language and Social Interactions
Selected topics in language and social interaction.
Prereq: 806 or J Com 806 and grad standing or permission of instructor. Not open to students with credit for J Com 860.

870 Media, Campaigns, and Health
How mediated communication can influence human behavior and public policy in ways that can improve (or can negatively impact) human health and well-being.
Not open to students with credit for J Com 870.

871 Health Communication in Interpersonal Settings
This course will introduce students to the research and theories comprising contemporary literature in health communication in interpersonal settings.
Prereq: Grad standing or permission of instructor.

893 Individual Studies in Communication
Graduate students may register for individual study in areas not normally covered by courses, or to supplement credits in existing 800-level courses.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

894 Group Studies
Group Studies.
Prereq: Grad standing with written permission of instructor. Repeatable to a maximum of 20 cr hrs.

899 Interdepartmental Seminar
Two or more departments may collaborate in presenting seminars in subjects of mutual interest; topics to be announced.

900 Communication Colloquium
Weekly presentation and discussion of current research by faculty and students.
Au, Wi, Sp Qtrs. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

927 Theory Construction in Communication
The formal principles of theory and model construction function as criteria for examining the strengths and weaknesses of communication research models.

930 Seminar in Interpersonal Communication
Seminar in Interpersonal Communication.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

940 Seminar in Mass Communication
Advanced seminar in current research on mass communication.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.
### Comparative Studies

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Introduction to the Humanities: Cross-Cultural Perspectives</td>
<td>UGRD 5</td>
<td>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. 100H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC arts and hums lit course.</td>
</tr>
<tr>
<td>170</td>
<td>Science and Religion</td>
<td>UGRD 5</td>
<td>A philosophical examination of the relationship between science and religion, concentration on issues regarding the creation of the universe and the origins of life. Not open to students with credit for Philos 170. Cross-listed in Philosophy. GEC arts and humanities, cultures and ideas course.</td>
</tr>
<tr>
<td>201.01</td>
<td>Religious Studies: Literature and Religion</td>
<td>UGRD 5</td>
<td>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 110 or equiv. GEC arts and hums lit course.</td>
</tr>
<tr>
<td>201.02</td>
<td>Religious Studies: Comparative Sacred Texts</td>
<td>UGRD 5</td>
<td>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 110 or equiv. GEC arts and hums lit courses.</td>
</tr>
<tr>
<td>203</td>
<td>Literature and the Self</td>
<td>UGRD 5</td>
<td>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. 203H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110 or equiv. GEC arts and hums lit course.</td>
</tr>
<tr>
<td>204</td>
<td>Literature, Science, and Technology</td>
<td>UGRD 5</td>
<td>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. 204H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110 or equiv. GEC arts and hums lit course.</td>
</tr>
<tr>
<td>205</td>
<td>Literature and Ethnicity</td>
<td>UGRD 5</td>
<td>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 110 or equiv. GEC arts and hums lit, and social diversity course.</td>
</tr>
<tr>
<td>214</td>
<td>Introduction to Sexuality Studies</td>
<td>UGRD 5</td>
<td>This course will provide an introduction to sexuality studies through an interdisciplinary approach. To apply the knowledge learned, this course requires a fieldwork component. 2 2-hr cl. Prereq: English 110 or equiv. Not open to students with credit for Edu Paes 214. Cross-listed in Education: Physical Activity and Educational Services.</td>
</tr>
<tr>
<td>234</td>
<td>American Icons</td>
<td>UGRD 5</td>
<td>Interdisciplinary methods in American studies; emphasis on the plurality of identities in American culture. Prereq: English 110 or equiv. GEC arts and hums cultures and ideas, and social diversity course.</td>
</tr>
<tr>
<td>239</td>
<td>City and Country in America</td>
<td>UGRD 5</td>
<td>Interdisciplinary perspectives on the development, accuracy, and influence of popular images and stereotypes of city and country. Prereq: Soph standing and English 110 or equiv.</td>
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</table>

### Enduring Problems

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>240H</td>
<td>The Nature of Modernity: Key Ideas and Enduring Problems</td>
<td>UGRD 5</td>
<td>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 GEC arts and hums lit course.</td>
</tr>
<tr>
<td>241</td>
<td>Introduction to Asian American Studies</td>
<td>UGRD 5</td>
<td>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 110 or equiv. GEC arts and hums cultures and ideas, and social diversity course.</td>
</tr>
<tr>
<td>242</td>
<td>Introduction to Latino/a Studies</td>
<td>UGRD 5</td>
<td>Introduction to Latino/a studies; history, politics, and cultural production of Latino/a communities in the U.S. and its borderlands. Prereq: English 110 or equiv. GEC arts and hums cultures and ideas, and social diversity course.</td>
</tr>
<tr>
<td>243</td>
<td>Interdisciplinary Approaches to Race and Ethnicity in the Americas</td>
<td>UGRD 5</td>
<td>Introduction to race and ethnicity in the U.S.: how race and ethnicity have shaped American culture, social thought, social institutions and inter-group relations. Prereq: English 110 or equiv. Not open to students with credit for AI/Am&amp;AS 243, Cross-listed in African-American and African Studies. GEC social diversity course.</td>
</tr>
<tr>
<td>264</td>
<td>Reading Popular Culture</td>
<td>UGRD 5</td>
<td>Introduction to the analysis of popular culture texts, with special emphasis on the relationship between popular culture studies and literary studies. Prereq: English 110 or equiv. Not open to students with credit for English 264. Cross-listed in English. GEC arts and hums cultures and ideas course.</td>
</tr>
<tr>
<td>270</td>
<td>Introduction to Comparative Religion</td>
<td>UGRD 5</td>
<td>Introduction to the academic study of religion through comparison among major traditions (Judaism, Christianity, Islam, Hinduism, Buddhism, etc.) and smaller communities. 270H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110 or equiv. Not open to students with credit for Rel Stds 270. GEC arts and hums cultures and ideas course.</td>
</tr>
<tr>
<td>272</td>
<td>Science and Society</td>
<td>UGRD 5</td>
<td>Critical analysis of the multiple relations of science to society, with emphasis on knowledge, power, authority, values, and ethics. Prereq: English 110 or equiv. GEC arts and hums cultures and ideas course.</td>
</tr>
<tr>
<td>273</td>
<td>Introduction to World Literature</td>
<td>UGRD 5</td>
<td>Analysis of oral and written literatures of diverse cultures and historical periods. Prereq: English 110 or equiv. GEC arts and hums lit course.</td>
</tr>
<tr>
<td>274</td>
<td>Introduction to Comparative Cultural Studies</td>
<td>UGRD 5</td>
<td>Introduction to interdisciplinary field of cultural studies; emphasis on relation of cultural production to power, knowledge, and authority, globally and locally. Prereq: English 110 or equiv. GEC arts and hums cultures and ideas course.</td>
</tr>
<tr>
<td>275</td>
<td>Introduction to Visual Representation</td>
<td>UGRD 5</td>
<td>Analysis of the use of visual representation to generate and transmit ideas, information, and knowledge in contemporary culture. Prereq: English 110 or equiv. GEC arts and hums cultures and ideas course.</td>
</tr>
<tr>
<td>293</td>
<td>Individual Studies</td>
<td>UGRD 2-5</td>
<td>Designed to give students an opportunity for personal study with a member of the faculty. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>294</td>
<td>Group Studies</td>
<td>UGRD 1-5</td>
<td>Designed to give groups of students an opportunity to pursue special studies not otherwise offered. 294H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.</td>
</tr>
<tr>
<td>298.01</td>
<td>Study Tour: Domestic</td>
<td>UGRD 1-15</td>
<td>Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.</td>
</tr>
<tr>
<td>298.02</td>
<td>Study Tour: Foreign</td>
<td>UGRD 1-15</td>
<td>Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.</td>
</tr>
</tbody>
</table>
301 Love in World Literature UGRD 5
Representations of love in world literature; emphasis on mythological, psychological, and ideological aspects of selected representations in different cultures and time periods.
Prereq: Soph standing and English 110 or equiv. GEC arts and hums lit course.

305 Medicine and the Humanities UGRD 5
Humanistic, scientific, and clinical perspectives on medical issues; literary uses of medical themes; medicine as art and science.
Prereq: Soph standing and English 110 or equiv. GEC arts and hums cultures and ideas course.

306 The Quest in World Literature UGRD 5
Motif of the quest in world literature; physical and mental journeys as metaphors of personal transformation and salvation.
Prereq: English 110 or equiv. GEC arts and hums lit course.

308 Representations of the Experience of War UGRD 5
Representations of war in works of literature, religious texts, and film from diverse cultures and time periods.
Prereq: English 110 or equiv. GEC arts and hums lit course.

314 Women in East Asian and Asian-American Literature UGRD 5
Critical analysis of East Asian and Asian-American women's experience, examining gender and sexual differences in the distribution of political power and discourse.
Prereq: 270 or Rel Stds 270; or 202.01 or 202.02 recommended. Not open to students with credit for Rel Stds 321.

321 The Religions of India UGRD 5
History and structure of South Asian religions with attention to myth, ritual, art, philosophy, and social stratification.
Prereq: 270 or Rel Stds 270; or 202.01 or 202.02 recommended. Not open to students with credit for Rel Stds 321.

322 Native American Religions UGRD 5
Comparative survey of indigenous religions of North, Central, and South America; an patterns and diversity in religious experience, cosmologies, myths, rituals, social organizations, and sacred roles.
Prereq: 270 or Rel Stds 270; Comp Std 202.01 or 202.02 recommended. Not open to students with credit for Rel Stds 322.

323 The Buddhist Tradition UGRD 5
History and structure of Buddhism from founding to present in South, Southeast, and East Asia; emphasis on rituals, beliefs, and local and regional variations.
Prereq: 270 or Rel Stds 270; Comp Std 202.01 or 202.02 recommended. Not open to students with credit for Rel Stds 323.

324 African Religions UGRD 5
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.
Prereq: 270 or Rel Stds 270; Comp Std 202.01 or 202.02 recommended. Not open to students with credit for Rel Stds 324.

336 Cultural Studies of American Musics UGRD 5
Investigation of the social, political, and cultural contexts of the development of popular musics in the U.S.
Prereq: English 110 or equiv. GEC arts and hums visual and performing arts and social diversity course.

339 Transnationalism and Culture in the Americas UGRD 5
Transnationalism as a central feature of cultural and artistic production in the Americas, focusing on the politics of language, race, citizenship, migration, and national belonging.
Prereq: English 110 or equiv. GEC arts and hums cultures and ideas course.

345 South Asian American Religion and Culture UGRD 5
Historical overview and critical discussion of South Asian American identity; focus on religious identity, ethnicity, nationalism, globalization, gender.
Prereq: English 110 or equiv. GEC arts and hums cultures and ideas course.

357 Introduction to Globalization and Culture UGRD 5
History and contemporary dimensions of globalization, focusing on period preceding European hegemony, era of European colonialism, period of decolonization, and contemporary contexts.
Wi, Sp Qtrvs. Prereq: 2nd level standing or permission of instructor.

358 Film and Literature as Narrative Art UGRD 5
Relationships between film and literature; emergence of cinematic art as a form of representation with emphasis on diverse cultural traditions.
Prereq: 2nd level standing or permission of department or instructor. Prereq: 5 cr hrs in literature and English 110 or equiv. GEC arts and huns VPA and western (non-US) course.

367.01 Second Writing Course: American Identity in the World UGRD 5
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 110 or equiv; Math Placement Level R or above, or completion of or concurrent enrollment in GEC science sequence; and soph standing. GEC second writing and social diversity course.

367.02 Second Writing Course: Science and Technology in American Culture UGRD 5
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 110 or equiv; Math Placement Level R or above, or completion of or concurrent enrollment in GEC science sequence; and soph standing. GEC second writing and social diversity course.

367.03 Second Writing Course: Religious Diversity in America UGRD 5
Exploration of the concept of religious freedom and the position of minority religious groups in American society.
Prereq: English 110 or equiv, and soph standing. GEC second writing and social diversity course.

367.04 Second Writing Course: U.S. Latino/a Identity UGRD 5
Latino/a identity in the U.S.; emphasis on Latino/a cultural history and expression and role of race, class, gender, and sexuality in identity construction.
Prereq: English 110 or equiv, and soph standing. GEC second writing and social diversity course.

373 Translating Literatures and Cultures UGRD 5
Introduction to issues and problems inherent to translating literatures and cultures.
Prereq: English 110 or 110.01 or 110.02 or 110.03; minimum two quarters foreign language. GEC arts and huns cultures and ideas and diversity/international issues course.

376 The Jewish Mystical Tradition UGRD 5
The history of Jewish mysticism from antiquity to the present, with emphasis on its implications for the comparative study of religious experience.
Prereq: English 110 or equiv; Math Placement Level R or above, or completion of or concurrent enrollment in GEC science sequence; and soph standing. GEC second writing and social diversity course.

377 Contemporary Folklore in the Arab World UGRD 5
Study of contemporary folklore of the Arab world, including verbal art, material culture, visual self-presentation, and performance.
Prereq: English 110 or equiv. Not open to students with credit for Arabic 377. Cross-listed in Arabic. GEC arts and hums cultures and ideas course.

379 Approaches to Comparative Studies UGRD 5
Introduces comparative studies majors to theoretical tools, methods of investigation, and key concepts in comparative studies research and scholarship.
Prereq: English 110 or equiv, and comp std major; or permission of dept. Required for comp std majors.

470 Folklore of the Americas UGRD 5
Comparative study of folklore and folk groups of the Americas; topic varies: folk narratives, beliefs, customs, practices of Latino/a, Asian, African, Native, and Anglo cultures.
Prereq: English 110 or equiv. Repeatable to a maximum of 15 cr hrs.

475 Studies in Ethnography UGRD 5
Explores the history, theory, and methods of ethnographic study in different contexts (e.g., religious, ethnic, occupational groups).
Prereq: English 110.01, 110.02, 110.03 or equiv. Repeatable to a maximum of 10 cr hrs.

489 Research Internship in Comparative Studies UGRD 1-5
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: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

498.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.
498.02 Study Tour: Foreign \hspace{1cm} UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.

508 Utopia and Anti-Utopia \hspace{1cm} UGRD 5
Exploration and critique of utopian thinking in different historical and cultural contexts. Prereq: English 110 or equiv, and one course in comp std. Not open to students with credit for 208.

510 The 20th-Century Novel: Transnational \hspace{1cm} UGRD 5
Contexts
Analysis of 20th-century fiction from western and nonwestern traditions: issues include colonialism, post-colonialism, nationalism, capitalism, revolution, migration.

515 Gender, Sexuality, and Religion \hspace{1cm} UGRD 5
Examines intersections of gender, sexuality and religion in comparative and cross-cultural contexts.

520 Theory and Method in the Study of Religion \hspace{1cm} UGRD 5
Survey of contemporary theories and methods used in the academic study of religion. Sp Qtr. Prereq: Comp Std or Rel Stds 270 or equiv.

524H Varieties of Christianity \hspace{1cm} UGRD 5
Examines various expressions of Christianity, historically and cross-culturally. Readings are from different disciplines, including anthropology, archeology, religious studies, sociology.

525 Contemporary Religious Movements in Global Context \hspace{1cm} UGRD 5
Examines current religious movements within the context of larger political, cultural, and economic processes, including post-colonialism, modernization and globalization.

531 The City and Culture \hspace{1cm} UGRD 5
Introduction to the comparative and cross-cultural study of cities, urban culture, and urbanism.

535 Gender, Sexuality, and Science \hspace{1cm} UGRD 5
Examines the nature and societal implications of gender and science. Topics may include science policies, gender studies, sociological critiques of science and technology.

541 Myth and Ritual \hspace{1cm} UGRD 5
Myth, ritual, and literature: structural and thematic relationships. Prereq: 10 cr hrs in literature or grad standing or permission of instructor.

542 Native American Identity \hspace{1cm} UGRD 5
History and contemporary issues of American Indian Identity, primarily in U.S.; focus on American Indian authors, artists, and scholars. Not open to students with credit for this topic under 651 or 694.

543 Studies in Asian American Literature and Culture \hspace{1cm} UGRD 5
Focused study of a topic in Asian American literary and cultural studies. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in English 587.

544 Studies in Latino/a Literature and Culture \hspace{1cm} UGRD 5
Focused study of a topic in Latino/a literary and cultural studies. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in English 588.

545 Examinations of Race, Gender, Class, and Sexuality
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 AfrAm & AfrSt 270 or AfrAm & AfrSt 545. Cross-listed in African-American and African Studies and Women's Studies.

550 Wexner Center Seminar \hspace{1cm} UGRD 1-5
Seminar offered in conjunction with Wexner Center exhibitions, performance series, media series, or symposia; may be taught by visiting artists, performers, or critics. Arr. Repeatable to a maximum of 15 cr hrs. including cr hrs earned in Hist Art 500. Cross-listed in History of Art as 500.

553 World Literature: Theory and Practice \hspace{1cm} UGRD 5
Study of world literatures in theoretical, historical, and cultural contexts, with particular attention to translation, language, nationalism, globalization, and internationalism. Prereq: 273 or 373.

558.01 Topics in Literary Studies \hspace{1cm} UGRD 5
Concentrates on the "great debates" about literary theory--oral vs. written, etc.--through the critical study of literary acquisitive, practice or use, and consequences/commitments.

558.02 History of Literary Theory \hspace{1cm} UGRD 5
This course seeks to understand the history of literary theory by examining the influences from the world, and social changes' impacts on literary theory. Prereq: 10 credit hours of English or Comparative Studies courses at the 200 or 300-level or permission of instructor. Not open to students with credit for English 585. History will be cross-listing the 585.02 version of the class only. They will offer it as 585. English will cross-list both versions (585.01 and 585.02) of the class. Cross-listed with History 585 and English 563.

559.01 Issues of the Contemporary World: Global Culture
Explores relationships among culture, science, and technology in changing global contexts. Prereq: Jr or Sr standing; completion of GEC second writing course, quantitative and logical skills requirement, and natural science sequence; or permission of instructor; 367.02 recommended. Not open to students with credit for 597. GEC contemporary world courses.

559.02 Issues of the Contemporary World: Global Culture
Examines contemporary global cultural flows, the concepts useful in analyzing them, and the questions they raise about power and cultural change. Prereq: Jr or Sr standing. GEC contemporary world courses.

598 Senior Seminar in Comparative Studies \hspace{1cm} UGRD 5
Writing seminar based on students' independent research. Prereq: 398 and sr standing. GEC third writing course.

620 Approaches to the Study of Religion \hspace{1cm} UGRD 5
Survey and comparison of concepts, categories, theories, and methods used by various disciplines in the study of religion. Prereq: 270 or Rel Stds 270 or English 280 or Hebrew 273 or Philos 270 or grad standing or permission of instructor; 270 recommended. Not open to students with credit for Rel Stds 620.

641 The Japanese Religious Tradition \hspace{1cm} UGRD 5
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: Permission of instructor. Not open to students with credit for Rel Stds 641 or Japanese 641. Cross-listed in Japanese.

645 Studies in Korean-American Literature \hspace{1cm} UGRD 5
Critical study of Korean-American literature and literary genres of the twentieth century, with particular attention to historical, social and cultural contexts.

648 Studies in Orality and Literacy
Examination of theories of writing and oral composition and transmission, in juxtaposition to case material deriving from a variety of Middle Eastern cultures. Prereq: Permission of instructor. Not open to students with credit for NELC 648. Cross-listed in Near Eastern Languages and Cultures.

651 Topics in Comparative Studies \hspace{1cm} UGRD 5
Critical study of selected topics and themes in a comparative and cross-cultural perspective; emphasis on issues of method, critical theory, representation, power, knowledge, and authority. Prereq: One course in comp std or rel std; or grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

660 Modernity: Key Issues and Concepts \hspace{1cm} UGRD 5
Introduces key concepts and ideas defining modernity, focusing on how modernity has shaped recent and contemporary politics and culture, as well as discussions of globalization. Prereq: Jr standing or permission of instructor.

665 Studies in Japanese-American Literature \hspace{1cm} UGRD 5
Critical study of modern Japanese-American literature in historical and cultural context; topics vary: literature of the interment, gender and identity politics, genre studies, women's writing. Prereq: 10 cr hrs in any literature or grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in English 681.02 or Japanese 665. Cross-listed with English 681.02 and with Japanese 665.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisite</th>
<th>Repeatable</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>672</td>
<td>Poetry and Politics in the 20th-Century Mediterranean</td>
<td>UGRD 5</td>
<td>Exploration of several poets and poetic traditions around the Mediterranean in relation to modern political struggles: resistance to fascism; dilemmas of imperialism and underdevelopment.</td>
<td>Prereq: 5 cr hrs in Comp Std or grad standing or permission of instructor. Not open to students with credit for NELC 672. Cross-listed in Near Eastern Languages and Cultures.</td>
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<tr>
<td>677.01</td>
<td>Studies in World Folklore: Genres of Folk Literature</td>
<td>UGRD 5</td>
<td>Historical and cross-cultural study of genre theory; comparative study of specific genres of folk literature; e.g., fairy tales, folk tales, legends, epics, and jokes.</td>
<td>Prereq: English 270 or grad standing. Repeatable to a maximum of 10 cr hrs.</td>
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<tr>
<td>677.02</td>
<td>Studies in World Folklore: Themes in World Folklore</td>
<td>UGRD 5</td>
<td>Cross-cultural, cross-genre study of folklore themes; e.g., folklore of sex, folklore of religion; multidisciplinary perspective employs anthropological, psychological, and literary theory.</td>
<td>Prereq: English 270 or grad standing. Repeatable to a maximum of 10 cr hrs.</td>
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<tr>
<td>677.03</td>
<td>Studies in World Folklore: Folk Custom, Art, and Material Culture</td>
<td>UGRD 5</td>
<td>Study of folk customs, arts, and material culture; theoretical emphasis on structural affinities of these with other folk forms, including verbal art, ritual, festival, folk religion.</td>
<td>Prereq: English 270 or grad standing. Repeatable to a maximum of 10 cr hrs.</td>
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<tr>
<td>678</td>
<td>Studies in Chinese-American Literature</td>
<td>UGRD 5</td>
<td>Critical study of modern Chinese-American literature in historical and cultural context topics vary: gender issues, genre studies, women's writing.</td>
<td>Prereq: 10 cr hrs in any literature or grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in Chinese 678 or English 681.03. Cross-listed with Chinese 678 and with English 681.03.</td>
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<tr>
<td>693</td>
<td>Individual Studies</td>
<td>UGRD 1-10</td>
<td>Designed to give able students an opportunity to pursue special studies not otherwise offered.</td>
<td>Prereq: Jr standing and permission of chairperson. Not open to freshmen or sophomores. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.</td>
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<tr>
<td>694</td>
<td>Group Studies</td>
<td>UGRD 3-5</td>
<td>Special topics. Repeatable to a maximum of 15 cr hrs.</td>
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<tr>
<td>697</td>
<td>Study at a Foreign Institution</td>
<td>UGRD 1-15</td>
<td>An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.</td>
<td>Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (&quot;P&quot;) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.</td>
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<tr>
<td>698.01</td>
<td>Study Tour: Domestic</td>
<td>UGRD 1-15</td>
<td>Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.</td>
<td>Prereq: Permission of instructor. Repeatable for different titled study tours only.</td>
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<tr>
<td>698.02</td>
<td>Study Tour: Foreign</td>
<td>UGRD 1-15</td>
<td>Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.</td>
<td>Prereq: Permission of instructor. Repeatable for different titled study tours only.</td>
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<tr>
<td>699</td>
<td>Undergraduate Research in Comparative Studies</td>
<td>UGRD 1-15</td>
<td>Undergraduate research in variable topics.</td>
<td>Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.</td>
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<tr>
<td>706</td>
<td>Complex Ethnography</td>
<td>GRAD 5</td>
<td>Critical analysis of relationships among the researcher, object of research, framing knowledge, and political context of ethnographic work.</td>
<td>2 2-3 hr cr. Prereq: Grad standing or permission of instructor.</td>
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<tr>
<td>710</td>
<td>Approaches to Comparative Cultural Studies</td>
<td>GRAD 5</td>
<td>Historical perspectives on modernity and difference; introduction to issues and methods involved in situating and comparing authoritative discourses (literary, religious, scientific) and other cultural processes.</td>
<td>Au Qtr. Prereq: Grad standing or permission of instructor.</td>
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<tr>
<td>711</td>
<td>Approaches to Comparative Cultural Studies II</td>
<td>GRAD 5</td>
<td>Contemporary practices of contextualization and comparison; exploration of issues and methods involved in situating and comparing authoritative discourses (literary, religious, scientific) and other cultural processes.</td>
<td>Prereq: Grad standing or permission of instructor.</td>
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<tr>
<td>715</td>
<td>Theorizing America</td>
<td>GRAD 5</td>
<td>Interdisciplinary study of culture, identity, and representation in the U.S.</td>
<td>Prereq: Grad standing or permission of instructor.</td>
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<tr>
<td>716</td>
<td>Theorizing Culture</td>
<td>GRAD 5</td>
<td>The concept of culture as it has developed over time; emphasis on tension between descriptive and normative approaches.</td>
<td>Prereq: Grad standing or permission of instructor.</td>
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<tr>
<td>725</td>
<td>Theorizing Religion</td>
<td>GRAD 5</td>
<td>Relationships between religion and other domains in a cross-cultural, comparative framework with attention to theoretical models and particular texts and traditions.</td>
<td>Prereq: Grad standing or permission of instructor.</td>
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<tr>
<td>730</td>
<td>Theorizing Science and Technology</td>
<td>GRAD 5</td>
<td>Introduction to comparative and cultural studies of science and technology.</td>
<td>Prereq: Grad standing or permission of instructor.</td>
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<tr>
<td>739</td>
<td>Comparative Constitutional Politics</td>
<td>GRAD 5</td>
<td>Compares constitutions and constitutionalism across cultures and through different disciplines with special attention to how people make claims to secure their rights and interests.</td>
<td>Prereq: Grad standing or permission of instructor. Not open to students with credit for History 739. Cross-listed in History.</td>
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<tr>
<td>741</td>
<td>Theorizing Genre</td>
<td>GRAD 5</td>
<td>Comparative studies of genre theory and specific genres (e.g., epic, novel, autobiography, film genres) in cultural context.</td>
<td>Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.</td>
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<tr>
<td>752</td>
<td>Race and Citizenship: Formations in Critical Race Theory</td>
<td>GRAD 5</td>
<td>Critical analysis of concepts of law, e.g., a value-free legal code, universality of legal concepts, equitable enforcement; emphasis on U.S.</td>
<td>Prereq: Grad standing or permission of instructor.</td>
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<tr>
<td>760</td>
<td>Theorizing Performance</td>
<td>GRAD 5</td>
<td>Advanced introduction to field of performance studies; theory and practice of expressive social behaviors, including theatre, dance, ritual, sports, and embodied practices of everyday life.</td>
<td>Prereq: Grad standing or permission of instructor.</td>
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<tr>
<td>770.01</td>
<td>Intro to Grad Study in Folklore: Genres and Interpretive Methods</td>
<td>GRAD 5</td>
<td>First of a two-course sequence in current scholarship and methods necessary for advanced study in folklore. Introduction to the canonical folklore genres and practice and methods in the interpretation of folklore in context.</td>
<td>Prereq: Grad standing or permission of instructor. Advanced undergrads may be admitted with permission of instructor. Not open to students with credit for English 770.01. Cross-listed in English.</td>
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<tr>
<td>770.02</td>
<td>Intro to Grad Study in Folklore: Field Research</td>
<td>GRAD 5</td>
<td>Second of a two-course sequence in current scholarship and methods necessary for advanced study in folklore. Introduction to ethnographic research design, participant observation and interview methods, ethics in human subject research, archiving of research materials, and ethnographic writing.</td>
<td>Prereq: Grad standing or permission of instructor. 770.01 or English 770.01 recommended. Not open to students with credit for English 770.02. Cross-listed in English.</td>
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<tr>
<td>770.03</td>
<td>Intro to Grad Study in Folklore: The Ethnography of Communication</td>
<td>GRAD 5</td>
<td>Ethnographic approaches to social interaction and performance; the speech community; the communicative economy.</td>
<td>Prereq: Grad standing. Cross-listed in English.</td>
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<tr>
<td>781</td>
<td>Studies in Women's History</td>
<td>GRAD 5</td>
<td>An intensive reading course designed to prepare graduate students in women's history in a comparative framework.</td>
<td>Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs. including cr hrs earned in History 781. Cross-listed in History.</td>
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<td>783H</td>
<td>Honors Research</td>
<td>UGRD 5-10</td>
<td>50</td>
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<td>790</td>
<td>Foundations of Contemporary Critical Theory</td>
<td>GRAD 5</td>
<td>Theory</td>
<td>Interdisciplinary survey of the theoretical bases of major contemporary approaches to the study of literature; readings in Marx, Freud, Derrida, Cixous, and others. Prereq: Jr or sr or grad standing. Cross-listed in English, French, German, Italian, and Spanish.</td>
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<td>792</td>
<td>Interdepartmental Studies in the Humanities</td>
<td>UGRD 3-5</td>
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<td>798</td>
<td>Thesis Seminar</td>
<td>GRAD 3</td>
<td>Writing seminar for second-year students in the comparative studies graduate program</td>
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<td>820</td>
<td>Comparative Sacred Architecture</td>
<td>GRAD 5</td>
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<td>825</td>
<td>Sacred Biography and the Cult of the Saints</td>
<td>GRAD 5</td>
<td>Issues and problems in the study of sacred biography and the cult of the saints in both Christian and cross-cultural contexts.</td>
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<td>826</td>
<td>Religion and Sexuality</td>
<td>GRAD 5</td>
<td>Relationships between religion and sexuality in a cross-cultural, comparative framework with attention to theoretical models as well as particular texts and traditions.</td>
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<tr>
<td>827</td>
<td>Religion and Politics</td>
<td>GRAD 5</td>
<td>Explores relationships across political and religious institutions and practices; topics vary. Repeatable to a maximum of 15 cr hrs.</td>
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<td>830</td>
<td>Science and Difference</td>
<td>GRAD 5</td>
<td>Explores scientific constructions of difference (racial, gender, sexual, cultural) and the consequences of difference for the making of science.</td>
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<td>841</td>
<td>Women's Autobiographical Writing</td>
<td>GRAD 5</td>
<td>Maps diverse modes and practices of women's life writing by considering both theoretical works and autobiographical writing.</td>
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<td>845</td>
<td>Literature in Global Contexts</td>
<td>GRAD 5</td>
<td>Discussion of literary texts, cultural-political documents, and theoretical discourses in global contexts. Repeatable to a maximum of 15 cr hrs.</td>
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<td>850</td>
<td>Wexner Center Seminar</td>
<td>GRAD 1-5</td>
<td>Graduate seminar offered in conjunction with Wexner Center exhibitions, performance series, media series, or symposia; may be taught by visiting artists, performers, or critics. Arr. Repeatable to a maximum of 15 cr hrs.</td>
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<td>862</td>
<td>Performance and Politics</td>
<td>GRAD 5</td>
<td>Analyzes role of performance in relation to political processes and cultural production. Repeatable to a maximum of 15 cr hrs.</td>
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<td>880</td>
<td>Culture and Capital</td>
<td>GRAD 5</td>
<td>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 15 cr hrs.</td>
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<td>890</td>
<td>Interdepartmental Studies in Critical Theory</td>
<td>GRAD 5</td>
<td>Interdisciplinary study of a movement (phenomenology, deconstruction, etc.) or problem (intentionality, evaluation, etc.) in literary theory. Repeatable to a maximum of 10 cr hrs. Background in critical theory recommended. Cross-listed in English, French, German, Spanish, and Women's Studies.</td>
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<td>996</td>
<td>Research in Comparative Studies: Candidacy Examination</td>
<td>GRAD 1-18</td>
<td>Research in preparation for Ph.D. exams. Su, Au, Wi, Sp Qtrs. Prereq: Permission of graduate studies chair. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
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<td>998</td>
<td>Research in Comparative Studies: Thesis</td>
<td>GRAD 1-18</td>
<td>Research for master's thesis. Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.</td>
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<td>100</td>
<td>Introduction to Computing Technology</td>
<td>UGRD 3</td>
<td>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 computer programming. Su, Au, Wi, Sp Qtrs. 1-3 hr lec. Not open to students with credit for 101 or 200.</td>
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<td>200</td>
<td>Computer Assisted Problem Solving for Business</td>
<td>UGRD 5</td>
<td>Problem solving emphasizing spreadsheets and conditional logic; using productivity software; relational databases; word processing; data presentation; graphics. Su, Au, Wi, Sp Qtrs. 1-3 hr lec, 1-2 hr lab. Prereq: Mathematics placement level R or higher; or Math 075 or higher. Not open to students with credit for 206. GEC course.</td>
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<td>201</td>
<td>Elementary Computer Programming</td>
<td>UGRD 4</td>
<td>Introduction to computer programming and to problem solving techniques using computer programs; programming lab experience. Su, Au, Wi, Sp Qtrs. 1-3 hr lec, 1-2 hr lab. Java is taught.</td>
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<td>202</td>
<td>Introduction to Programming and Algorithms for Engineers and Scientists</td>
<td>UGRD 4</td>
<td>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. Su, Au, Wi, Sp Qtrs. 1-3 hr lec, 1-1 hr lab. Prereq: Math 151. C++ is taught.</td>
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<td>203</td>
<td>Computational Thinking in Context: Interactive Animations and Games</td>
<td>UGRD 4</td>
<td>Introduction to computational thinking, focusing on problem solving and programming concepts and skills needed to create interactive graphics, animations, and games; creativity and imagination encouraged. Au, Wi, Sp Qtrs. 1-3 hr lec, 1-1 hr lab. Recommended for students with little or no programming experience or who are not confident in their programming background.</td>
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<td>204</td>
<td>Computational Thinking in Context: Digital Images and Sound</td>
<td>UGRD 4</td>
<td>Introduction to computational thinking, focusing on problem solving and programming concepts and skills needed to manipulate digital images and sound; creativity and imagination encouraged. Au, Wi, Sp Qtrs. 2-1 hr lec, 2-1 hr lab. Recommended for students with little or no programming experience or who are not confident in their programming background.</td>
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<td>205</td>
<td>Computational Thinking in Context: Science and Engineering</td>
<td>UGRD 4</td>
<td>Introduction to computational thinking, focusing on problem solving and programming concepts and skills using examples from science and engineering. Au, Wi, Sp, Su Qtrs. Prereq: Math 151 or equivalent. Not open to students with credit for CSE294P. *Recommended for students with little or no computer programming experience. *Primarily targeted at undergraduate students majoring in science/engineering disciplines. *MATLAB is taught.</td>
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214 Data Structures for Information Systems UGRD 4
Subroutines and modular programming; searching; basic data structures; recursion; introduction to sequential files. Su, Au, Wi, Sp Qtrs. 3 cl; 1.5 hrs lab. Prereq: 201. Java is used.

215 Introduction to Object-Oriented Programming UGRD 4
Introduction to object-oriented programming; encapsulation using classes, inheritance etc.; basic data structures. Su, Au, Wi, Sp Qtrs. 3 cl; 1 hr lab. Prereq: 202 or equiv. Not open to Cptr/Inf majors. C++ is taught.

221 Software Development Using Components UGRD 4
Component-based software from client programmer's perspective; intellectual foundations of software engineering; mathematical modeling; specification of object-oriented components; layering; testing and debugging layered operations. Su, Au, Wi, Sp Qtrs. 3 cl, 1 hr lab. Prereq: Math 151 or 161/H161 or H190; 201 or 202 or 203 or 204 or En Graph 167 or Engineer H192 or CS&E Placement Level A. RESOLVE/C++ is taught.

222 Development of Software Components UGRD 4
Templates for generalization and decoupling; container components; component-based software from implementer's perspective; data representation using layering and using pointers. Su, Au, Wi, Sp Qtrs. 3 cl; 1 hr lab. (H222: Sp Qtr.) H221H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 221. RESOLVE/C++ is used.

230 Introduction to C++ Programming UGRD 4
Introduction to programming in C++ and object-oriented programming; encapsulation using classes, inheritance etc.; basic data structures. Su, Au, Wi, Sp Qtrs. 3 cl, 1 hr lab. Prereq: 201, 202, or En Graph 167 or equiv. Not open to Cptr/Inf majors.

294 Group Studies UGRD 1-5
This course is designed to give the student an opportunity to pursue special studies not otherwise offered. Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 15 cr hrs.

314 Business Programming with File Processing UGRD 4
Business data processing principles and programming; sequential file processing. Su, Au, Wi, Sp Qtrs. Weekly class, 1 hr lab. Prereq: Math 151 or 161/H161 or H190; 201 or 202 or 203 or 204 or En Graph 167 or Math 345. RESOLVE/C++ is used.

321 Case Studies in Component-Based Software UGRD 4
Case studies using: tree and binary tree components and binary tree searches; context-free grammars; tokenizing, parsing, and code generating components; sorting components and sorting algorithms. Su, Au, Wi, Sp Qtrs. 3 cl; 1 hr lab. Prereq: 222/H222. Prereq or concur: Math 366 or Math 345. RESOLVE/C++ is used.

360 Introduction to Computer Systems UGRD 4
Introduction to computer architecture at the machine language and assembler language level; assembler language programming and lab. Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 214 or 222/H222.

421 Software Development in Java UGRD 3
Introduction to professional software development in Java; tools for coding, testing, version control, documentation; language-specific best practices stemming from principles of component-based design. Prereq: 321.

459.11 Programming Languages for Programmers: UGRD 1
The UNIX Programming Environment
Introduction to the UNIX programming environment including: shell programming (sh); regular expressions; makefiles; grep, sed, and awk programming languages. Wi Qtr. 1 cl. Prereq: 321. This course is intended for experienced programmers who wish to learn an additional language. All are 1-hr lectures. This course is graded S/U.

459.21 Programming Languages for Programmers: UGRD 1
Programming in C
Programming in C. Au, Wi, Sp Qtrs. Prereq: 314 or 321. This course is intended for experienced programmers who wish to learn an additional language. All are 1-hr lectures. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

459.22 Programming Languages for Programmers: UGRD 1
Programming in C++
Elementary language constructs of C++ for students well versed in programming. Su, Au, Wi, Sp Qtrs. Prereq: 321. This course is intended for experienced programmers who wish to learn an additional language. All are 1-hr lectures. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

459.23 Programming Languages for Programmers: UGRD 1
Programming in JAVA
Elementary language constructs of JAVA for students who are well versed in programming. Su, Au, Wi, Sp Qtrs. 1 cl. Prereq: 321. This course is intended for experienced programmers who wish to learn an additional language. All are 1-hr lectures. This course is graded S/U.

459.24 Programming Languages for Programmers: UGRD 1
Programming in C#
Elementary language constructs of C# for students who are well versed in programming. Wi Qtr. Prereq: 321. Not open to students with credit for 494R.

459.31 Programming Languages for Programmers: UGRD 1
Programming in LISP
Programming in LISP. Sp Qtr. Prereq: 314 or 321. This course is intended for experienced programmers who wish to learn an additional language. All are 1-hr lectures. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

459.41 Programming Languages for Programmers: UGRD 1
Programming in COBOL
Programming in COBOL. ^ Au Qtr. Prereq: 321. Not open to students with credit for 314. This course is intended for experienced programmers who wish to learn an additional language. All are 1-hr lectures. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.

459.51 Programming Languages for Programmers: UGRD 1
Programming in Perl
Basic syntax of the Perl programming language; several common applications including text and file processing. Sp Qtr. 1 cl. Prereq: 321. This course is intended for experienced programmers who wish to learn an additional language. All are 1-hr lectures. This course is graded S/U.

489 Professional Practice in Industry UGRD 2
Preparation and submission of a comprehensive report based on actual employment experience in a co-op job in industry. Su, Au, Wi, Sp Qtrs. Prereq: Admission to co-op program in CS&E. Repeatable to a maximum of 8 cr hrs. Cr hrs to be used as free electives only. This course is graded S/U.

493 Individual Studies UGRD 1-5
Planning, conducting, and reporting a special study appropriate to the needs of the student. Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

494 Group Studies UGRD 1-5
Designed to give the student an opportunity to pursue special studies not otherwise offered. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

502 Object-Oriented Programming for Engineers and Scientists UGRD 3
Introduction to object-oriented programming for experienced procedural programmers with applications from engineering and science; interfaces, classes, packages, implements and extends relationships; design patterns. Au Qtr. 3 cl. Prereq: Math 152 or equiv; En Graph 167 or 202 or equiv; additional programming experience. Not open to students with credit for 321 or 694J. Java is taught. May not be used as a technical elective by CS&E majors.

516 Information Systems Analysis and Design UGRD 4
Introduction to information systems development; tools of structured analysis; data flow diagrams, data dictionary, process descriptions; students develop user specifications in a term project. ^ Au, Sp Qtrs. 3 cl, 1-3 hr lab. Prereq: 314 and Math 366.

541 Elementary Numerical Methods UGRD 3
Survey of basic numerical methods; number systems and errors of finite representation, solution of a single non-linear equation, interpolation, numerical integration, and solution of linear systems. Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 221/H221 or 230 or 502; Math 153.

551 Introduction to Information Security UGRD 3
Introduction to security of digital information including: threats, regulations, risk management, attack detection and response, cryptography, forensics, and technical training and certification. Wi, Sp Qtrs. 3 cl. Prereq: 314 or 321 or 502 or Actu&MIS 531 or equiv, and second writing course; or permission of instructor.
560 Systems Software Design, Development, and Documentation UGRD 5
Software engineering as applied to various classical computer systems programs; assemblers, macroprocessors, loaders; major project involving the design and implementation of computer software; computer lab experience.
Su, Au, Wi, Sp Qtrs. 4 cl. Prereq: 314 or 321 and 360 or ECE 265, and a second writing course.

570 File Design and Analysis UGRD 3
Random file processing; file organization and access methods; time and space considerations. Introduction to relational database systems.
^ Au, Wi Qtrs. 3 cl. Prereq: 314 or 321, and Math 366.

581 Interactive Computer Graphics UGRD 4
Introduction to interactive graphics programming, Graphics APIs, display hardware, graphics processing pipeline (geometry processing, rasterization, texture mapping, etc.), geometric modeling, image formats, color theories.
Au, Wi, Sp Qtrs. 3 cl. Prereq: 222 or 230 or 502.

601 Social and Ethical Issues in Computing UGRD 1
Social, ethical, and legal issues facing computing professionals; ethical principles; discussion of case studies.
Wi, Sp Qtrs. 1 1.5-hr cl. Prereq: 560.

612 Introduction to Cognitive Science UGRD 3
Cognitive science is an interdisciplinary study of the nature of human thought psychological, philosophical, linguistic, and artificial intelligence approaches to knowledge representation.
^ Au, Wi, Sp Qtrs. 2 1.5-hr cl. Prereq: Permission of instructor and a total of 12 cr hrs from at least two of the following areas: computer science, linguistics, philosophy, art psychology. Not open to students with credit for Linguist 612, Philos 612 or Psych 612. Cross-listed in Linguistics, Philosophy, and Psychology.

616 Object-Oriented Systems Analysis UGRD 4
Information systems analysis; object-oriented analysis models and tools; use cases, system modeling using UML; requirements specification development; term project.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 670 and Math 366; or grad standing in CS&E. Not open to students with credit for 516 or 694E.

621 Introduction to High-Performance Computing UGRD 3
High-performance computer architecture, scientific/engineering computation, development of parallel programs, parallelization overheads; performance evaluation.
Au Qtr. 3 cl. Prereq: 541; Math 568 or Math 571 or Math 601. Course is well suited to grad students from science/engineering in addition to CS&E students.

625 Introduction to Automata and Formal Languages UGRD 3
Machine-based and grammatical models of computation: finite automata and regular languages, pushdown automata and context-free languages.
Au, Wi, Sp Qtrs. 3 cl. 625H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 321; Math 366 or Math 345; Honors section offered Wi Qtr.

630 Survey of Artificial Intelligence I: Basic Techniques UGRD 3
A survey of the basic concepts and techniques, problem solving, and knowledge representation, including an introduction to expert systems.
Au, Wi, Sp Qtrs. 3 cl. Prereq: 222/3222 or 230 or 502; Math 366.

634 Computer Vision for Human-Computer Interaction UGRD 3
Computer vision algorithms for use in human-computer interactive systems. Topics include image formation, image features, segmentation, shape analysis, object tracking, motion calculation, and applications.
Au Qtr. 3 cl. Prereq: 630 or ECE 352; Math 568 or 571; or permission of instructor.

640 Numerical Analysis UGRD 3
Analysis of numerical methods for ordinary differential equations, boundary value, an characteristic value problems, splines, non-linear equations, approximation of functions; standard mathematical software libraries.
^ Wi Qtr. 3 cl. Prereq: 221 or equiv; Math 255 or 415; and 541 or grad standing.

642 Numerical Linear Algebra UGRD 3
Iterative methods for the solution of linear systems, computation of eigenvalues and eigenvectors, linear programming-simplex method, use of standard mathematical software libraries.
^ Au Qtr. 3 cl. Prereq: 541; Math 568 or 571.

651 Network Security UGRD 3
An introduction to network security; security threats, services, protocols, verification and design, architectures, technologies, testing advances; elements of cryptography; securing network systems and applications.
Sp Qtr. 3 cl. Prereq: 677.

652 Applied Information Security Project UGRD 4
Team projects: solve information security challenges (network hardening, intrusion detection and vulnerability scanning, forensics) in virtual server environment; results communicated through report writing and presentation.
Au Qtr. Prereq: 560, 551 or 677; or grad standing.

655 Introduction to the Principles of Programming Languages UGRD 4
Programming language concepts such as grammars and parse trees; interpretation versus compilation, binding, and scope rules; and language constructs for control and data abstraction.
Su, Au, Wi, Sp Qtrs. 3 cl. 1.3-hr lab. Prereq: 560 and 625.

660 Introduction to Operating Systems UGRD 3
Operating system concepts: memory management, process management, and file management; sample operating systems.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 560; 675 or ECE 662; Stat 427.

662 Operating Systems Laboratory UGRD 3
Construction of operating system components: scheduling, context switching, process management, message passing, memory management, interrupt processing.
Wi Qtr. 2 cl, 2 1.5-hr lab. Prereq: 459.21 and 660. Lab assignments are programmed in C.

668 Applied Component-Based Programming for Engineers and Scientists UGRD 3
Application of component-based software engineering technology to design and implementation of software systems in engineering and science.
Wi Qtr. 3 cl. Prereq: 502 or 560. Not open to students with credit for 768 or ECE 768. Cross-listed in Electrical Engineering.

670 Introduction to Database Systems I UGRD 3
Database systems use, logical database design, entity-relationship model, database normalization, query languages and SQL, relational algebra, and relational calculus; database design project.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 314 or 222 or 230 or 502; Math 366 or Math 345.

671 Introduction to Database Systems II UGRD 3
Object-oriented and extended relational database systems; data warehousing; active databases; GUI interface to a relational database system; introduction to data and file storage.
Au, Wi Qtrs. 3 cl. Prereq: 670.

673 Database and Information Management for Manufacturing UGRD 3
File and data management, information flow in manufacturing, handling of geometric data for CAD/CAM/CAE, and communication between different computer systems.
^ Sp Qtr. Prereq: 221 or permission of instructor. Not open to CS&E majors. Open to students in Manufacturing Systems and Engineering Program.

674 Introduction to Data Mining UGRD 3
Introduction to the knowledge discovery process, key data mining techniques, efficient high performance mining algorithms, and exposure to applications of data mining.
Sp Qtr. 3 cl. Prereq: 670; 680; or permission of instructor.

675.01 Introduction to Computer Architecture UGRD 3
Computer system components, instruction set design, hardwired control units, arithmetic algorithms/circuits, floating-point operations, introduction to memory and I/O interfaces.
Au, Wi, Sp Qtrs. 3 cl. Prereq: 360 or ECE 265; Math 366; ECE 261. Not open to students with credit for 675 or 675.02. Intended for students with previous knowledge of Digital Logic Design.

675.02 Introduction to Computer Architecture UGRD 4
Computer system components, instruction set design, hardwired control units, arithmetic algorithms/circuits, floating-point operations, introduction to memory and I/O interfaces.
Su, Au, Sp Qtrs. 4 cl. Prereq: 360 or ECE 265; Math 366. Not open to students with credit for 675 or 675.01. Intended for students without previous knowledge of Digital Logic Design.

676 Microcomputer Systems UGRD 3
Bus structure; memory, interrupt, and I/O design; case studies on microprocessors and systems with emphasis on selection, evaluation, and applications based on their architectural features.
Sp Qtr. 3 cl. Prereq: 675 or ECE 662.

677 Introduction to Computer Networking UGRD 3
Data communications, network architectures, communication protocols, data link control, medium access control, introduction to local area networks, metropolitan area networks, and wide area networks; introduction to Internet and TCP/IP.
Au, Wi, Sp Qtrs. 3 cl. Prereq: Physics 112 or 132; 360 or ECE 265; 459.21. Lab assignments are programmed in C.

678 Internetworking UGRD 3
High-speed local area networks, metropolitan area networks, bridges, routers, gateways, TCP/IP, application services, network management.
Wi Qtr. 3 cl. Prereq: 660 and 677.
679 Introduction to Multimedia Networking UGRD 3
Introduction to multimedia data types, multimedia compression technologies World-Wide Web architectures, proxies, streaming video technologies, and network adaptation to multimedia.
Au Qtr. 3 cl. Prereq: 677.

680 Introduction to Analysis of Algorithms and Data Structures UGRD 3
Performance analysis considerations in design of algorithms and data structures; asymptotic analysis, recurrence relations, probabilistic analysis, divide and conquer; searching, sorting, and graph processing algorithms.
Su, Au, Wi, Sp Qtr. 3 cl. 600H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 560 or 668 or ECE 668; Stat 427; Math 566.

681 Introduction to Computer Graphics UGRD 4
Introduction to display hardware and applications, interactive techniques, 2D scan conversion, 2D and 3D transformations, clipping, 3D viewing, introduction to visible surface algorithms and illumination models.
Au, Wi Qtrs. 3 cl. Prereq: 560; 581; or grad standing.

682 Computer Animation UGRD 4
Survey of computer animation algorithms and techniques; interpolation, path following, quaternions, object deformations, forward/inverse kinematics, rigid body dynamics, particle systems flocking, autonomous behavior, L-systems.
Wi Qtr. 2-2 hr cl. Prereq: 541; 560; 581 or 681; 601. Not open to students with credit for 694F.

683 Computer Animation - Algorithms and Techniques UGRD 4
Survey of various algorithms and techniques used in computer animation, including interpolation-based techniques, forward and inverse kinematics, physics-based simulation, motion capture, and behavioral animation.
Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

693 Individual Studies UGRD 1-5
Designed to give the student an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-5
Designed to give the student an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 15 cr hrs.

699 Undergraduate Research in Computer Science and Engineering UGRD 1-5
Opportunity for undergraduate student to conduct research in Computer Science and Engineering.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

721 Introduction to Parallel Computing UGRD 4
Principles and practice of parallel computing; design, implementation, and evaluation of parallel programs for shared-memory architectures, local-memory architectures, and vector processors.
Wi Qtr. 3 cl, 1-3 hr lab. Prereq: 621. Lab assignments given.

723 Introduction to Cryptography GRAD 3
Symmetric-key encryption, cryptographic hash functions, message authentication, public-key cryptography, discrete logarithm-based cryptography, elliptic curve cryptography, digital signatures, elementary cryptographic protocols.
Sp Qtr. Prereq: 625 or 651 or 680 or Math 573; Stat 427 or Math 530; or permission of instructor.

725 Computability and Unsolvability UGRD 3
Time and space measures; Turing machine variants and RAM's; universal Turing machines; undecidable language problems; development of efficient algorithms.
Wi, Sp Qtrs. 3 cl. Prereq: 625.

727 Computational Complexity UGRD 3
Time and space complexity classes and hierarchies; deterministic and nondeterministic log space; polynomial time; polynomial space; complete and provably hard problems; random polynomial time.
* Au Qtr. 3 cl. Prereq: 725 and 780.

730 Survey of Artificial Intelligence II: Advanced Topics UGRD 3
A survey of advanced concepts, techniques, and applications of artificial intelligence, including knowledge-based systems, learning, natural language understanding, and vision.
Au Qtr. 3 cl. Prereq: 630.

731 Knowledge-Based Systems UGRD 4
Theory and practice of expert systems and knowledge-based systems; use of current knowledge-based systems software tools.
Sp Qtr. 3 cl, 1-3 hr lab. Prereq: 560; 601; or grad standing.

732 Computational Linguistics UGRD 4
Computational techniques for understanding and producing natural language, investigating the structure and meaning of sentences and connected discourse. Symbolic and probabilistic techniques are discussed.
* Sp Qtr. 3 cl. Prereq: 630, 625 or Linguisit 684.01, Linguist 201, or permission of instructor. This course includes programming assignments. Students are expected to be proficient in at least one programming language in order to succeed in the course. Offered only even numbered years.

733 Foundations of Spoken Language Processing UGRD 3
Fundamentals of automatic speech recognition and speech synthesis; lab projects concentrating on building systems to process speech.
Sp Qtr. 2.5-3 hr cl. Prereq: 625 or Linguist 484; 630; 730 or Stat 428. Offered in even-numbered years.

737 Proseminar in Cognitive Science UGRD 2
An in-depth examination of the interdisciplinary field of Cognitive Science; emphasizes fundamental issues of each discipline, provides illustrations of representative research being conducted at OSU.
* Sp Qtr. 1.5-2 hr cl. Prereq: 612, Linguist 612, Psych 612, or Philos 612, or permission of instructor. Repeatable to a maximum of 4 cr hrs. Cross-listed in Industrial Systems Engineering, Linguistics, Philosophy, Psychology, and Speech and Hearing Science.

739 Knowledge-Based Systems in Engineering UGRD 3
Application of knowledge-based system principles to engineering problems, including practical knowledge engineering, techniques for problem assessment, and implementation.
* Sp Qtr. 2.5-3 hr cl. Prereq: 630 or permission of instructor. Cross-listed in Civil Engineering and Nuclear Engineering.

741 Comparative Operating Systems UGRD 3
A careful examination of a number of representative computer operating systems.
Su Qtr. 3 cl. Prereq: 660 or equiv.

755 Programming Languages UGRD 3
Procedural abstraction, data abstraction, control abstraction (non-determinism, concurrency, etc.), operational semantics, denotational semantics, specification, and verification of programs.
Wi, Sp Qtrs. 3 cl. Prereq: 655 and Math 366.

756 Compiler Design and Implementation UGRD 4
Syntactic and semantic analysis using formal models, automatic programming, generation of optimal code, synthesis of messages, design of incremental programming environments; students write a simple translator.
Sp Qtr. 3 cl. Prereq: 459.21, 625, 655, and 680. Lab assignments are programmed in C.

757 Software Engineering UGRD 3
Principles of design, implementation, validation, and management of computer software; emphasis on reading and discussing papers from relevant journals and proceedings; term project required.
Su, Au, Wi Qtrs. 3 cl. Prereq: 560 or equiv and or grad standing or permission of instructor.

758 Software Engineering Project UGRD 4
Principles and applications of programming team organization, cost estimation, scheduling, requirements analysis, design, documentation, programming-in-the-large, group reviews, testing, and debugging.
Au, Sp Qtrs. 3 cl, 3-hr lab. Prereq: 757; 601.

760 Operating Systems UGRD 3
Advanced operating system concepts: process synchronization, process deadlock, security and access control, distributed operating system principles and prototypes.
Au, Wi Qtrs. 3 cl. Prereq: 660 or equiv.

762 Web-Services-Based Distributed Systems UGRD 4 Project
Construction of a significant distributed software system using web services; team-based implementation of non-trivial algorithm(s) and realistic user interface.
Sp Qtr. 3 cl. Prereq: 601; 660; 662 or 677 or 760. Lab assignments are programmed in C.

763 Introduction to Distributed Computing UGRD 3
Concepts and mechanisms in design of distributed systems; process synchronization, global state: reliability; distributed resource management; deadlock, performance evaluation; representative distributed operating systems.
Sp Qtr. 3 cl. Prereq: 760.

765 Management Information Systems UGRD 3
Theory and practice of management information systems from the viewpoint of computer and information science; systems approach to management and organization significance of information.
* Wi Qtr. 3 cl. Prereq: Grad standing in CS&E or permission of instructor.
767 Applied Use-Case-Driven Object-Oriented UGRD 3
Analysis and Design for Engineers and Scientists
Case study using incremental and iterative use-case-driven process of building object-oriented scientific and engineering software systems; analysis, design, UML modeling design patterns.
* Sp Qtr. 3 cl. Prereq: 668 or ECE 668. Not open to students with credit for ECE 767. Cross-listed in Electrical and Computer Engineering. Odd years.
769 Applied Enterprise Distributed Computing UGRD 3
for Engineers and Scientists
Industry-standard technologies for enterprise distributed computing, especially in engineering and scientific contexts; Java-based technologies, XML, Web Services. Sp Qtr. 2 1.5-hr cl. Prereq: 660; 668 or ECE 668. Not open to students with credit for Cprl/Inf/Elec Eng 894X, CS&E 794R or ECE 694R or ECE 769. Cross-listed in Electrical and Computer Engineering.
770 Database System Implementation UGRD 3
Fundamental design considerations, system principles and machine organizations of database systems; performance analysis of design alternatives, system configurations and hardware organizations; query and transaction processing. Wi Qtr. 3 cl. Prereq: 660; 670; 671 or grad standing in CS&E.
772 Information System Project UGRD 4
Information system design and development principles: requirement analysis, database design methods and tools, process design, application development tools, testing, evaluation and documentation. Group term project. Wi Qtr. 3 cl. Prereq: 560; 616 or 737; 601; 670.
775 Computer Architecture UGRD 3
Microprogramming, bit-slice logic, reduced instruction set computer architecture, advanced memory organizations, introduction to parallel computer architectures, and performance models/evaluation. Au, Sp Qtrns. 3 cl. Prereq: 660; 675 or ECE 662.
776 Hardware/Software Interface Design UGRD 4
Project
Principles and application of hardware and software design: design, programming, testing, and evaluation of an autonomous mobile robot system.
* Sp Qtr. 3 cl. Prereq: 459.21; 601; 660; ECE 567 or 329; or permission of instructor.
777 Telecommunication Networks UGRD 3
778 Computer-Aided Design and Analysis of VLSI Circuits
VLSI design methodology; specification of VLSI circuits at various levels of abstraction; design, layout, and computer simulation of circuits; high-level synthesis; design projects. Au Qtr. 3 cl. Prereq: 560; ECE 561; 601; 675 or ECE 662.
779 Introduction to Neural Networks UGRD 3
Survey of fundamental methods and techniques of artificial neural networks: single and multi-layer networks; associative memory and statistical networks; supervised and unsupervised learning. Wi Qtr. 3 cl. Prereq: 630 or ECE 600 or 662 or permission of instructor. Not open to students with credit for ECE 779. Cross-listed in Electrical and Computer Engineering.
780 Analysis of Algorithms UGRD 3
Algorithm design paradigms; mathematical analysis of algorithms; NP-completeness. Au, Wi Qtrns. 3 cl. Prereq: 680 or grad standing and equiv of 680.
781 Introduction to 3D Image Generation UGRD 4
3D viewing algorithms, advanced illumination models, smooth shading, shadows, transparency, ray tracing, and color models. Wi Qtr. 3 cl. Prereq: 581 or 681; 560 or grad standing. Lab assignments are programmed in C.
782 Advanced 3D Image Generation UGRD 3
Advanced topics in rendering 3D realistic imagery including texture mapping, sampling theory, advanced ray tracing, radiosity, 3D rendering hardware, introduction to surfaces, animation, and volume graphics. Au Qtr. 3 cl. Prereq: 681. Lab assignments are programmed in C.
783H Honors Research UGRD 1-5
Supervised research and project work arranged individually for honors students. Su, Au, Wi, Sp Qtrns. Aer. Prereq: Honors standing; permission of instructor. Limitations on number of credit hours applicable toward degree are governed by departmental rules. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.
784 Geometric Modeling UGRD 3
Common mathematical techniques for modeling geometric objects in computer graphics and CAD applications. Sample based modeling and hierarchical representations.
Sp Qtr. 3 cl. Prereq: 681 or permission of instructor. Lab assignments are programmed in C, C++,.
786 Game Design and Development Project UGRD 4
Team-based project: conceptual design, technical design, and implementation of an interactive game, integrating custom code and toolkits; emphasizes teamwork, written and oral communication skills.
Sp Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 560; 581; 601; 630. Strong background in Graphics and Artificial Intelligence will be helpful; suggested courses 730, and 781 or 682.
788.01 Intermediate Studies in Computer and Information Science: Computational Complexity
Intermediate work in one of the specialized areas of computer and information science is offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.
788.02 Intermediate Studies in Computer and Information Science: Information Systems and Database Systems
Intermediate work in one of the specialized areas of computer and information science is offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.
788.03 Intermediate Studies in Computer and Information Science: Symbolic Computation
Intermediate work in one of the specialized areas of computer and information science is offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.
788.04 Intermediate Studies in Computer and Information Science: Artificial Intelligence
Intermediate work in one of the specialized areas of computer and information science is offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.
788.06 Intermediate Studies in Computer and Information Science: Operating Systems and Systems Programming
Intermediate work in one of the specialized areas of computer and information science is offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.
788.07 Intermediate Studies in Computer and Information Science: Programming Languages
Intermediate work in one of the specialized areas of computer and information science is offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.
788.08 Intermediate Studies in Computer and Information Science: Computer Organization
Intermediate work in one of the specialized areas of computer and information science is offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.
788.09 Intermediate Studies in Computer and Information Science: Numerical Analysis
Intermediate work in one of the specialized areas of computer and information science is offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.
788.10 Intermediate Studies in Computer and Information Science: Human-Computer Interaction
Intermediate work in one of the specialized areas of computer and information science is offered. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.
788.11 Intermediate Studies in Computer and Information Science: Parallel and Distributed Computing
Intermediate work in one of the specialized areas of computer and information science is offered.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.

788.12 Intermediate Studies in Computer and Information Science: Software Engineering
Intermediate work in one of the specialized areas of computer and information science is offered.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.

Intermediate work in one of the specialized areas of computer and information science is offered.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.

793 Individual Studies UGRD 0-5
Designed to give the individual student an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 24 cr hrs. Repeatable to a maximum of 12 cr hrs for undergraduate and 24 cr hrs for grad students. This course is graded S/U.

794 Group Studies UGRD 1-5
Designed to give students an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs.

797 Interdepartmental Seminar UGRD 1-5
Two or more departments may collaborate in presenting seminars in subjects of mutual interest; topics to be announced.
* Repeatable by permission.

861 Computer Communication Networks I GRAD 3
A foundational and analytical understanding of network architecture, error control, queuing analysis, and network dimensioning.
Wi Qtr. Prereq: Math 530 or Stat 428 or Stat 520 or ECE 804 or permission of instructor. Not open to students with credit for ECE/CSE 894G. Cross-listed in Electrical and Computer Engineering.

862 Computer Communication Networks II GRAD 3
Foundational understanding of network analysis, routing, control, multi-access, and their examples in the context of the existing communication networks.
Sp Qtr. Prereq: 861 or permission of instructor. Not open to students with credit for ECE/CSE 894. Cross-listed in Electrical and Computer Engineering.

875 Advanced Computer Architecture GRAD 3
Advanced pipelining techniques, vector supercomputers, shared-memory and distributed-memory multiprocessors, massively parallel systems, multithreaded machines.
Sp Qtr. 3 cl. Prereq: 721.

885 Seminar on Research Topics in Computer and Information Science GRAD 1-5
Lectures on current research by faculty members in the department. Au Qtr. 2 cl. Prereq: 1st yr grad student in CS&E. This course is graded S/U.

888.01 Advanced Studies in Computer and Information Science: Computational Complexity
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.02 Advanced Studies in Computer and Information Science: Information Systems and Database Systems
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.03 Advanced Studies in Computer and Information Science: Symbolic Computation
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.04 Advanced Studies in Computer and Information Science: Artificial Intelligence
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.06 Advanced Studies in Computer and Information Science: Operating Systems and Systems Programming
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.07 Advanced Studies in Computer and Information Science: Programming Languages
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.08 Advanced Studies in Computer and Information Science: Computer Organization
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.09 Advanced Studies in Computer and Information Science: Numerical Analysis
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.10 Advanced Studies in Computer and Information Science: Human-Computer Interaction
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.11 Advanced Studies in Computer and Information Science: Parallel and Distributed Computing
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.12 Advanced Studies in Computer and Information Science: Software Engineering
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.13 Advanced Studies in Computer and Information Science: Biomedical Information Systems
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888.14 Advanced Studies in Computer and Information Science: Computer Graphics
Advanced work in one of the specialized areas of computer and information science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

889 Advanced Seminar in Computer and Information Science GRAD 1-5
Selected topics of particular current interest in both the research and applications of computer science, engineering and information science are considered.
Wi, Sp Qtrs. 1-2 hr cl. Prereq: 2nd qtr grad standing in CS&E or permission of instructor. This course is graded S/U.

891.01 Interdisciplinary Seminar on Biomedical Images GRAD 1-2
Graduate seminars for Graduate Interdisciplinary Specialization in Comprehensive Engineering and Science of Medical Images.
Au, Wi, Sp Qtrs. 1 cl. Prereq: Grad standing. Cross-listed in Biomedical Engineering, Biomedical Informatics, Biophysics, Electrical and Computer Engineering, Integrated Biomedical Science, Pathology, Radiology, Statistics, and Vision Science. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

894 Group Studies GRAD 1-5
Designed to give graduate students an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

999 Research GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.
Construction Systems Management

205 Introduction to Construction Management UGRD 4
Overview of residential, commercial, industrial, institutional, and transportation sectors of the construction industry and the role of the construction manager. Quantitative aspects are emphasized.
Au, Wi, Sp Qtrs. 2 1.5-hr cl, 1 3-hr lab. Prereq: Math 148.

240 Basic Metal Fabrication for the Construction Industry UGRD 4
A study of the principles and practices in basic metal fabrication using current metallurgical and welding processes required in the construction industry.
Au, Wi, Sp Qtrs. 2 1.5-hr cl, 2 2-hr labs. Not open to students with credit for AgSysMgt 240.

241 Construction Methods and Materials UGRD 4
Material selection and construction methods for residential and commercial construction.
Au, Wi, Sp Qtrs. 2 cl, 2 2-hr labs. Not open to students with credit for AgSysMgt 241.

293 Individual Studies UGRD 1-5
Work on problems not in regular courses; practice in development, organization, solution and reporting on such problems.
Au, Wi, Sp Qtrs. Arr. Prereq: 2.50 cumulative pt/hr ratio, written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

294 Group Studies UGRD 1-5
Basic group studies in Construction Systems Management.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

305 Professional Development I UGRD 4
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.
Au, Wi, Sp Qtrs. Arr. Prereq: 2.50 cumulative pt/hr ratio, written permission of instructor. Repeatable to maximum of 10 cr hrs. This course is graded S/U.

310 Electrical and Lighting Systems for Buildings UGRD 4
Concepts of electricity and illumination applied to the design and installation of electrical and lighting systems in buildings including safety, code requirements and installation methods.
Au, Wi, Sp Qtrs. 2 1.5-hr cl, 1 2-hr lab. Prereq: Physics 111. Not open to students with credit for AgSysMgt 310.

345 Mechanical Systems for Buildings UGRD 4
Fundamentals of HVAC, plumbing, lighting, fire protection and noise and vibration control and their impact on building design and construction.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Physics 111 or 131. Not open to students with credit for AgSysMgt 345.

440 Construction Surveying and Site Development UGRD 5
Principles of hydrology, soil mechanics, and surveying as applied to site development for residential and commercial construction.
Su, Au, Sp Qtrs. 2 2-hr cl, 1 3-hr lab. Prereq: 305, Physics 111 or 131, CS&E 101 or 105 or 200 or Engineer 182 or 183, En Graph 121 or 166 or Engineer 181.

441 Construction Drawings and Estimating UGRD 5
Reading and interpretation of construction drawings and specifications for buildings. Estimating the material requirements of building construction projects using commercially available estimating aids.
Au, Wi, Sp Qtrs. 3 cl, 2 2-hr labs. Prereq: 240, 241, 310, 345, and 440. Not open to students with credit for AgConSM 341.

489 Internship in Construction Systems UGRD 3
A pre-approved internship of planned and supervised work experiences which provide professional and technical growth in the construction industry.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: ConSysMt major, permission of internship coordinator, 15 cr hrs in ConSysMt. Not open to students with 5 or more hours of credit in AgSysMgt 489. Repeatable to a maximum of 6 cr hrs. Quarter of enrollment will be assigned by internship coordinator in consultation with the student.

540 Estimating and Scheduling I UGRD 4
Principles of construction estimating and scheduling applied to commercial/residential construction including quantity take-offs, planning, material management, resource procurement from site work through rough finishes.
Au, Wi, Sp Qtrs. 3 cl, 1 2-hr lab. Prereq: 441.

541 Estimating and Scheduling II UGRD 4
Principles of construction estimating and scheduling applied to commercial/residential construction including quantity take-offs, planning, material management, resource procurement from rough finish through project completion.
Au, Wi, Sp Qtrs. Prereq: 540.

545 Structures for Construction Managers I UGRD 4
Principles of statics, material properties, structural analysis and design useful in understanding the design and managing the construction of steel and wood structures.
Au, Wi, Sp Qtrs. 4 cl, 1 2-hr lab. Prereq: 240, 241, Physics 111 or 131.

546 Structures for Construction Managers II UGRD 4
Continuation of 545 to include concrete and masonry structures and foundations.
Au, Wi, Sp Qtrs. 4 cl, 1 2-hr lab. Prereq: 545.

593 Individual Studies UGRD 1-5
Individual study of problems and topics not included in regular courses.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 2.50 cumulative pt/hr ratio, Consysmt major, jr standing, written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

594 Group Studies UGRD 1-5
Selected topics in Construction Systems Management.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

600 Construction Safety and Health UGRD 3
Construction safety and health practices, strategies and methods for the development and management of safety and health programs in the construction industry.
Au, Wi, Sp Qtrs. 2 cl, 1 2-hr lab. Prereq: Second writing course, Agr Comm 390 or Comm 321 or Jcom 321. Not open to students with credit for AgSysMgt 600. ConSysMt 600 and 605 together fulfill GEC third writing course requirement.

605 Professional Development II UGRD 2
Developing and pursuing career plans; strategies and programs for employment in the construction industry, professional development, personal growth and relationships.
Au, Wi, Sp Qtrs. 2-hr cl, 1 1-hr rec. Prereq: 305, second writing course, Agr Comm 390 or Comm 321 or Jcom 321, jr standing. Not open to students with credit for AgSysMgt 605. GEC third writing course. ConSysMt 600 and 605 together fulfill requirement.

641 Construction Project Management UGRD 3
The management of standard commercial/residential construction, including planning, material management (logistics), resource procurement, codes and standards, construction funding, personnel management and labor unions.
Au, Wi, Sp Qtrs. 3 cl. Prereq: Junior or senior standing in Construction Systems Management.

642 Construction Control - Contracts and Documents UGRD 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.
Au, Wi, Sp Qtrs. 3 cl. Prereq: 540.

643 Construction Management Capstone UGRD 4
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.
Au, Wi, Sp Qtrs. Prereq: 540, 541, 641, 642.

660 Heavy Construction Management UGRD 4
Methods, materials, equipment, and planning of heavy construction projects.
Economics of equipment acquisition and operation. Equipment selection, performance characteristics, and production rates.
Au, Wi, Sp Qtrs. 2-2-hr cl. Prereq: 541.

670 Green Building and Sustainable Construction UGRD 3
Introduction to major components of sustainable building design and construction as well as other environmental and economic issues of sustainable built environments.
Au, Wi, Sp Qtrs. Prereq: Junior, senior or grad standing.

683H Undergraduate Honors Program Research UGRD 1-10
Individually supervised research and project work for Honors program students. Student presentations and thesis writing included.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: FAES 590.01, enrollment in honors program and permission of honors project supervisor. Repeatable as HIS 593 in combination with 293 593 or 693. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

693 Individual Studies UGRD 1-5
Advanced individual study of problems and topics not included in regular courses.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 2.50 cumulative pt/hr ratio, 15 cr hrs of 300 level or higher ConSysMt courses and written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-5
Advanced group studies of selected topics in Construction Systems Management.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

Consumer Sciences
294 Group Studies UGRD 2-5
Selected topics in family resource management.
Prereq: Open to students who meet dept's stated prereq. Repeatable to a maximum of 10 cr hrs.

300 The Consumer Perspective UGRD 2
The impact of three markets - financial services, textiles and apparel, and hospitality/tourism industries - on individual/family well-being. Contrast between the consumer decision-maker and the business decision-maker.
Su, Wi, Sp Qtrs. 1 1.5-hr cl. Not open to students with credit for Fm Res M 300, Hosp Mgt 300 or Textl&Clo 300.

310 Consumer Service and Satisfaction UGRD 3
The product/service mix consumers experience when purchasing financial, hospitality and textile/apparel services/products. The relationship between service quality and consumer satisfaction.
Su, Wi, Sp Qtrs. 2 1.5-hr cl. Not open to students with credit for Fm Res M 310, Hosp Mgt 310 or Textl&Clo 310.

340 The Multicultural Consumer UGRD 5
Examination of multicultural diversity in the US with a focus on how demographic trends and cultural forces impact the economy, the workplace, consumption patterns and retailer/marketplace responses.
Su, Wi, Sp Qtrs. 2 1.5-hr cl. Not open to students with credit for Fm Res M 340.

543 Consumer Decision Making UGRD 5
The process of decision making by consumers is analyzed and implications for consumers, sellers, and policy makers are derived.
Su, Wi, Sp Qtrs. 2 1.5-hr cl. Not open to students with credit for Fm Res M 343.

590 Practicum in Fashion and Retail Studies UGRD 1-5
Research Provides students with the opportunity to work individually with a faculty member on a research project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Jr or sr standing and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

593 Individual Studies UGRD 1-5
Problems in various phases of consumer sciences.
Su, Au, Wi, Sp Qtrs. 1 or more conf. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs. 1 or more conf. This course is graded S/U.

595 Professional Development UGRD 2
The professional: performance, role in society, position security, involvement in organizations, and continuing development.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 260 or 243 and 340, and 3rd yr standing. Not open to students with credit for Fm Res M 595 or Textl&Clo 595.

694 Group Studies UGRD 1-5
Selected topics in Consumer Sciences.
Au, Wi, Sp Qtrs. Repeatable to a maximum of 10 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only. This course is graded S/U.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only. This course is graded S/U.

699 Undergraduate Research in Consumer Sciences UGRD 0-15
Undergraduate research in areas of study related to the unit and the instructor's research agenda. 699H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

700 Introduction to Research in Consumer Sciences GRAD 3
Introduction to the research literature in consumer sciences; development of the principles of scholarly inquiry.
Au Qtr. 1 2.5-hr cl. Prereq: Grad standing or permission of instructor. Not open to students with credit for Fm Res M 738 or Textl&Clo 777.01.

701 Individual and Family Behavior in the Market Place GRAD 4
Students study consumer behavior in purchase of goods and services, with emphasis on applications to effective marketing management decisions from the consumer perspective.
Au Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor.

702 Theories and Models in Consumer Sciences Research GRAD 4
Survey of theories and models as the foundation for research in Consumer Sciences.
Wi Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor.

703 The Global Consumer GRAD 4
Differences between consumers from different cultures/countries examined. The effect of such differences on consumers' behavior is considered.
Sp Qtr. 2 1.5-hr cl. Prereq: Grad standing or permission of instructor.

739 Household Economic Status: Measurement and Analysis GRAD 4
Measurement and analysis of household economic status including key concepts, policies, implications, and implications for research.
Au Qtr. 1 3-hr cl. Prereq: Grad standing. Not open to students with credit for Fm Res M 739.

740 Theories and Models of Family Resource Management GRAD 4
Aspects of family life are analyzed from the perspective of family resource management theories; emphasis is placed on empirical implications of the theories.
Au Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor.

741 Managerial Concepts and Their Measurement GRAD 4
Tools and techniques which are applicable to resource allocation decisions in a specific household.
Sp Qtr. 2 2-hr cl. Prereq: 739 or Fm Res M 739 and 740 or Fm Res M 740. Not open to students with credit for Fm Res M 741.

791 Research Practicum in Consumer Sciences GRAD 2-5
Supervised participation in research; involvement may include data collection and analysis or manuscript preparation; credit will be determined by involvement and level of responsibility.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing, a research methods or statistics course, and permission of instructor. Supplements individual studies and facilitates students' ability to participate in research. Repeatable to a maximum of 20 cr hrs.

792 Teaching Practicum in Consumer Sciences GRAD 2-5
Supervised participation in college teaching; nature and degree of involvement are based on student's preparation; credit will be determined by involvement and level of responsibility.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing, and permission of instructor. Supplements individual studies (FM RES M 793) to facilitate students' ability to document their teaching experience. Repeatable to a maximum of 20 cr hrs.

793 Individual Studies GRAD 1-5
Problems in various phases of family resource management chosen for individual study.
Su, Au, Wi, Sp Qtrs. 1 or more conf. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

797 Interdepartmental Seminar GRAD 2-4
Interdepartmental Seminar. Repeatable.

800 Seminar GRAD 1
Scholarly presentations of current research by students, faculty, and invited speakers to stimulate critical thinking and discussion of implications for consumers.
Au, Wi, Sp Qtrs. Biweekly 1 hour. Prereq: Grad standing or written permission of instructor. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.
862 Household Economic Status: Theory and Research

Interpretation of theory and research related to household economic status.

* Au Qtr. 1.3-hr cl. Prereq: 739 or Fm Res M 739, Econ 705 and 706 or equiv, and Stat 259 or equiv. Not open to students with credit for Fm Res M 862.

872 The Consumer in American Society

Analysis of the elements involved in the consumer interest, interrelationships of the elements, cost effectiveness of these methods, and distributional impacts of the alternatives.

* Wi Qtr. 2.5-hr cl. Prereq: Econ 705 and 706 or equivs; and 3 cr hrs of stat.

881 Quantitative Methods in Family Resource Management

Multivariate statistical methods are applied to research questions in family resource management. The emphasis is on advanced topics relevant to analysis of cross-sectional data.

* Au Qtr. 1.2-hr cl. Prereq: Basic course in statistics and permission of instructor.

894 Group Studies

Selected topics in Consumer Sciences.

Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 12 cr hrs.

895.01 Seminar in Consumer Economics

Seminar in Consumer Economics.

* Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs including cr hrs in 822.

895.02 Seminar in Family Finance

Family Finance.

Au Qtr. 1.3-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs including cr hrs in 822.

993 Individual Studies

Problems in various phases of family resource management chosen for individual study.

Su, Au, Wi, Sp Qtrs. 1 or more conf. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

998 Research: Thesis

Research for master's thesis.

Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

999 Research: Dissertation

Research for thesis or dissertation purposes only.

Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Consumer Sciences:

Consumer & Family Financial Services

243 Consumer Problems

Common imperfections in the consumer-market interface which manifest themselves in ripoffs, misrepresentations and deceptions; remedies for problems.

Au, Wi, Sp Qtrs. 2.2-hr cl. Not open to students with credit for Fm Res M 243. Required for Consumer and Family Financial Services majors, GEC social science organizations and policies course.

260 Family Financial Management I

The management of family financial resources; topics include financial planning and budgeting, insurance, credit, and savings and investments.

Su, Au, Wi, Sp Qtrs. 2.2-hr cl. A grade of 2.7 in 260 is prerequisite to 359. Not open to students with credit for Fm Res M 260. SS Admins Cond course. This course is available for EM credit.

359 Family Financial Management Theory and Practice

Introduction to the practice and profession of family financial planning process, emphasizing the data collection, communication, and technical skills required of the financial planner.

Au, Sp Qtrs. 2.2-hr cl. Prereq: B- or better in 260. Open only to Consumer and Family Financial Services majors. Not open to students with credit for Fm Res M 359.

360 Family Financial Management II

Introduction to family financial management applications through a case study approach.

Au, Wi Qtrs. 2.2-hr cl. Prereq: 359 or fm res m 359. Open only to Consumer and Family Financial Services majors and Consumer Affairs minors. Not open to students with credit for Fm Res M 360. Required for Family Financial Services Option.

443 Regulations to Consumer Problems

Regulatory and non-regulatory solutions to imperfections in the consumer-seller interface are considered.

Au, Sp Qtrs. 2.2-hr cl. Prereq: 243 or Fm Res M 243. Not open to students with credit for Fm Res M 443. Required for Consumer Services option.

560 Family Financial Management III

Analyze and evaluate financial decisions by families at various points in family life cycle and apply economic principles to development of aids used by families facing financial decisions.

Au, Sp Qtrs. 2.2-hr cl. Prereq: 359 or Fm Res M 359. Open only to Consumer and Family Financial Services majors. Not open to students with credit for Fm Res M 560.

561 Retirement Planning and Employee Benefits

Evaluation of retirement plans and employee benefits with the consideration of the interwoven factors of Social Security, pension, private savings, and health insurance.

Au, Sp Qtrs. 3-hr cl. Prereq: 359 or Fm Res M 359. Not open to students with credit for Fm Res M 561.

567 Families in Business

Explore family business topics, including family dynamics, conflicts and relationships relative to business formation and growth, strategic management, professionalism, and succession.

Au, Sp Qtrs. 3.1-hr cl. Not open to students with credit for Fm Res M 567.

568 Intergenerational Resource Management

Key topics in planning for transfer of family estate, focusing on strategies that conserve family wealth while being consistent with family financial goals.

Wi, Sp Qtrs. 2.5-hr cl. Prereq: 359 or Fm Res M 359. Not open to students with credit for Fm Res M 568.

611 Consumer Housing Problems

Production and allocation of housing and current housing problems. Includes service-learning experience related to data collection and analysis and neighborhood development.

Au, Sp Qtrs. 2.2-hr cl. Prereq: Con Sci 340 or Fm Res M 340 and Econ 200. Not open to students with credit for Fm Res M 611.

636 Group Leadership Practicum for Family Financial Management

Financial advising practicum. Students are group leaders for 360, conduct group sessions, assign tentative grades and write comments for presentations and reports.

Au, Wi Qtrs. 2.2-hr cl. Prereq: 260 or Fm Res M 260; Fm Res M 340 or Con Sci 340; minimum of B+ in 360 or Fm Res M 360; permission of instructor. Not open to students with credit for Fm Res M 636.

644 Quantitative Methods in Consumer Affairs

Application of research methods and analysis of data to facilitate decision-making with respect to consumer affairs.

Wi, Sp Qtrs. 3.1-hr cl and 1.2-hr lab. Prereq: AedEcon 205 or Stat 135 or 133 or 145, CSE 101 or 200 or 211, and 3rd year standing. Not open to students with credit for Fm Res M 644. Required for Consumer Services option.

660 Family Financial Management Application

Family financial management concepts are applied to evaluate financial goals and prepare a comprehensive financial plan for a family.

Wi, Sp Qtrs. 2.2-hr cl. Prereq: 359 or Fm Res M 359, 360 or Fm Res M 360 and 560 or Fm Res M 560; Bus-Fin 420 or 620. Open only to Consumer and Family Financial Services majors. Not open to students with credit for Fm Res M 660.

Consumer Sciences: Fashion and Retail Studies

200 Fashion, the Body, and Popular Culture

Fashion as it interfaces with the body and is manifested in popular culture, including television, film, advertising, magazines, literature, sports, dance, music, and comic art.

Au, Wi, Sp Qtrs. 2.1.5-hr cl. Not open to students with credit for Txtl&Clo 200.

270 Aesthetics of Appearance

The perception and presentation of the self through appearances. Considerations include aesthetic norms, color psychology, body concerns, personality expression, and context.

Au, Sp Qtrs. 2.1.5-hr cl and arr labs. Not open to students with credit for Txtl&Clo 270. This course is available for EM credit. VPA Admins Cond course.

275 The Business of Fashion: Apparel, Textiles, and Home Furnishings

Survey of supply, manufacture, distribution, and auxiliary industries impacting production, distribution, and sale of textiles, apparel and products for the home; fashion terminology, creators, careers.

Au, Wi, Qtrs. 2.2-hr cl. Not open to students with credit for Txtl&Clo 275.

289 Introductory Field Experience

Ten-weeks practical experience or equivalent in approved retail establishment or other enterprise related to student's major interest.

Su, Au, Wi, Sp Qtrs. Prereq: 2.00 CPHR, 270, 275, and 375 or 351.02 or Fm Res M 351 or Txtl&Clo 351.01 or Txtl&Clo 351.02 and written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.
351 Interiors Product Development: Home UGRD 5

Evaluation, plan for use, and analysis of merchandising of interiors products for consumer use in home interiors.
Au Qtr. 2 1.5-hr cl, 2 2-hr labs. Prereq: 270 or Txtl&Clo 270. Not open to students with credit for Txtl&Clo 351.01 or 351.02 or 351.

370 Fashion Design and Illustration UGRD 5

Creative approach to the study of apparel design through fashion illustration using a variety of media, product development, and production specifications: students develop portfolio.
Wi, Sp Qtrs. 2 1.2-hr cl, 2 2-hr labs, 2 hrs arr. Prereq: 270 or Txtl&Clo 270, 375 or Txtl&Clo 375. Not open to students with credit for Txtl&Clo 370.

371 Textiles UGRD 5

Fiber properties, yarn and fabric construction, color, and finishes as they relate to performance, care, and consumer satisfaction.
Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 2nd yr standing. Not open to students with credit for Txtl&Clo 371.

372 Appearance, Dress, and Cultural Diversity UGRD 5

A cross cultural study of the diversity and meaning of appearance and dress as manifestations of individual and group behavior, social organization, and cultural norms.
Wi, Sp Qtrs. 5 1-hr cl. Prereq: Sociol 101 or Brlc Soc 105. Not open to students with credit for Txtl&Clo 372. GEC social science course. SS Admis Cond course.

374 Fashion Forecasting UGRD 3

An examination of fashion theories and the evolution of fashion in the 20th century applied to the merchandising of fashion.
Wi, Sp Qtrs. 2 1.5-hr cl. Prereq: 275 or Txtl&Clo 275. Not open to students with credit for Txtl&Clo 374 or 675.

375 Ready-to-Wear Analysis UGRD 3

Examination and evaluation of ready-to-wear apparel and its details for construction, style, quality, and fit.
Au, Wi Qtrs. 2 1.5-hr cl. Prereq: 270 or Txtl&Clo 270 and 371 or Txtl&Clo 371. Not open to students with credit forTxtl&Clo 375.

425.01 Interiors Product Development: Housing UGRD 3

Environmental Issues
Evaluation, plan for use and analysis of merchandising of products and designs of residential house structures.
* Sp Qtr. 2 1.5-hr cl. Not open to students with credit for Fn Res M 425.01 or Txtl&Clo 425.01.

425.02 Interiors Product Development: Housing UGRD 2

Application
Application of evaluation and plan for use of products and designs used in residences. Students produce kitchen and bath designs.
* 2 2-hr labs. Prereq: Txtl&Clo 425.01 or Concur: 425.01. Not open to students with credit for Fn Res M 425.02 or Txtl&Clo 425.02.

525 Retail Environments UGRD 5

Analysis of the influence of store environment characteristics on consumer behavior in various retail formats (i.e., in-store, internet, television, catalog).
Au, Wi, Sp Qtrs. 2 1.5-hr cl, 1 1-hr rec, 2 hrs arr. Prereq: 270 or Txtl&Clo 270. Not open to students with credit for Txtl&Clo 451 or 525.

571 Textile Product Quality Evaluation and UGRD 5

Materials Sourcing
Parameters of textile quality, standards and specifications, interpretation of test data and evaluation of textiles, fabric sourcing.
Au, Sp Qtrs. 2 2-hr cl. Prereq: 371; Chem 102; Stat 133, 135, or 145; or permission of instructor.

576 Global Patterns and Issues in Textiles and UGRD 3

Apparel Trade
International factors affecting the textiles and apparel industries and their impact on the economy and consumers.
Wi, Sp Qtrs. 2 1.5-hr cl. Prereq: 275 or Txtl&Clo 275, 371 or Txtl&Clo 371, or permission of instructor. Not open to students with credit for Txtl&Clo 576.

589 Internship UGRD 15

One quarter supervised experience at a department approved intern site related to the student's selected option. Investigation and analysis of assigned problems.
Su, Au, Wi, Sp Qtrs. Prereq: 2.5 cum pt-hr ratio, 4th yr standing, 3959D, 16 hrs in major. Open to Fashion and Retail Studies majors only. No other courses may be taken nor any other jobs held during the quarter of internship. This course is graded S/U.

651 Residential Interiors: History of Design and UGRD 4

Decoration
Analysis of furniture styles from antiquity through the present with emphasis on aesthetic, economic, and social implications as well as influencing philosophies.
* Wi Qtr. 3 1.5-hr cl. Not open to students with credit for Fn Res M 651 or Txtl&Clo 651.
### Consumer Sciences: Hospitality Management

**230 Introduction to Hospitality Management**  
UGRD 2  
Overview of the hospitality-tourism industry. Introduction to and career exploration of various segments of the hospitality-tourism field.

**350.01 Principles of Food Management:**  
**UGRD 3**  
Hospitality Management  
Principles of food production management are presented. Scientific management principles involved in food management are discussed. Importance of food safety and changing food habits are presented. Principles of food management supported by real life commercial food service labs.

**350.02 Principles of Food Management: Dietetics and Family and Consumer Sciences Education**  
**UGRD 4**  
Principles of food production management are presented. Scientific management principles involved in food management are discussed. Importance of food safety and changing food habits are presented. Principles of food management supported by real life commercial food service labs.

**370 Food and Beverage Management II: Menu Planning, Purchasing and Cost Controls**  
**UGRD 5**  
A study of the impact of the menu, standardized recipe, forecast, and food purchasing on cost control and food quality. An overview of records related to cost control.

**400 Beverage Management**  
**UGRD 3**  
Discussion of the varieties, merchandising, and management control of alcoholic and non-alcoholic beverages served in the hospitality industry.

**460 Personnel and Organization in Hospitality Management**  
**UGRD 4**  
Principles of management applied to personnel in hospitality organizations.

**480 Introduction to Hospitality Marketing:**  
**UGRD 4**  
Theories of marketing and practice. Introduces students to the principles of hospitality marketing including market segmentation, differentiation, positioning, and sales.

**511 Introduction to Employee Training in Foodservice Operations**  
**UGRD 3**  
Planned experience under supervision in food service/restaurant. Open only to majors in hospitality management. Not open to students with credit for Hosp Mgt 551. Required in major. Supervised experiential learning in a functioning work environment.

**552 Introductory Internship: Lodging/Hotels**  
**UGRD 3**  
Planned experience under supervision in lodging/hotel operations. Open only to majors in hospitality management. Not open to students with credit for Hosp Mgt 551. Required in major. Supervised experiential learning in a functioning work environment.

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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>230</td>
<td>Introduction to Hospitality Management</td>
<td>2</td>
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| 350.01        | Principles of Food Management | 3 | Hospitality Management  
Principles of food production management are presented. Scientific management principles involved in food management are discussed. Importance of food safety and changing food habits are presented. Principles of food management supported by real life commercial food service labs. |
| 350.02        | Principles of Food Management: Dietetics and Family and Consumer Sciences Education | 4 | Principles of food production management are presented. Scientific management principles involved in food management are discussed. Importance of food safety and changing food habits are presented. Principles of food management supported by real life commercial food service labs. |
| 370           | Food and Beverage Management II: Menu Planning, Purchasing and Cost Controls | 5 | A study of the impact of the menu, standardized recipe, forecast, and food purchasing on cost control and food quality. An overview of records related to cost control. |
| 400           | Beverage Management | 3 | Discussion of the varieties, merchandising, and management control of alcoholic and non-alcoholic beverages served in the hospitality industry. |
| 460           | Personnel and Organization in Hospitality Management | 4 | Principles of management applied to personnel in hospitality organizations. |
| 480           | Introduction to Hospitality Marketing | 4 | Theories of marketing and practice. Introduces students to the principles of hospitality marketing including market segmentation, differentiation, positioning, and sales. |
| 511           | Introduction to Employee Training in Foodservice Operations | 3 | Planned experience under supervision in food service/restaurant. Open only to majors in hospitality management. Not open to students with credit for Hosp Mgt 551. Required in major. Supervised experiential learning in a functioning work environment. |
| 552           | Introductory Internship: Lodging/Hotels | 3 | Planned experience under supervision in lodging/hotel operations. Open only to majors in hospitality management. Not open to students with credit for Hosp Mgt 551. Required in major. Supervised experiential learning in a functioning work environment. |
560  Hotel Systems I: Hotel Operations  UGRD  4
Introduction to the lodging industry and the hotel as a functioning system.
Au, Wi Qtrs. 2-2 hr cl. Prereq: 230 or Hosp Mgt 230. Not open to students with credit for Humn Ntr 560 or Hosp Mgt 560.

561  Hotel Systems II: Hospitality Managerial Accounting  UGRD  4
An examination of the accounting and financial activities of a lodging establishment.
Wi, Sp Qtrs. 2-2 hr cl. Prereq: 560 or Hosp Mgt 560, Acct&MIS 310. Not open to students with credit for Humn Ntr 561 or Hosp Mgt 561. The second in a two-course sequence, containing material formerly included in Humn Ntr 560 (now split between Hosp Mgt 560 and 561).

570  Hospitality Management: Advanced Internship  UGRD 12
Planned experience in an entry-level supervisory role within the hospitality industry.
Su, Au, Wi, Sp Qtrs. Prereq: 551 or Hosp Mgt 551 and 552 or Hosp Mgt 552; permission of dept or instructor, 4th yr standing and 2.00 CPRH. Not open to students with credit for Humn Ntr 570 or Hosp Mgt 570. Internship application must be filed 1 dept 2 qtrs in advance.

571  Hospitality Management Internship  UGRD  4
Planned experience in entry-level supervisory role in hospitality industry.
Su, Au, Wi, Sp Qtrs. Prereq: 460, 551, and 552 or permission of instructor. Hospitality management majors only. Repeatable to a maximum of 12 cr hrs.

650  Advanced Management Skills for Hospitality Supervisors: Theory and Practice  UGRD  3
Foundations of leadership and team skills. Theory applied to practice in leadership and management in a hospitality business setting.
Au, Wi, Sp Qtrs. 1 cl, 6 hr lab. Prereq: 460 or 660, 551. Open only to Hospitality Management majors.

661  Special Events Planning and Management  UGRD  2
Students will be expected to develop special events, from the concept stage to delivery and post-analysis of performance.
Au, Wi, Sp Qtrs. 1.1 hr cl and 4.4 hr lab. Prereq: 350.01, 370, 551 or Hosp Mgt 350.01, 370, 551. Open only to hospitality management majors. Not open to students with credit for Humn Ntr 661 or Hosp Mgt 661. Students will be required to participate in selected minor and major special events. They are expected to work with limited supervision in completing the proposed projects. Final grade will depend on success of the special event as evaluated by the class instructor, guests (consumers) feedback and financial statements.

680  Cases in Hospitality Marketing  UGRD  4
Application of the principles of marketing to the hospitality industries.
Au, Wi Qtrs. 2.2 hr cl. Prereq: Bus-Mktg 450 or 460. Not open to students with credit for Humn Ntr 480 or 680 or Hospmgt 680.

700  Strategies and Issues in Hospitality Management  UGRD  3
To identify, discuss and develop responses to the major issues in the hospitality industry.
Sp Qtr. 2.5-hr cl. Prereq: Sr standing and permission of instructor. Not open to students with credit for Hosp Mgt 700.

713  Advanced Food Theory and Application  GRAD  3
Food theories applied to individual investigations in food preparation, preservation, and storage in the home and volume food service.
** Wi Qtr. 1.2 hr cl, 1.3 hr lab. Prereq: Humn Ntr 615 or equiv. Not open to students with credit for Humn Ntr 713 or Hosp Mgt 713.

730  Advanced Food Service Systems Management: Operational Integration  GRAD  3
Current practices and research in management of food service systems.
Wi Qtr. 1.3-hr cl. Prereq: 660 or Hosp Mgt 660 or Humn Ntr 460. Not open to students with credit for Humn Ntr 730 or Hosp Mgt 730.

793  Individual Studies  GRAD  2-5
Problems in various phases of hospitality management chosen for individual study.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. 1 or more conf. This course is graded S/U.

802.01  Seminar in Hospitality Management: Food Management  GRAD  3
Food Management.
Au Qtr. Prereq: Advanced course work in seminar topic. Not open to students with credit for Humn Ntr 802.01 or Hosp Mgt 802.01. Repeatable to a maximum of 15 cr hrs.

802.02  Seminar in Hospitality Management: Advanced Topics in Hospitality Management  GRAD  3
Advanced Topics in Hospitality Management.
* Wi Qtr. Prereq: Advanced course work in seminar topic. Not open to students with credit for Humn Ntr 802.02 or Hosp Mgt 802.02. Repeatable to a maximum of 15 cr hrs.

802.03  Seminar in Hospitality Management: Food Management  GRAD  3
Food.
* Sp Qtrs. Prereq: Advanced course work in seminar topic. Not open to students with credit for Humn Ntr 802.03 or Hosp Mgt 802.03. Repeatable to a maximum of 15 cr hrs.

816  Recent Developments in Food  GRAD  3
Analysis of selected topics in food with application to current issues.
^ Wi Qtr. 1.2-hr cl. Prereq: 615 or equiv. Not open to students with credit for Humn Ntr 816 or Hosp Mgt 816.

832  Recent Developments in Food Service Systems Management  GRAD  3-5
Analysis of selected topics in food service systems management with application to current issues.
^* Wi Qtr. 1.3-hr cl. Prereq: 660 or Hosp Mgt 660 or Humn Ntr 460 and experience in food service management. Not open to students with credit for Humn Ntr 832 or Hosp Mgt 832. Repeatable to a maximum of 15 cr hrs.

894  Group Studies  GRAD  2-5
Selected topics in hospitality management.
Prereq: Open to students who meet dept's stated prereq. Repeatable to a maximum of 10 cr hrs.

895  Seminar  GRAD  1
Presentations by students, faculty, visiting scientists with critical discussion of issues in hospitality management.
Au, Wi Qtrs. Arr. Repeatable to a maximum of 10 cr hrs.

993  Individual Studies  GRAD  2-5
Problems in various phases of hospitality management chosen for individual study.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. 1 or more conf. This course is graded S/U.

998  Research: Thesis  GRAD  1-18
Research for masters thesis.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

999  Research: Dissertation  GRAD  1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Czech

101.01  Elementary Czech I  UGRD  5
Development of oral and written language skills.
Au Qtr. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admin Cond courses.

101.51  Elementary Czech I: Individualized Track  UGRD  1-5
Development of oral and written language skills.
Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admin Cond courses. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 102.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement.

102.01  Elementary Czech II  UGRD  5
Development of oral and written language skills.
Wi Qtr. Prereq: 101 or 101.01 or 5 cr hrs of 101.51 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admin Cond courses.

102.51  Elementary Czech II: Individualized Track  UGRD  1-5
Development of oral and written language skills.
Wi Qtr. Prereq: Advanced course work in seminar topic. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admin Cond courses. Repeatable to a maximum of 5 cr hrs. Students who complete 5 cr hrs before the end of the qtr may proceed to 103.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 101.51 and 102.51 concurrently with permission of instructor.
103.51 Intermediate Czech I: Individualized Track UGRD 1-5
Prereq: Grade of B- or above in 102 or 102.01, or 5 cr hrs of 102.51, or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 103.51 and 104.51 concurrently with permission of instructor. GEC for lang course.

104.51 Intermediate Czech II: Individualized Track UGRD 1-5
Continuation of 103, development of the four skills. Prereq: 5 cr hrs of 103.51 or permission of instructor. Not open to students with credit for 111 or to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1-5 cr hrs during the qtr. Progress is sequential from one cr hr to the next with proficiency at the level of 80% required for advancement. Students may register for 103.51 and 104.51 concurrently with permission of instructor. GEC for lang course.

111 Intensive Intermediate Czech UGRD 10
Readings, oral and written practice, grammar review. Sp Qtr. Prereq: 102.01 or 5 cr hrs of 102.51 or equiv. Equiv to the 3rd and 4ths courses of the foreign language sequence. GEC for lang course.

405.51 Advanced Czech I: Individualized Track UGRD 1-5
Continuation of 104.51; development of the four skills. Prereq: 5 cr hrs of 104.51 or 111 or permission of instructor. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 104.51 and 405.51 concurrently with permission of instructor.

407.51 Advanced Czech II: Individualized Track UGRD 1-5
Prereq: 5 cr hrs of 405.51 or permission of instructor. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 405.51 and 407.51 concurrently with permission of instructor.

Dance

100 Dance Survey UGRD 1
Orientation to The Ohio State University, College of the Arts, and the Department of Dance. Au Qtr. 1-1 hr cl. Prereq: Admission to dance major program.

161 Dance and Theatre, 1945 to the Present UGRD 5
Survey of contemporary practices in western dance and theatre from 1945 to the present, with emphasis on major stylistic trends, multicultural influences, and principal artists and their works. Su, Au, Wi, Sp Qtrrs. 2 2-hr cl, 1 1-hr rec cl. Not open to students with credit for Arts Col 161 or Theatre 161. Cross-listed in Theatre. GEC arts and hums VPA course. VPA Admis Cond course.

200 Swan Lake to Hip Hop: Concert Dance UGRD 5
History 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. Wi, Sp Qtrrs. 3 1.5-hr cl. GEC arts and hums VPA course. VPA Admis Cond course.

201.01 Introduction to Dance I: Modern Technique UGRD 1-5
An introductory course in dance. VPA Admis Cond course. Repeatable to a maximum of 12 cr hrs.

201.02 Introduction to Dance I: Ballet Technique UGRD 1-5
An introductory course in dance. VPA Admis Cond course. Repeatable to a maximum of 12 cr hrs.

201.03 Introduction to Dance I: Jazz UGRD 1-5
An introductory course in dance. VPA Admis Cond course. Repeatable to a maximum of 12 cr hrs.

201.05 Introduction to Dance I: Tap Technique UGRD 1-5
An introductory course in dance. VPA Admis Cond course. Repeatable to a maximum of 12 cr hrs.

201.06 Introduction to Dance I: Hip hop Dance UGRD 1-5
An introductory course in dance. 2 1.5-hr cl or 3 1.0-hr cl. VPA Admis Cond course. Repeatable to a maximum of 12 cr hrs.

202.01 Introduction to Dance II: Modern Technique UGRD 1-5
Continuation of 201. Prereq: 201.01 or permission of instructor. Repeatable to a maximum of 12 cr hrs.

202.02 Introduction to Dance II: Ballet Technique UGRD 1-5
Continuation of 201. Prereq: 201.02 or permission of instructor. Repeatable to a maximum of 12 cr hrs.

202.03 Introduction to Dance II: Jazz UGRD 1-5
Continuation of 201. Prereq: 201.03 or permission of instructor. Repeatable to a maximum of 12 cr hrs.

203.02 Introduction to Dance III: Ballet Technique UGRD 1-5
Continuation of 201 and 202. Prereq: 202.02 or permission of instructor. Repeatable to a maximum of 12 cr hrs.

211 Music Skills for Dance UGRD 2
This course introduces the musical skills students will utilize throughout their careers as dancers. Sp Qtr. Prereq: Qualifying audition or permission of instructor. Repeatable to a maximum of 6 cr hrs.

211.03 Introduction to Dance Composition UGRD 1-6
Introduction to Dance Composition. Sp Qtr. Prereq: Qualifying audition or permission of instructor. Repeatable to a maximum of 6 cr hrs. Including cr hrs earned in 111.03.

211.04 Improvisation UGRD 2
This course approaches improvisation in its broadest context. Improvisation teaches us to open ourselves to the unknown, to envision possibility and to recognize choices. Wi Qtr. Prereq: Qualifying audition or permission of instructor. Repeatable to a maximum of 6 cr hrs.

260 Introduction to Dance and Technology UGRD 3
Provides first year dance majors with foundation in technical skills of digital media that are directly applicable to the field of dance. Wi Qtr. 2 1.5-hr cl. Prereq: Admission to dance major or minor program.

289.01 Field Experience: Introduction to Dance Education UGRD 1-5
Survey of dance in public education: theoretical foundations and field-based experiences. Sp Qtr. Prereq: Qualifying audition or permission of instructor.

289.02 Field Experience: Dance Education in Diverse Settings UGRD 1-5
Survey of dance in diverse community settings: theoretical foundations and field-base experiences. Wi Qtr. Prereq: Qualifying audition or permission of instructor.

289.03 Field Experience: Other Field Experience in Dance UGRD 1-5
Directed field experience emphasizing appropriate teaching strategies for different educational and community settings. Su, Au, Wi, Sp Qtrrs. Arr. for each cr hr 2 hrs/week in field placement. Prereq: Qualifying audition or permission of instructor. Repeatable to a maximum of 10 cr hrs.

290.01 Ethnic Dance Forms: Dance Forms of the African Diaspora UGRD 1-5
Folk forms as practiced by the African Diaspora. Prereq: Qualifying audition or permission of instructor. Repeatable to a maximum of 6 cr hrs. Including cr hrs earned in 190.01.

293 Individual Studies UGRD 1-5
Individual studies of specified problems in the field of dance. Su, Au, Wi, Sp Qtrrs. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

294 Group Studies UGRD 0-5
Group Studies. Prereq: Permission of chairperson. Repeatable to a maximum of 15 cr hrs.

298 Dance Production UGRD 1-5
Production activities. Wi, Sp Qtrrs. Arr. Repeatable to a maximum of 15 cr hrs. Including cr hrs earned in 198.

299.04 Dance Performance: Student Choreographic Projects UGRD 1-5
Student Choreographic Projects. Open only to dance majors; others by special permission. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

299.06 Dance Performance: Workshops UGRD 1-5
Workshops. Open only to dance majors; others by special permission. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

311.04 Dance Technique I: Modern Dance Technique Part I UGRD 1-6
Technique: modern dance and ballet level I. Au Qtr. Prereq: Qualifying audition or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 111.04.

311.05 Dance Technique I: Ballet Technique Part 1 UGRD 1-6
Technique: modern dance and ballet level I. Au Qtr. Prereq: Qualifying audition or permission of instructor. Repeatable to a maximum of 9 cr hrs. Open only to dance majors. Including cr hrs earned in 111.05.
311.06 Dance Technique I: Modern Dance  UGRD 1-6
Technique: modern dance and ballet level I, part 2.
Wi Qtr. Arr. Prereq: 311.04 or permission of instructor. Open only to dance majors.
Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 214.06.

311.07 Dance Technique I: Ballet Technique Part 2  UGRD 1-6
Technique: modern dance and ballet level I, part 2.
Wi Qtr. Arr. Prereq: 311.05 or permission of instructor. Open only to dance majors.
Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 111.07.

311.08 Dance Technique I: Modern Dance  UGRD 1-6
Technique Part 3
Technique: modern dance and ballet level I, part 3.
Sp Qtr. Arr. Prereq: 311.06 or permission of instructor. Open only to dance majors.
Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 111.08.

311.09 Dance Technique I: Ballet Technique Part 3  UGRD 1-6
Technique: modern dance and ballet level I, part 3.
Sp Qtr. Arr. Prereq: 311.07 or permission of instructor. Open only to dance majors.
Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 111.09.

357 Dance in Popular Culture: Embodying American Identities, Ideas and Cultures

Popular dance in the United States, with an emphasis on how movement constructs identity and community.
Requires online component; GEC social diversity and cultures and ideas course.

367.01 Writing About Dance  UGRD 5
Provides an opportunity to view, discuss, read, think and write about contemporary dance through the practice of criticism.
Au, Wi, Sp Qtr. 2.2-hr cl. Prereq: English 110.xx or 111 or equiv. H367.01 may be available to students enrolled in Honors or Scholars program or by permission of department or instructor. GEC second writing course.

367.01H Writing about Dance  UGRD 5
Provides a rigorous opportunity to view, discuss, read, think and write about contemporary dance and its history through the study and practice of criticism.
Wi Qtr. 2.2-hr cl. Prereq: Honors or Scholars standing or permission of instructor; English 110 or 111 or equiv. H367.01 may be available to students enrolled in Honors or Scholars program or by permission of department or instructor. GEC second writing course.

400 Junior Advising Colloquium  UGRD 1
The advising colloquium is the primary vehicle for mentorship and guidance for dance majors the junior year.
Au, Wi, Sp Qtrs. 3 1.5-hr mtgs per qtr. Only open to dance majors with jr standing. Repeatable to a maximum of 1 cr hr. This course is graded S/U.

411.04 Dance Technique II: Modern Dance  UGRD 1-6
Technique Part 1
Technique: modern dance and ballet level II, part 1.
Au Qtr. Arr. Prereq: Qualifying audition or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 214.04.

411.05 Dance Technique II: Ballet Technique Part 2  UGRD 1-6
Technique: modern dance and ballet level II, part 1.
Au Qtr. Arr. Prereq: Qualifying audition or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 214.05.

411.06 Dance Technique II: Modern Dance  UGRD 1-6
Technique Part 2
Technique: modern dance and ballet level II, part 2.
Wi Qtr. Arr. Prereq: 411.04 or permission of instructor. Open only to dance majors.
Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 214.06.

411.07 Dance Technique II: Ballet Technique Part 2  UGRD 1-6
Technique: modern dance and ballet level II, part 2.
Wi Qtr. Arr. Prereq: 411.05 or permission of instructor. Open only to dance majors.
Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 214.07.

411.08 Modern Dance Technique Part 3  UGRD 1-6
Technique: modern dance and ballet level II, part 3.
Sp Qtr. Arr. Prereq: 411.06 or permission of instructor. Open only to dance majors.
Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 214.08.

411.09 Dance Technique II: Ballet Technique Part 3  UGRD 1-6
Technique: modern dance and ballet level II, part 3.
Sp Qtr. Arr. Prereq: 411.07 or permission of instructor. Open only to dance majors.
Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 214.09.

489 Internship in Dance  UGRD 0-3
A cooperative education or internship assignment conducted under the supervision of a faculty member.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

511.04 Dance Technique III: Modern Dance  UGRD 1-6
Technique Part 1
Technique: modern dance and ballet level III, part 1.
Au Qtr. Arr. Prereq: Qualifying audition or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 354.04

511.05 Dance Technique III: Ballet Technique Part 2  UGRD 1-6
Technique: modern dance and ballet level III, part 2.
Wi Qtr. Arr. Prereq: 511.04 or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 354.05.

511.06 Dance Technique III: Modern Dance  UGRD 1-6
Technique Part 2
Technique: modern dance and ballet level III, part 2.
Wi Qtr. Arr. Prereq: 511.05 or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 354.06.

511.07 Dance Technique III: Ballet Technique Part 2  UGRD 1-6
Technique: modern dance and ballet level III, part 2.
Wi Qtr. Arr. Prereq: 511.06 or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 354.07.

511.08 Dance Technique III: Modern Dance  UGRD 1-6
Technique Part 3
Technique: modern dance and ballet level III, part 3.
Sp Qtr. Arr. Prereq: 511.07 or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 354.08.

600 Senior Advising Colloquium  UGRD 1
The advising colloquium is the primary vehicle for mentorship and guidance for dance majors the senior year.
Au, Wi, Sp Qtrs. 3 1.5-hr mtgs per qtr. Only open to dance majors with sr standing. Repeatable to a maximum of 1 cr hr. This course is graded S/U.

601.01 Supplemental Studies in Dance: Modern Technique  UGRD 1-5
Foundations in dance.
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

601.02 Supplemental Studies in Dance: Ballet Technique  UGRD 1-5
Foundations in dance.
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

601.04 Supplemental Studies in Dance: Tap Dance  UGRD 1-5
Foundations in dance.
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

601.05 Supplemental Studies in Dance: Historical Dance  UGRD 1-5
Foundations in dance.
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

601.06 Supplemental Studies in Dance: Jazz Dance  UGRD 1-5
Foundations in dance.
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

601.08 Supplemental Studies in Dance: Other  UGRD 1-5
Foundations in dance.
Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

605 Dance Dynamics  UGRD 3
Study of the dancer's dynamic energy.
Wi Qtr. 2.5-hr cl. Prereq: 645 or jr standing, or 845 and grad standing; or permission of instructor. Repeatable to a maximum of 6 cr hrs.

606 Space Design  UGRD 3
The study of spatial forms in dance.
610 Issues in Videodance
An introduction to studies in dance on camera, exploring aspects of history, composition and technology as a foundation for videodance production.
Sp Qtr. 2.2-hr cl. Prereq: Dance major with jr standing or higher; or permission of instructor. Repeatable to a maximum of 6 cr hrs.

611.04 Dance Technique IV: Modern Dance
Technique: modern dance and ballet level IV, part 1.
Au Qtr. Prereq: Qualifying audition or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 637.04

611.05 Dance Technique IV: Ballet Technique Part
Technique: modern dance and ballet level IV, part 1.
Au Qtr. Prereq: Qualifying audition or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 637.05

611.06 Dance Technique IV: Modern Dance
Technique Part 2
Technique: modern dance and ballet level IV, part 2.
Wi Qtr. Prereq: 611.04 or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 637.06.

611.07 Dance Technique IV: Ballet Technique Part
Technique: modern dance and ballet level IV, part 2.
Wi Qtr. Prereq: 611.05 or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 637.07.

611.08 Dance Technique IV: Modern Dance
Technique Part 3
Technique: modern dance and ballet level IV, part 3.
Sp Qtr. Prereq: 611.06 or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 637.08.

611.09 Dance Technique IV: Ballet Technique Part
Technique: modern dance and ballet level IV, part 3.
Sp Qtr. Prereq: 611.07 or permission of instructor. Open only to dance majors. Repeatable to a maximum of 9 cr hrs. Including cr hrs earned in 637.09.

620 Dance Notation I
Basic principles of Labanotation; work in theory, readings, and writing using motif descriptions.
Sp Qtr. Prereq: 1 yr as dance major or permission of instructor.

621 Dance Notation II
Continuation of 620; emphasis on Labanotation.
Au Qtr. Prereq: 620 or permission of instructor.

622 Dance Notation III
Continuation of 621; emphasis on reading dance.
Wi Qtr. Prereq: 621 or permission of instructor. E622 may be available for honors embedded experience.

623 Advanced Notation
Advanced Labanotation.
Au, Wi Qtr. Prereq: 622 or equiv with written permission of instructor. Repeatable to a maximum of 9 cr hrs.

624 Directing from Score
Methods of teaching and coaching a dance learned from a Labanotated score.
Sp Qtr. 3.1-hr cl. Prereq: 623. Repeatable to a maximum of 16 cr hrs.

632 Sound Design for Dance
This course will focus on how Music/Sound design techniques are used in composing for dance.
Wi, Sp Qtr. Prereq: Open to dance majors and minors, or with permission of instructor. Repeatable to a maximum of 4 cr hrs.

633 Lighting for Dance
A study of stage lighting for dance; lectures, readings, and discussions.
Au, Wi, Sp Qtr. Prereq: 198 or equiv. Repeatable to a maximum of 15 cr hrs.

634 Costume Design and Construction for Dance
Introduction to the art of costume design and costume construction specifically for dance.
Repeatable to a maximum of 9 cr hrs.

645 Foundations in Dance Composition I
Foundations in Dance Composition I.
Au Qtr. Prereq: 111.03 or 311.03 or equiv. Open only to dance majors or by permission of instructor. Repeatable to a maximum of 12 cr hrs.

646 Foundations in Dance Composition II
Wi Qtr. Prereq: 645. Open only to dance majors. Repeatable to a maximum of 12 cr hrs.

648 Music and Choreography
Study of music suitable for choreographic purposes and the various approaches to the use of music in dance composition.
Sp Qtr. Prereq: 646 and Music 140 or 141 or 250 or 251.

651.01 Repertory: Existing Work
Experience in learning a dance.
Sp Qtr. Prereq: Qualifying audition or permission of instructor. Open only to dance majors. Repeatable to a maximum of 12 cr hrs.

651.02 Repertory: New Work
Experience in learning a dance.
Au Qtr. Prereq: Qualifying audition or permission of instructor. Open only to dance majors. Repeatable to a maximum of 12 cr hrs.

658 Early Ballet History
Survey of the history of ballet from the Renaissance to the later part of the 18th century.
Au, Sp Qtr. Prereq.

659 Ballet and Modern Dance History of the 19th and 20th Centuries
Survey of dance from the late 18th century to the 1970’s.
Wi Qtr. 4 cl.

660.11 Dance and Technology: Digital Video Editing
Addressing practical skills in desktop non-linear digital video editing with particular attention to motion and action editing in dance.
Sp Qtr. 2.2-hr cl. Prereq: 260 or grad standing or permission of instructor. Repeatable to a maximum of 6 cr hrs.

660.12 Dance and Technology: Advanced Digital Video Editing
Addressing in-depth skills in desktop non-linear digital video editing with particular attention to dance.
Au Qtr. 2.2-hr cl. Prereq: 660.11 or permission of instructor. Repeatable to a maximum of 6 cr hrs.

660.21 Dance and Technology: Media in Performance
Exploring the unique characteristics of performance that integrates movement and digital media through hands-on creative and technological projects.
Au Qtr. 2.2-hr cl. Prereq: Jr standing and 646.

661 Video Documentation of Dance
Introduction to the practice of videotaping live dance in rehearsal and performance situations.
Sp Qtr. 2.2-hr cl, additional hrs of fieldwork. Prereq: Dance major or minor with jr standing or above, or permission of instructor.

671.10 Somatic Practices: Kinesiology for Dance
Exploration of the skeleton and muscles for mechanical efficiency in movement, including principles of stability and motion as they relate to dance.
Sp Qtr. 2.15-hr cl, 1 lab. Prereq: Soph standing and EEOB 235 recommended. Not open to students with credit for 671.20.

671.20 Somatic Practices: Pilates Matwork
An integrated system of movement, breath, and experiential anatomical awareness that increases core strength, flexibility, and efficiency of movement.
Su, Au, Wi, Sp Qtrs. 2.1.5-hr cl. Repeatable to a maximum of 6 cr hrs.

671.21 Somatic Practices: Pilates Reformer
Improve neuro-skeletal performance, strength, flexibility; focusing on core; use of apparatus extends range from basic matwork.
Su, Au, Wi, Sp Qtrs. 2.1.5-hr cl. Prereq: 671.20 or permission of instructor. Repeatable to a maximum of 6 cr hrs.

671.22 Somatic Practices: Pilates Intermediate Reformer
Continuation of Pilates Reformer Dance 671.21, with more advanced sequences.
Su, Au, Wi, Sp Qtrs. 3.1.5-hr cl. Prereq: 671.21 or permission of instructor. Repeatable to a maximum of 6 cr hrs.

671.30 Somatic Practices: Floor Work
Develop basic technical skills for dance and movement arts by isolating actions while lying on the floor; includes anatomical study.
Su, Au, Wi, Sp Qtrs. 2.1.5-hr cl. Repeatable to a maximum of 6 cr hrs.

671.31 Somatic Practices: Yoga
The practice of the course is designed to improve movement possibilities for dancers and movement practitioners by concentrating on physical postures, breathing, and meditation.
Su, Au, Wi, Sp Qtrs. 3.1.5-hr cl. Repeatable to a maximum of 12 cr hrs.

671.32 Somatic Practices: Barteneff Fundamentals
Focuses on the process of extending the quality and range of the dancer’s movement options based on the work of Irmingard Barteneff.
Su, Au, Wi, Sp Qtrs. 2.1.5-hr cl. Repeatable to a maximum of 6 cr hrs.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Type</th>
<th>Credits</th>
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<tbody>
<tr>
<td>690.04</td>
<td>Dance Performance: Student</td>
<td>UGRD</td>
<td>1-5</td>
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<tr>
<td>690.06</td>
<td>Dance Performance: Workshops</td>
<td>UGRD</td>
<td>1-5</td>
</tr>
<tr>
<td>691</td>
<td>Dance Practicum I</td>
<td>UGRD</td>
<td>1-5</td>
</tr>
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<td>692</td>
<td>Workshop in Dance</td>
<td>UGRD</td>
<td>1-15</td>
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<td>693.01</td>
<td>Dance for Children: Fundamentals of Children's Dance</td>
<td>UGRD</td>
<td>5</td>
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<td>693.02</td>
<td>Individual Studies: Laban Studies</td>
<td>UGRD</td>
<td>1-20</td>
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<td>693.03</td>
<td>Individual Studies: Research</td>
<td>UGRD</td>
<td>1-20</td>
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<tr>
<td>693.04</td>
<td>Individual Studies: Production</td>
<td>UGRD</td>
<td>1-20</td>
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<tr>
<td>693.05</td>
<td>Individual Studies: Other</td>
<td>UGRD</td>
<td>1-20</td>
</tr>
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<td>694</td>
<td>Group Studies</td>
<td>UGRD</td>
<td>1-5</td>
</tr>
<tr>
<td>695</td>
<td>Advanced Dance</td>
<td>UGRD</td>
<td>3-5</td>
</tr>
<tr>
<td>697</td>
<td>Contemporary Dance</td>
<td>UGRD</td>
<td>3</td>
</tr>
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<td>698</td>
<td>Modern Dance</td>
<td>UGRD</td>
<td>3</td>
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<tr>
<td>699</td>
<td>Undergraduate Scholarship: Research and Creative Activity</td>
<td>UGRD</td>
<td>0-15</td>
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This course is for undergraduate dance major students who are interested in pursuing scholarship activity under the guidance of an advisor. 

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<tr>
<td>701.04</td>
<td>Dance Technique: Modern Dance Technique Part 1</td>
<td>UGRD</td>
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<tr>
<td>701.05</td>
<td>Dance Technique: Ballet Technique Part 1</td>
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<tr>
<td>701.06</td>
<td>Dance Technique: Modern Dance Technique Part 2</td>
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<tr>
<td>701.08</td>
<td>Dance Technique: Modern Dance Technique Part 3</td>
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<tr>
<td>701.09</td>
<td>Dance Technique: Ballet Technique Part 3</td>
<td>UGRD</td>
<td>2</td>
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<tr>
<td>703</td>
<td>Dance Theater Choreography and Performance</td>
<td>GRAD</td>
<td>3</td>
</tr>
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<td>704</td>
<td>Choreography Workshop</td>
<td>UGRD</td>
<td>1-5</td>
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<tr>
<td>705</td>
<td>Dance Criticism and Aesthetics</td>
<td>GRAD</td>
<td>3</td>
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<tr>
<td>706</td>
<td>Dance in a Time of Turbulence: Ballet and Modern Dance 18th-20th Century</td>
<td>UGRD</td>
<td>5</td>
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<td>707</td>
<td>Laban Movement Analysis</td>
<td>UGRD</td>
<td>3</td>
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An examination of body articulation, spatial design, and qualities of movement in dance through Laban-based theories. 

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<tr>
<td>708</td>
<td>Group Forms</td>
<td>UGRD</td>
<td>3</td>
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<tr>
<td>709</td>
<td>Postmodernism in Dance</td>
<td>UGRD</td>
<td>3-5</td>
</tr>
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</table>

An inquiry into aesthetic points of view, beliefs, and assumptions inherent in dance practices and dance criticism from the 1960s to the present.
760.01 New Ground I GRAD 5
Introduction to creative concepts in interactive performance; drawing from theories and practices in dance, theatre, architecture, art, computer science, research artistic practices in body/technology continuum. Wi Qtr. 2-2 hr labs plus 8-15 hrs outside rehearsal. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

760.02 New Ground II GRAD 5
Application of foundation work from New Ground I in a creative laboratory; exploration of collaborative design for performance production in non-traditional environments. Sp Qtr. 2-2 hr labs plus 8-15 hrs outside rehearsal. Prereq: 760.01 or permission of instructor. Repeatable to a maximum of 10 cr hrs.

760.03 New Ground III GRAD 5
The study of interactive installations and performance in the creation of technologically mediated environments. Au Qtr. 2-2 hr labs plus 8-15 hrs outside rehearsal. Prereq: 760.02 or permission of instructor. Repeatable to a maximum of 10 cr hrs.

783H Honors Research UGRD 3-5
A program of research and creative investigation for each student with individual conferences resulting in an honors thesis or honors project. Au, Wi, Sp Qtr. Arr. Prereq: 4th yr standing with a pt/hr-ratio of 3.50 in dance, permission of the instructor under whose supervision the work is to be completed, and the Honors Committee of either the College of the Arts or the College of Education. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

786 Student Teaching in Dance in Elementary UGRD 3-15
Education
Observation, participation, and teaching in a public school; seminars and individual conferences. Au, Wi, Sp Qtrs. Arr. Prereq: 689 and permission of dance ed coordinator. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

787 Student Teaching in Dance in Secondary UGRD 3-15
Education
Observation, participation, and teaching in a public school; seminars and individual conferences. Au, Wi, Sp Qtrs. Arr. Prereq: 689 and permission of dance ed coordinator. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

788 Student Teaching Seminar UGRD 1
Forum for discussing pedagogical issues and concerns encountered during the student teaching residency. Au, Wi, Sp Qtrs. 1.5 hr cl. Prereq: 289.01, 289.02, 687.01, 687.02, 688, and 689. Repeatable to a maximum of 2 cr hrs.

801.22 Seminar in Body-Mind Approaches GRAD 3
Introduction to body-mind practices as applied to dance; emphasis on Laban Movement Analysis. Wi Qtr. 3.15 hr cl. Not open to students with 15 cr hrs in 801. Repeatable to a maximum of 8 cr hrs. Including cr hrs earned in 803 and 804.

801.30 Seminar in Dance History: The Black Continuum in American Dance GRAD 3
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 day. Wi Qtr. 2.15 hr cl. Prereq: Grad standing or permission of instructor. Not open to students with 15 cr hrs in 801.

801.31 Current Issues in Dance and Performance GRAD 2
Art
Discussion of current trends in dance and performance art in the context of contemporary issues in society and the arts. Au Qtr. 2.15 hr cl. Prereq: 651.01, 659, 699.04 or 699.06, 759, 845, 846, and 847; or equivs. Not open to students with 15 cr hrs in 801. Repeatable to a maximum of 4 cr hrs.

801.51 Resources Seminar GRAD 2
Designed to meet the needs of graduate students entering the MA and MFA degree programs in dance. Au Qtr. 1 cl. Not open to students with 15 cr hrs in 801. Repeatable to a maximum of 4 cr hrs.

801.61 Graduate Teaching Seminar GRAD 3
Introduces students to various theoretical and methodological approaches to dance pedagogy, as well as a range of topics about teaching in higher education. Sp Qtr. Prereq: Grad standing in dance or permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

801.71 Performance Technique GRAD 2
An interdisciplinary seminar exploring the creative and practical aspects of performance through exercises, readings, and discussion. Wi Qtr. 2.15 hr cl. Prereq: Grad standing in dance, theatre, or vocal performance; or permission of instructor. Not open to students with 15 cr hrs in 801. Repeatable to a maximum of 4 cr hrs.

801.81 Grant Writing Seminar GRAD 2
Creation of grant applications for the arts. Wi Qtr. 1.2 hr cl. Prereq: Grad standing or permission of instructor. Not open to students with 15 cr hrs in 801.

801.91 Applied Technologies for Dance GRAD 3
Technology literacy for dancers introducing practical and creative applications of multimedia tools and fundamental computing skills. Au Qtr. 2.2 hr cl. Prereq: Grad standing. Not open to students with 15 cr hrs in 801. Open only to grad students in the department of dance.

802 Choreographic Projects GRAD 1-5
Advanced choreographic projects. Su, Au, Wi, Sp Qtr. Repeatable to a maximum of 25 cr hrs.

820 Labanotation I GRAD 4
Five-week study of motif writing/description and five-week elementary course in Labanotation. Au Qtr. 3.15 hr cl.

821 Labanotation II GRAD 4
Continuation of 820. Wi Qtr. 3.15 hr cl. Prereq: 820 or permission of instructor.

822 Labanotation III GRAD 4
Continuation of 821. Sp Qtr. 3.15 hr cl. Prereq: 821 or permission of instructor.

823 Labanotation IV GRAD 3-5
Reading, analysis, and writing of complex movement ideas. Au, Wi Qtrs. 3.15 hr cl. Prereq: 822 or equiv. Repeatable to a maximum of 20 cr hrs.

824 Directing from Score GRAD 1-5
Teaching and coaching a dance learned from a Labanotated score. Sp Qtr. Arr. Prereq: One qtr of 823. Repeatable to a maximum of 15 cr hrs.

845 Issues of Choreography I GRAD 3
Investigation of the choreographic process; emphasis on the dynamics of movement. Wi Qtr. 2.15 hr cl. Prereq: Admission to grad program in dance or permission of instructor. Repeatable to a maximum of 6 cr hrs.

846 Issues of Choreography II GRAD 4
Continued investigation of the choreographic process; emphasis on structure. Au Qtr. 3.15 hr cl. Prereq: 845 or permission of instructor. Repeatable to a maximum of 8 cr hrs.

847 Issues of Choreography III GRAD 3
Continued investigation of the choreographic process; emphasis on choreographic invention, structure, and context. Au Qtr. 2.15 hr cl. Prereq: 846 or permission of instructor. Repeatable to a maximum of 6 cr hrs.

851 Graduate Performance Seminar GRAD 1-6
Rehearsal and performance of repertory designed for graduate students pursuing an MFA in Performance. Au, Wi, Sp Qtrs. 2.15 hr cl and 2.15 hr cl. Prereq: Admission to grad program in dance or permission of instructor. Repeatable to a maximum of 18 cr hrs.

860.01 Theories of Performance: The Body GRAD 5
Cross-disciplinary seminar in critical theory considering the body as flesh and bone and as a discursive entity. Sp Qtr. 1.3 hr cl.

880 Research Methods in Dance GRAD 5
Introduction to a variety of methods appropriate to research in dance. Wi Qtr. Prereq: Grad standing or permission of instructor. Required for all MA candidates in dance; MFA candidates who write a thesis.

893.01 Individual Studies in Dance: Choreography GRAD 1-30
Investigation of selected professional problems. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs in any combination of decimal subdivisions. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

893.02 Individual Studies in Dance: Laban Studies GRAD 1-30
Investigation of selected professional problems. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs in any combination of decimal subdivisions. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

893.03 Individual Studies in Dance: Research GRAD 1-30
Investigation of selected professional problems. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs in any combination of decimal subdivisions. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

893.04 Individual Studies in Dance: Production GRAD 1-30
Investigation of selected professional problems. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs in any combination of decimal subdivisions. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.
893.05 Individual Studies in Dance: Other  
Investigation of selected professional problems.  
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs in any combination of decimal subdivisions. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

894 Group Studies  
Advanced problems in dance; individual or group participation. Repeatable to a maximum of 30 cr hrs.

970.01 Master's Project: Choreography and/or Performance  
Research and practical investigation of selected topics for purposes of the Plan B master's project.  
Prereq: Evidence of substantial work in proposed area and standing in dance. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

970.02 Master's Project: Directing and Reconstruction  
Research and practical investigation of selected topics for purposes of the Plan B master's project.  
Prereq: Evidence of substantial work in proposed area and grad standing in dance. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

970.03 Master's Project: Documentation and Analysis of Field Research  
Research and practical investigation of selected topics for purposes of the Plan B master's project.  
Prereq: Evidence of substantial work in proposed area and grad standing in dance. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

970.04 Master's Project: Production  
Research and practical investigation of selected topics for purposes of the Plan B master's project.  
Prereq: Evidence of substantial work in proposed area and grad standing in dance. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

970.05 Master's Project: Other  
Research and practical investigation of selected topics for purposes of the Plan B master's project.  
Prereq: Evidence of substantial work in proposed area and grad standing in dance. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

999 Research in Dance  
Research for thesis purposes only.  
Su, Au, Wi. Repeatable. This course is graded S/U.

Dental Hygiene

100 Dental Hygiene Survey  
Introduction to the University and the Dental Hygiene Program. University policies, procedures and resources; student rights and responsibilities; academic requirements; career and professional issues.  
Su, Au, Wi, Sp Qtr. 10 3-hr clinics. Prereq: Dent hyg soph standing. This course is graded S/U.

201 Oral Anatomy and Tooth Morphology  
Morphology and physiology of human teeth and surrounding structures.  
Au Qtr. 2 cl. 1 recitation, 3 lab hrs. Prereq: Dent hyg soph standing.

210 Human Nutrition and Oral Health  
Introduction to the science of nutrition and dietetics as it pertains to general and oral health; emphasis on dental/nutritional assessment and nutritional education techniques.  
Prereq: Chem 101 or 121; 102 or 122; Biology 101 or 113; admission to Dental Hygiene major.

223.01 Dental Hygiene Therapy I: Introduction to Periodontology  
Understanding of the periodontium in relation to the etiology of periodontal disease, the formation of deposits on teeth and the recognition, classification, and prevention of periodontal disease.  
3 cl. Prereq: 201, 295.

223.02 Dental Hygiene Therapy I: Pre-Clinic Laboratory  
Introduces the dental hygiene student to procedures and techniques necessary to function as a co-therapist in providing initial dental hygiene therapy.  
4 3-hr labs. Prereq: 201, 295.

224.01 Dental Hygiene Therapy II: Topics in Preventive Care for Dental Hygienists  
Introduction and development of knowledge in appropriate use of preventive materials and techniques to arrest and control oral disease.  
2 cl. Prereq: C- or higher in 223.01; Psych 100.

224.02 Dental Hygiene Therapy II: Transition to Clinical Care  
Clinical application of the principles and technical procedures of client/patient management in the practice of dental hygiene.  
1 cl, 4 3-hr lab or clinic. Prereq: 265, 264, C- or higher in 223.01 and 223.02; Psych 100; Anatomy. Prereq or concur: Physiology.

225 Dental Hygiene Elective Clinic  
An elective extension of initial clinical experience in patient care. Emphasizing and reinforcing patient assessment and instrumentation.  
Su Qtr. 10 3-hr clinics. Prereq: 224.02. This course is graded S/U.

233 Oral Histology and Embryology  
A study of the microscopic anatomy of the teeth and surrounding structures; the development of the teeth, oral cavity, and face.  
Wi Qtr. 2 cl. Prereq: Dent hyg 1st yr standing, biology, anatomy.

240 Introduction to General Pathology  
An introduction to the basic principles of pathology and mechanisms of disease; the pathophysiology of common problems involving the various organ systems with emphasis on clinical manifestations.  
Sp Qtr. 2 1-hr cl. Prereq: 233 and prereq or concur: EEOB 232.

263 Oral Radiography  
The theory and technical procedures of oral radiography.  
Wi Qtr. 2 cl. Prereq: DH 201 and soph standing.

264 Oral Radiography Laboratory  
Oral radiography for dental hygienists.  
Wi Qtr. 3-hr lab. Prereq: DH 201 and soph standing.

273 Dental Materials Laboratory  
A study of the composition, chemical and physical properties, manipulation, and uses of various materials employed in the practice of dentistry.  
Sp Qtr. 2 3-hr labs. Prereq: Dent hyg 1st yr standing and Chem 102 or Chem 122. Not open to students with credit for 372.

295 Introduction to Dental Hygiene  
Introduction to the historical, professional, legal, and ethical aspects of dental hygiene.  
Au Qtr. 1 cl. Prereq: Dent hyg soph standing.

301 Local Anesthesia  
Survey of commonly used dental office techniques for managing patient anxiety and pain. Topics include local anesthesia and behavioral management of patients.  
Wi Qtr. Prereq: 201, 321.01.

321.01 Dental Hygiene Therapy III: Intermediate Clinical Dental Hygiene Therapies  
Dental hygiene seminar and application of periodontal therapies and adjunctive procedures for clinical dental hygiene treatment, including ethics, medical emergencies, OSHA, Dental Implants, Root Planing/Curettage.  
3 cl. Prereq: 224.01, 224.02, 240, 250, and 273.

321.02 Dental Hygiene Therapy III: Clinic  
Ongoing clinical experience with emphasis on development of fundamental clinical skills.  
1 cl, 9 hrs clinic. Prereq: 224.01, 224.02, 240, 250, and 273.

321.01 Dental Hygiene Therapy IV: Supportive Periodontal Therapy  
Prepares the student to provide long term monitoring and supportive therapy for periodontally compromised patients in dental practice settings.  
2 cl. Prereq: 321.01, 321.02, 321.03, 330, 338, 341, 380.

322.01 Dental Hygiene Therapy IV: Clinic  
Continuation of clinical development in total patient care. Additional patient treatment modalities are included.  
1 cl, 9 hrs clinic. Prereq: 321.01, 321.02, 321.03, 330, 338, 341, 380.

323.01 Dental Hygiene Therapy V: Outcomes of Patient Care  
Case presentation and literature review are used to develop analytical skills to examine outcomes of patient care. Students prepare case analysis for peer and faculty evaluation.  
1 cl. Prereq: 301, 322.01, 322.02, 383.

323.02 Dental Hygiene Therapy V: Clinic  
Ongoing clinical experience with emphasis on application of clinical techniques on a variety of patients.  
1 cl, 9 hrs clinic. Prereq: 301, 322.01, 322.02.

325 Dental Hygiene Elective Clinic II  
An elective extension of the clinical experience in patient care. Emphasizing refining skills taught in previous clinical courses.  
Su Qtr. 10 3-hr clinics. Prereq: 323.02. This course is graded S/U.

330 Care for Patients with Special Needs  
Development of background to facilitate recognition of the special-needs patient and techniques in dental hygiene care for this population.  
Sp Qtr. 1 2-hr cl. Prereq: Dent hyg jr standing or permission of instructor.
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>331</td>
<td>Pharmacology</td>
<td>UGRD 3</td>
<td>A study of pharmacology including the biochemical basis of drugs used in dentistry which have implications for dental patients and the application of pharmacological agents for specific usage. Wi Qtr. 3 cl. Prereq: 223.01, 240, and EEOB 232.</td>
</tr>
<tr>
<td>333</td>
<td>Introduction to Teaching Dental Hygiene</td>
<td>UGRD 1</td>
<td>Introduction to the fundamentals of teaching and learning in a dental hygiene curriculum.</td>
</tr>
<tr>
<td>334</td>
<td>Didactic Teaching within the Dental Hygiene Profession</td>
<td>UGRD 4</td>
<td>Didactic teaching roles and strategies utilized by dental hygiene professionals in academic setting; underlying theory of learning and teaching. Sp Qtr. Prereq: Enrollment in DHY major.</td>
</tr>
<tr>
<td>335</td>
<td>Clinical Teaching Methodology</td>
<td>UGRD 4</td>
<td>Preparation for teaching dental hygiene in the laboratory, pre-clinic and clinic settings.</td>
</tr>
<tr>
<td>336</td>
<td>Dental Health Education Within Dental Hygiene Practice</td>
<td>UGRD 4</td>
<td>Provides the dental hygienist with advanced skills to help patients achieve good oral health. Lecture and discussion with emphasis on clinical application and evaluation. Wi Qtr. Prereq: Jr or sr standing in Dental Hygiene. Distance Learning Course (Web taught).</td>
</tr>
<tr>
<td>338</td>
<td>Pediatric Dentistry</td>
<td>UGRD 2</td>
<td>Lectures, laboratory, and clinical exercises to prepare students to provide for the pediatric patient.</td>
</tr>
<tr>
<td>340</td>
<td>General Pathology, Pharmacology and Medicine for Dental Hygiene</td>
<td>UGRD 4</td>
<td>Review of common medical conditions affecting adult dental patients including implications for dental hygiene practice; attention to pathophysicsiology and clinical medicine of multiple organ systems. Au Qtr. Prereq: 224.02.</td>
</tr>
<tr>
<td>341</td>
<td>Introduction to Oral Diagnosis</td>
<td>UGRD 2</td>
<td>Introduction to the diagnostic process; pathogenesis, and symptomatology and treatment of oral disease.</td>
</tr>
<tr>
<td>345</td>
<td>Dental Hygiene Special Needs Clinic</td>
<td>UGRD 1</td>
<td>Clinical application of the philosophy and techniques of dental hygiene therapy with emphasis on recognizing special needs and providing appropriate treatment options for patients with special needs. Au, Wi, Sp Qtrns. 3 hrs clinic. Prereq: 321.02. Repeatable to a maximum of 3 cr hrs.</td>
</tr>
<tr>
<td>351</td>
<td>Restorative Dentistry II</td>
<td>UGRD 5</td>
<td>Theory and technical procedures in restoration with compound cavity preparations (amalgam alloy-filled resins) and procedures utilized by advanced qualified personnel in basic and advanced restorative dentistry. Su Qtr. 3 cl, 6 lab hrs. Prereq: Successful completion of 250.</td>
</tr>
<tr>
<td>352</td>
<td>Expanded Functions Clinic I</td>
<td>UGRD 2</td>
<td>Clinical application of expanded function duties permitted by law. Su Qtr. 6 clinic hrs. Prereq or concur: 351.</td>
</tr>
<tr>
<td>373</td>
<td>Dental Materials for Dental Hygienists</td>
<td>UGRD 2</td>
<td>A study of the composition, chemical and physical properties, manipulation, and various materials employed in the practice of dentistry. Sp Qtr. 1 2-hr cl. Prereq: 273.</td>
</tr>
<tr>
<td>380</td>
<td>Community Dental Health</td>
<td>UGRD 2</td>
<td>Development of the knowledge, attitudes, skills and behaviors necessary to promote dental health and prevent dental disease through organized community efforts. Au Qtr. 2 cl. Prereq: 285.</td>
</tr>
<tr>
<td>383</td>
<td>Introduction to Research and Statistical Methods</td>
<td>UGRD 5</td>
<td>Methods utilized in community health research, including study design, sampling, data collection, and the use of statistical tools in the interpretation of quantitative data. Sp Qtr. 4 1-hr cl, 1 2-hr recitation, or microcomputer lab. Prereq: Dent hyg jr standing. GEC course.</td>
</tr>
<tr>
<td>384</td>
<td>Dental Hygiene Care for the Mentally Retarded and Developmentally Disabled</td>
<td>UGRD 1-5</td>
<td>Various handicapping conditions and any oral manifestations; management technique; and practice in a clinical setting; comprehensive on-going follow-up in the group home setting. Au, Wi, Sp Qtrns. 1 cl and arr. Prereq: 223, dent hyg 2nd yr standing, and permission of instructor.</td>
</tr>
<tr>
<td>401</td>
<td>Leadership, Management, and Business Concepts in Dental Hygiene Care Delivery</td>
<td>UGRD 2</td>
<td>Economic, management and employment issues dental practices. Development of skills needed to integrate and manage standards of dental hygiene care within dental practices. Wi Qtr. 2-hr cl. Prereq: Dent hyg sr standing.</td>
</tr>
<tr>
<td>405</td>
<td>Dental Hygiene Career Management</td>
<td>UGRD 3</td>
<td>Economic, management and employment issues; development of skills to integrate and manage current standards of dental hygiene care within existing practices and alternative career settings. Prereq: Admission to Dental Hygiene Baccalaureate Degree Completion Program. No open to students with credit for 401.</td>
</tr>
<tr>
<td>411.01</td>
<td>Dental Hygiene Therapy VI: Advanced Topics in Periodontology</td>
<td>UGRD 2</td>
<td>A continuation of 321.03; includes the most recent advances in periodontal therapy, case studies and a review of the literature. 2 cl. Prereq: 321.01, 323.02, 362, 373, Prereq: 321.03.</td>
</tr>
<tr>
<td>412.02</td>
<td>Dental Hygiene Therapy VII: Clinic</td>
<td>UGRD 3</td>
<td>Continuation of clinical patient care with emphasis on time management. Patient care parameters are expanded. 1 cl, 9 hrs clinic. Prereq: 323.01, 323.02, 362, 373, 411.02.</td>
</tr>
<tr>
<td>412.01</td>
<td>Dental Hygiene Therapy VII: Analysis and Interpretation of Research in Oral Health Care</td>
<td>UGRD 2</td>
<td>Analysis of current oral health research with emphasis on interpretation of research findings and strength of evidence. Au Qtr. 1 2-hr cl. Prereq: 383.</td>
</tr>
<tr>
<td>412.02</td>
<td>Dental Hygiene Therapy VII: Clinic</td>
<td>UGRD 3</td>
<td>A final clinical experience incorporating all previously acquired knowledge, techniques, and procedures. Wi Qtr. 1 cl, 9 hrs clinic. Prereq: 411.02.</td>
</tr>
<tr>
<td>413</td>
<td>Dental Hygiene Therapy VIII</td>
<td>UGRD 1</td>
<td>Clinical application and evaluation of results of dental hygiene therapy. A continuatio of previous clinic courses. Sp Qtr. 1 cl or 1 3-hr clinic. Prereq: 412.01, 412.02.</td>
</tr>
<tr>
<td>420</td>
<td>Oral Radiography and Interpretation</td>
<td>UGRD 1</td>
<td>Interpretation of radiographic normal anatomic structures and pathologic entities; radiation hygiene. Wi Qtr. 1 cl. Prereq: 263 or Dent 545 and dent hyg 264, dent hyg sr standing. Not open to students with credit for 320.</td>
</tr>
<tr>
<td>450</td>
<td>Expanded Functions Clinic II</td>
<td>UGRD 2</td>
<td>A continuation of 352. Au Qtr. 6 clinic hrs. Prereq: 352.</td>
</tr>
<tr>
<td>451</td>
<td>Expanded Functions Clinic III</td>
<td>UGRD 2</td>
<td>A continuation of 450. Wi Qtr. 6 clinic hrs. Prereq: 450.</td>
</tr>
<tr>
<td>452</td>
<td>Expanded Functions Seminar</td>
<td>UGRD 2</td>
<td>Seminar on current expanded functions practice management techniques and current law in Ohio including practical experiences in preparation for Ohio Expanded Functions Qualifying Examination. Sp Qtr. 1 cl, 1 2-hr lab. Prereq: 451.</td>
</tr>
<tr>
<td>461</td>
<td>Nitrous Oxide Sedation</td>
<td>UGRD 1</td>
<td>Review of dental office techniques and behavioral management of patients with anxiety and pain; use of nitrous oxide sedation for anxiety and pain management. Wi Qtr. Prereq: 201 and 301.</td>
</tr>
<tr>
<td>485</td>
<td>Current Concepts in the Practice of Dental Hygiene</td>
<td>UGRD 2</td>
<td>Seminar designed to assist students with legal, ethical, and philosophical concerns of the dental hygienist as a contemporary health care professional. Sp Qtr. 2 hrs lecture. Prereq: 3rd yr standing in BSDH program. GEC course.</td>
</tr>
<tr>
<td>486</td>
<td>Practicum in Dental Hygiene (as course)</td>
<td>UGRD 1-6</td>
<td>Supervised practice outside the traditional clinic in a setting similar to the one in which the dental hygiene student may practice, teach, or conduct research upon graduation. Su, Au, Wi, Sp Qtrns. Arr. Prereq: Sr standing in dent hyg. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>488</td>
<td>Integrated Clinical Dental Hygiene Science Review I</td>
<td>UGRD 1</td>
<td>Integration and review of all areas of dental hygiene related to dental hygiene practice. Application of analytical skills to case analysis. Au Qtr. 1 cl. Prereq: 383, 323.01, 323.02.</td>
</tr>
<tr>
<td>489</td>
<td>Integrated Clinical Dental Hygiene Science Review II</td>
<td>UGRD 1</td>
<td>Continuation of 488. Wi Qtr. 1 cl. Prereq: 488, 411.02, 412.01.</td>
</tr>
</tbody>
</table>
521 Current Periodontal Treatment Issues UGRD 3
Current concepts in etiology, risk factors, assessment, treatment planning, implementation and evaluation of contemporary periodontal treatment modalities and maintenance therapy; investigation of periodontal literature.
Au Qtr. 1 3-hr cl. Prereq: Enrollment in Dental Hygiene Baccalaureate Degree Completion Program.

693 Individual Studies in Dental Hygiene UGRD 1-5
Advanced studies in any relevant area of dental hygiene.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies in Dental Hygiene UGRD 1-5
Group studies in special dental hygiene areas.

**Dentistry**

413 Integrated Basic Science Review DENT 2
Review and apply basic science concepts in context of clinical experiences.
Sp Qtr. Prereq: Dent 2nd yr standing. This course is graded S/U.

415.01 Introduction to Clinical Dentistry: Lecture DENT 3
Didactic introduction to aspects of patient care that will allow students to effectively observe and assist with treatment.
Au Qtr.

415.02 Introduction to Clinical Dentistry: Laboratory
Laboratory and clinical introduction to essential aspects of patient care.
Au Qtr. This course is graded S/U.

416 Introduction to Clinical Dentistry DENT 2
The second in a series of courses which focus on acquisition of knowledge and skills that are basic to providing clinical dentistry treatment.
Wi Qtr. 1 cl, 2 clinic. This course is graded S/U.

417 Oral Anatomy DENT 3
Anatomy of the oral region, dental morphology with laboratory experience.
Au Qtr. 2 cl, 3 lab hrs. Prereq: Dent 1st yr standing.

423 Clinical Evaluative Sciences I DENT 2
Introduction to clinical evaluative sciences. Use of evidence in decision making and applying critical thinking based on objective criteria to the evaluation of clinical practice.
Wi Qtr. 2 cl. Prereq: Dent 1st yr standing.

424 Clinical Evaluative Sciences II DENT 2
Methodological and diagnostic tools applicable to evaluation of oral health care for populations and individual patients. Use of systematic measures for quantifying care quality.
Sp Qtr. 2 cl. Prereq: Dent 1st yr standing.

425 Introduction to Practice Management DENT 1
Introduction to basic concepts of finance and business management as related to dental practice management.
Au Qtr. 1 cl.

427 Introduction to Clinical Dentistry DENT 2
The completion of a series of courses which focus on acquisition of knowledge and skills that are basic to providing clinical treatment.
Sp Qtr. 1 cl, 2 clinic. This course is graded S/U.

430 Restorative Dentistry DENT 3
Overview of disease processes and procedures performed by general dentists and factors that determine appropriate treatment.
Au Qtr. 2 cl, 3 lab hrs. Prereq: Dent 1st yr standing.

432 Restorative Dentistry DENT 3
Principles and techniques for inlay, MOD onlay, and complete veneer crown preparation.
Wi Qtr. 1 cl, 6 lab hrs. Prereq: Dent 1st yr standing.

433 Restorative Dentistry DENT 2
Introduction to occlusion, emphasizing form and function; the occlusal role of posterior teeth in mandibular movement is stressed; includes waxing exercises.
Wi Qtr. 1 cl, 3 lab hrs. Prereq: Dent 1st yr standing.

434 Restorative Dentistry DENT 3
Continuation of 433.
Sp Qtr. 1 cl, 6 lab hrs. Prereq: Dent 1st yr standing.

482 Removable Complete Prosthodontics DENT 2
Fabrication of complete dentures: impression making, cast mounting, arranging artificial teeth, processing acrylic resin and finishing, polishing, and completing dentures.
Au Qtr. Prereq: Dent 2nd yr standing.

489.01 Removable Partial Prosthodontics: Lecture DENT 1
An introduction to the principles of design and construction of removable partial dentures.
Wi Qtr. 1 cl. Prereq: Dent 2nd yr standing.

489.02 Removable Partial Prosthodontics: Laboratory
Laboratory.
Wi Qtr. 4 lab hrs. Prereq: Dent 2nd yr standing.

500 Community Based Dental Education DENT 2
Clinical experience at external clinical sites.
Su Qtr. 6 clinic hrs. Prereq: Dent 4th yr standing. Community based.

501 Community Based Dental Education DENT 2
Clinical experience at external clinical sites.
Au Qtr. 6 clinic hrs. Prereq: Dent 4th yr standing. Community based.

502 Community Based Dental Education DENT 2
Clinical experience at external sites.
Sp Qtr. 6 clinic hrs. Prereq: Dent 4th yr standing. Community based.

503 Community Based Dental Education DENT 2
Clinical experience at external sites.
Sp Qtr. 6 clinic hrs. Prereq: Dent 4th yr standing. Community based.

505 Fundamental Principles of Oral Surgery DENT 2
Basic principles of oral surgery; patient evaluation and management, surgical instrumentation and technique for infection control, teeth extraction, and restorative preparation.
Sp Qtr. 1 cl. Prereq: Dent 2nd yr standing.

510 Oral Biology DENT 4
Wi Qtr. 4 cl. Prereq: Dent 1st yr standing.

514 Oral Biology DENT 4
Integrated craniofacial biology: oral structure and function and wound healing.
Sp Qtr. 4 cl. Prereq: Dent 1st yr standing.

516 Oral Microbiology DENT 2
Microbiology of the oral cavity and its relationship to caries, pulpal and periapical infections and periodontal disease.
Au Qtr. 2 cl. Prereq: Dent 2nd yr standing.

522 Clinical Geriatric Dentistry DENT 1
Deliver of clinical dental care to elderly populations at nursing homes and geriatric clinics.
Su, Au, Wi, Sp Qtrs. 1 day per week.

531 Restorative Dentistry DENT 2
Theory, principles, and procedures for tooth preparations to receive posterior metal ceramic crowns; includes the fabrication of a metal ceramic fixed partial denture.
Su Qtr. 1 cl, 3 lab hrs. Prereq: Dent 2nd yr standing.

532 Restorative Dentistry DENT 2
Functional and cosmetic aspects of anterior teeth; continuing of the study of mandibular movement.
Sp Qtr. 1 cl, 3 lab hrs. Prereq: Dent 1st yr standing.

533 Restorative Dentistry DENT 2
Operative Dentistry I.
Wi Qtr. 1 cl, 3 lab hrs. Prereq: Dent 1st yr standing.

534 Restorative Dentistry DENT 2
Operative Dentistry II.
Sp Qtr. 1 cl, 3 lab hrs. Prereq: Dent 1st yr standing.

535 Restorative Dentistry DENT 3
Theory, principles, and techniques for anterior tooth preparations to receive ceramic crowns and fixed partial dentures.
Au Qtr. 2 cl, 2-4 lab hrs. Prereq: Dent 2nd yr standing.

536.01 Restorative Dentistry I DENT 2
Theory and technique for the restoration of endodontically treated teeth.
Su Qtr. 4 lecture/lab hrs. Prereq: Dent 2nd yr standing.

536.02 Restorative Dentistry II DENT 1
Theory and technique for fabricating metal and ceramic restorations.
Su Qtr. 3 lecture/lab hrs. Prereq: Dent 3rd yr standing.

537 Restorative Dentistry DENT 1
Theory, principles, and techniques for restoring atypically damaged single teeth with directly placed and cast materials.
Wi Qtr. 1 cl, 3 lab hrs. Prereq: Dent 2nd yr standing.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>538</td>
<td>Restorative Dentistry</td>
<td>2</td>
<td>Complex esthetic restorations, diagnosis, treatment planning and care delivery including diastema closures, resin and porcelain veneers, ceramic and composite inlays, intracoronal restorations, onlays. Au Qtr. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>539</td>
<td>Operative Dentistry</td>
<td>1</td>
<td>Competency exam in operative dentistry techniques. Sp Qtr. Arr. clinic. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>540</td>
<td>Restorative Dentistry</td>
<td>2</td>
<td>A continuation of Dent 535. Sp Qtr. 1 cl, 3 lab hrs. Prereq: Dent 2nd yr standing. This course is Progress (&quot;P&quot;) graded. This is the last course in a Progress series with Dent 535.</td>
</tr>
<tr>
<td>544</td>
<td>Physical Evaluation</td>
<td>2</td>
<td>Basic and current concepts in dental management of ambulatory patients with compromised medical systems; diagnosis and management of common dental office emergencies. Sp Qtr. 2 cl. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>545</td>
<td>Diagnostic Sciences I</td>
<td>2</td>
<td>Dental radiology. Su Qtr. 2 cl. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>548</td>
<td>Diagnostic Sciences II</td>
<td>3</td>
<td>Oral diagnosis, radiology, and pathology; radiographic techniques and interpretation; clinical appearance and diagnosis of normal and non-normal oral anatomy. Wi Qtr. 3 cl. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>551</td>
<td>Pediatric Dentistry</td>
<td>2</td>
<td>Introduction to pediatric dentistry emphasizing prevention, diagnosis and treatment of dental caries and pulp therapy. Laboratory techniques required for sealants, restorations and pulpotomy. Wi Qtr. 1 cl, 4 lab hrs. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>564</td>
<td>Periodontology</td>
<td>3</td>
<td>Diagnosis etiology and activity of periodontal diseases; biology and pathophysiology of the disease process. Au Qtr. 3 cl. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>565</td>
<td>Periodontology</td>
<td>3</td>
<td>Examination treatment planning and instrumentation of the periodontal diseased patient; clinical and interdisciplinary management of periodontal diseases. Sp Qtr. 2 cl, 6-3 hr clinics. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>567</td>
<td>Endodontics</td>
<td>1</td>
<td>Basic techniques and procedures used in the treatment of pulpless teeth. Wi Qtr. 1 cl. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>568</td>
<td>Endodontics</td>
<td>1</td>
<td>Laboratory experience in endodontics. Su Qtr. Prereq: Dent 3rd yr standing. This course is graded S/U.</td>
</tr>
<tr>
<td>569</td>
<td>Endodontics</td>
<td>1</td>
<td>The rationale and prognosis of endodontic procedures; application of treatment techniques peculiar to endodontics, including radiography, intracanal preparations, an root fillings. Sp Qtr. 1 cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>571</td>
<td>Pharmacology</td>
<td>3</td>
<td>Pharmacology for dental students I. Wi Qtr. 3 cl. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>572</td>
<td>Pharmacology for Dental Students</td>
<td>3</td>
<td>Pharmacology for dental students II. Sp Qtr. 3 cl. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>579</td>
<td>Local Anesthesia</td>
<td>1</td>
<td>The theory, chemistry, and techniques of local anesthesia for dental procedures. Wi Qtr. 1 cl. Prereq: Dent 2nd yr standing.</td>
</tr>
<tr>
<td>589</td>
<td>Removable Partial Prosthodontics</td>
<td>1</td>
<td>The advanced principles and design of removable partial dentures and their clinical applications. Su Qtr. 1 cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>590</td>
<td>Individual Studies</td>
<td>1-12</td>
<td>Individual studies in any of the recognized fields of dentistry. Su, Au, Wi, Sp Qtrs. Repeatable. This course is letter graded.</td>
</tr>
<tr>
<td>600</td>
<td>Early Clinic Experience</td>
<td>2</td>
<td>Early clinic experience including observation, assisting and limited care delivery. Su, Au, Wi, Sp Qtrs. This course is graded S/U.</td>
</tr>
<tr>
<td>603</td>
<td>Temporomandibular Disorders</td>
<td>1</td>
<td>Overview of non-dental pain in head and face emphasizing temporomandibular disorders. Includes pain neurophysiology, management principles, working diagnosis and initial management or referral. Wi Qtr. 1 cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>604</td>
<td>Physiology for Dental Students I</td>
<td>4</td>
<td>General physiology for dental students one. Au Qtr. 4 cl. Prereq: Dent 2nd year standing. Taught in conjunction with general physiology for dental students two.</td>
</tr>
<tr>
<td>605</td>
<td>Physiology for Dental Students II</td>
<td>4</td>
<td>General physiology for dental students two. Wi Qtr. 4 cl. Prereq: Dent 2nd year standing. Taken in conjunction with general physiology one.</td>
</tr>
<tr>
<td>606</td>
<td>Biochemistry for Dental Students I</td>
<td>4</td>
<td>General biochemistry for dental students one. Au Qtr. Prereq: Dent 1st year standing.</td>
</tr>
<tr>
<td>612</td>
<td>Dental Pharmacology</td>
<td>1</td>
<td>Focus on pharmacological agents that are used in the practice of dentistry and agents that may interact with drugs or procedures used in clinical practice. Prereq: Dent 3rd year standing.</td>
</tr>
<tr>
<td>616</td>
<td>Clinical Primary Care Dentistry</td>
<td>7</td>
<td>Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. Su Qtr. 4 cl. Prereq: Dent 3rd yr standing. This course is Progress (&quot;P&quot;) graded. Credit will be awarded upon completion of 617.</td>
</tr>
<tr>
<td>617</td>
<td>Clinical Primary Care Dentistry</td>
<td>8</td>
<td>Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. Wi Qtr. 4 cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>619</td>
<td>Clinical Primary Care Dentistry</td>
<td>8</td>
<td>Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation. Sp Qtr. 4 cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>620</td>
<td>Orientation to Clinical Dentistry</td>
<td>1-10</td>
<td>Interdisciplinary orientation and direct guidance to clinical practice including clinical policies; procedures; time, patient, and treatment management through individual conferences, classroom presentations, and clinical practice. Su, Au, Wi, Sp Qtrs. Prereq: Dent 3rd yr standing. Repeatable to a maximum of 18 cr hrs.</td>
</tr>
<tr>
<td>621</td>
<td>Dental Ethics</td>
<td>1</td>
<td>Advanced study and critical analysis of the ethical issues associated with the day to day practice of the profession. Au, Wi, Sp Qtrs. 3 3-hr cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>623</td>
<td>Community Dentistry</td>
<td>1</td>
<td>Dental care for the special-needs patient; understanding of the total patient situation, mobility, psychosocial, medical issues, and interpersonal relations. Sp Qtr. 1 cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>625</td>
<td>Practice Management I</td>
<td>1</td>
<td>Dental practice planning and development. Personnel, time and information management. Wi Qtr. 1 cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>626</td>
<td>Practice Management II</td>
<td>1</td>
<td>Accounting and financial planning as related to dental practice management. Sp Qtr. 1 cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>627</td>
<td>Practice Management III</td>
<td>1</td>
<td>Legal issues related to dental practice management. Practice purchase and associations. Su Qtr. 1 cl. Prereq: Dent 3rd yr standing.</td>
</tr>
<tr>
<td>629</td>
<td>Dental Materials</td>
<td>1</td>
<td>Topics include: requirements of ideal materials, sources for evaluation, comparison of testing procedures, clinical evidence and criteria, evaluation of dental laboratories, material selection. Au Qtr. 1 cl. Prereq: Dent 4th yr standing. This course is graded S/U.</td>
</tr>
</tbody>
</table>
630 Restorative Dentistry DENT 3
Techniques for collecting information necessary to diagnose accurately and plan complex prosthodontic care; integrates theory into clinical practice. 
Su Qtr. Prereq: Dent 2nd yr standing.

631 Restorative Dentistry DENT 1
Restorative clinical requirements and procedures plus information on tooth isolation, pulpal protection, laboratory prescriptions and protocol, and pulpal response to restorative procedures. 
Su Qtr. 1 cl. Prereq: Dent 3rd yr standing.

632 Restorative Dentistry DENT 1
Comprehensive diagnosis and treatment planning for restorative and prosthetic dentistry. 
Au Qtr. 1 cl. Prereq: Dent 3rd yr standing.

633 Restorative Dentistry DENT 1
Clinically applied principles for restorative and fixed prosthodontics; includes fluid control, soft-tissue management, electrosurgery, posts and cores, crowns, and fixed partial dentures. 
Wi Qtr. 1 cl. Prereq: Dent 3rd yr standing. This course is Progress (P') graded.

634 Restorative Dentistry DENT 1
Complex prosthodontic treatment considerations; presents treatment considerations for patients with temporomandibular disorders, removable partial dentures, and worn dentitions. 
Sp Qtr. 1 cl. Prereq: Dent 3rd yr standing.

635 Restorative Dentistry DENT 1
Preparation of the restorations for endodontically treated teeth. 
Prereq: Dent 3rd yr standing.

636 Restorative Dentistry DENT 2
This course will enable the participant to recognize the need to restore denition utilizing contemporary dental implants. 
Au Qtr. 2 cl. This course is Progress (P') graded. A 'P' mark as defined by the College of Dentistry may be used.

640 Clinical Restorative Dentistry DENT 2
Competency examination for Dent III students. 
Sp Qtr. 6 clinic hrs. This course is graded S/U.

644 Internal Medicine I DENT 1
Second part of an Internal Medicine series for DDS program students. Topics covered include a general survey of Internal Medicine focused on issues related to treatment of dental patients. 
Prereq: Dent 2nd year standing.

645 Diagnostic Sciences III DENT 2
Provides etiology, pathogenesis, clinical and microscopic features, and management of mucocutaneous disorders, microbial disease, reactive lesions, AIDS, and salivary gland disease. 
Su Qtr. 2 cl. Prereq: Dent 3rd yr standing.

646 Microbiology and Immunology DENT 5
Medical Microbiology and Immunology and their clinical application to dental practice. 
Su Qtr. Prereq: Dent 2nd yr standing or permission of instructor.

647 Immunology DENT 2
Basic immunology and its clinical application to dental practice. 
Su Qtr. 2 cl. Prereq: Dent 2nd yr standing or permission of instructor.

648 Diagnostic Sciences IV DENT 2
Oral pathology; study of clinical appearance epidemiology, etiology, diagnosis, and histopathology of common and rare lesions of oral hard and soft tissues. 
Au Qtr. 2 cl. Prereq: 514, Path 655, and Dent 3rd yr standing.

651.01 Pediatric Dentistry Lecture DENT 3
Treatment planning for pediatric dentistry. Includes discussion of child development, behavioral management, developmental disabilities, space maintenance, periodontal conditions, trauma. 
Au Qtr. 3 cl. Prereq: Dent 3rd yr standing.

652.02 Clinical Pediatric Dentistry DENT 1
Clinical experience in pediatric dentistry. 
Su, Au, Wi, Sp Qtr. 4 clinic hrs. This course is graded S/U.

655 General Pathology DENT 4
Survey of General Pathology for Dental Students. 
Au Qtr. Dent 2 class standing.

656 Orthodontics DENT 5
Orthodontic diagnosis and treatment goals. 
Au Qtr. 4 cl. Prereq: Dent 2nd yr standing.

658 Clinical Orthodontics I DENT 3
Clinical orthodontic course entailing the provision of limited tooth movement. 
Wi Qtr. Prereq: Dent 4th yr standing. This course is graded S/U.

659.02 Orthodontic Case Presentation DENT 1
Students present completed orthodontic treatment cases in a seminar setting. 
Au Qtr. 1 cl. Prereq: Dent 4th yr standing.

660 Clinical Periodontics DENT 1
Clinical rotation in graduate periodontics. Assist and observe patient treatment and participate in small group seminars. 
Sp Qtr. This course is graded S/U.

664 Periodontology DENT 2
Advanced treatment modalities for the management of periodontal diseases with emphasis on surgical corrective techniques; current developments in clinical periodontics. 
Su Qtr. 2 cl. Prereq: Dent 3rd yr standing.

666 Clinical Periodontology DENT 1
Periodontology clinical diagnostic exam and dental prophylaxis (scaling) exam. 
Sp Qtr. Prereq: Dent 3rd yr standing.

668 Clinical Endodontics I DENT 1
Clinical. 
Wi Qtr. 2 clinic hrs. Prereq: Dent 3rd yr standing. This course is Progress (P') graded.

669 Clinical Endodontics II DENT 2
A continuation of 668. 
Sp Qtr. 4 clinic hrs. Prereq: Dent 3rd yr standing. This course is Progress (P') graded. 
This course is offered in a series with 668. This is the final course of the series. A 'P' mark as defined by the College of Dentistry may be used.

672 Pharmacology DENT 1
Review of autonomic pharmacology, psychopharmacology including antipsychotics and antidepressants, anti-Parkinson's therapy, and the principles, mechanisms, classifications, uses of antibiotic, and chemotherapeutic agents. 
Au Qtr. 1 cl. Prereq: Dent 3rd yr standing.

684 Removable Complete Prosthodontics DENT 2
Block assignment of integrated didactic, laboratory, and clinical removable prosthetic instruction. Laboratory competency examination of Dent III students' ability to provide complete prosthodontic treatment. 
Wi Qtr. 36-hr block. Prereq: Dent 2nd yr standing.

685 Complete Denture Clinical Procedures DENT 1
Complete denture clinical procedures. 
Su Qtr. Prereq: Dent 3rd year student.

690 Introduction to Clinical Dentistry V DENT 2
Introduction to aspects of patient care that will allow students to effectively observe and assist with treatment. 
Wi Qtr. Prereq: Dent 2nd yr standing. This course is graded S/U.

691 Introduction to Clinical Dentistry VI DENT 2
Introduction to aspects of patient care that will allow students to effectively observe and assist with treatment. 
Sp Qtr. Prereq: Dent 2nd yr standing. This course is graded S/U.

693 Individual Studies in Dentistry DENT 1-12
Individual studies in any of the recognized fields of dentistry. 
Su, Au, Wi, Sp Qtr. Arr. Repeatable. This course is graded S/U.

700.01 Special Problems: Advanced Oral Surgery and Anesthesia DENT 1-15
Diagnosis and treatment of surgical conditions of the teeth and contiguous structures; advanced techniques in surgery and local and general anesthesia. 
Prereq: Dent postgrad or grad standing. Repeatable.

700.02 Special Problems: Advanced Orthodontics DENT 1-15
Applied osteology and myology in cephalometric roentgenographic interpretations; review of cephalometric and development factors in normal occlusion; correction of malocclusions and dento-facial malformations. 
Prereq: Dent postgrad or grad standing. Repeatable.

700.03 Special Problems: Advanced Periodontics DENT 1-15
Diagnosis and treatment of periodontal disease; correlation between the disease of the periodontium and probable systemic diseases, and management of diseases of a purely dental origin. 
Prereq: Dent postgrad or grad standing. Repeatable.

700.04 Special Problems: Advanced Prosthodontics DENT 1-15
The diagnosis, treatment, and replacement of missing or lost teeth and parts of the mouth by prosthetic appliances; complete removable partial or fixed restorations. 
Prereq: Dent postgrad or grad standing.

700.05 Special Problems: Advanced Oral Pathology and Diagnosis DENT 1-15
The interrelationships of gross microscopic and clinical pathology; current advances in the field of oral pathology and diagnosis. 
Prereq: Dent postgrad or grad standing. Repeatable.
700.08 Special Problems: Advanced Dental Materials
GRAD 1-15
The science of dental materials.
Prereq: Dent postgrad or grad standing. Repeatable.

700.09 Special Problems: Advanced Oral Histology and Embryology
GRAD 1-15
The principles of histology and embryology applied to the structures in the oral region their development, morphology, functions, and clinical relationships.
Prereq: Dent postgrad or grad standing. Repeatable.

700.10 Special Problems: Advanced Operative Dentistry
GRAD 1-15
Clinical problems in operative dentistry and their correlation with problems in related fields of dentistry; special emphasis on preventive dentistry.
Prereq: Dent postgrad or grad standing. Repeatable.

700.11 Special Problems: Pediatrics for Dental Residents
GRAD 2
The Pediatrics curriculum reviews common medical conditions affecting children including dental treatment implications. Modules on history/physical examination, laboratory medicine and emergency medicine are included.
Su Qtr. 2 cl. Prereq: Dent postgrad or grad standing. Prereq: DDS or DMD. Repeatable to a maximum of 25 cr hrs.

701 Advanced Clinical Oral Maxillofacial Surgery
DENT 8
Clinical experience in removal of teeth, biopsy, minor preprosthetic, and post operative patient care.
Su Qtr. 60 clinic hour block. Prereq: Dent 4th yr standing. This course is graded S/U.

702 Oral Surgery Clinic
DENT 1
Oral Surgery Clinic experience for DDS program students in their fourth year.
Sp Qtr. 30 clinic hours. Prereq: Dent 4th yr standing. This course is graded S/U.

704 Advanced Oral and Maxillofacial Surgery
DENT 2
Areas of oral and maxillofacial surgeries; dentofacial deformities; trauma; reconstructive surgery, cysts and tumors; TMJ; head and neck infections; and advanced dentofacial surgery techniques.
Au Qtr. 2 cl. Prereq: Dent 4th yr standing.

708.02 Clinic: University Hospital
DENT 1
 Defines the role of the hospital in the treatment of dental patients and provides experience in the hospital so the dentist can contribute to total patient care. In-patient and out-patient general anesthesia, operating room, emergency room, out-patient dentistry, clinics, hospital pathology service, medicine and surgery conferences, ward rounds, laboratory services, oral surgery rounds.
Su, Au, Wi, Sp Qtrs. 1-4 hr clinic. Prereq: Dent 3rd yr standing. This course is graded S/U.

708.03 Clinic: Children's Hospital
DENT 1
 Defines the role of the hospital in the treatment of dental patients and provides experience in the hospital so the dentist can contribute to total patient care. Operating room, emergency room, out-patient dentistry, out-patient clinics, observation in general anesthesia, medical and surgical conferences, ward rounds, laboratory services.
Su, Au, Wi, Sp Qtrs. 1-4 hr clinic. Prereq: Dent 3rd yr standing. This course is graded S/U.

716 Clinical Primary Care Dentistry
DENT 6
Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation.
Su Qtr. 4 clinic hrs/credit hr. Prereq: Dent 4th yr standing.

717 Clinical Primary Care Dentistry
DENT 6
Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation.
Au Qtr. 4 clinic hrs/credit hr. Prereq: Dent 4th yr standing.

718 Clinical Primary Care Dentistry
DENT 6
Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation.
Wi Qtr. 4 clinic hrs/credit hr. Prereq: Dent 4th yr standing.

719 Clinical Primary Care Dentistry
DENT 10
Clinical experience in primary care dentistry including diagnosis, prognosis, treatment planning, care delivery and evaluation.
Sp Qtr. 4 clinic hrs/credit hr. Prereq: Dent 4th yr standing.

724 Neurophysiology
GRAD 3
Interdisciplinary approach to the physiology and neurobiology of the nervous system.
Au Qtr. Prereq: Permission of instructor. Not open to students with credit for Neuro Se 724 or NeuroGP 724. Cross-listed in Neuroscience Department and Neuroscience Graduate Studies Program.

725 Structure and Function of the Nervous System
GRAD 6
Interdisciplinary approach to the anatomy, neurobiology, physiology and biochemistry of the nervous system.
Wi Qtr. Prereq: Permission of instructor. Not open to students with credit for Neuro Se 725 or NeuroGP 725. Cross-listed in Neuroscience Department and Neuroscience Graduate Studies Program.

730 Integrated Clinical Sciences Review
DENT 2
Integration and review of all areas of dentistry related to general practice.
Su Qtr. Prereq: Dent 4th yr standing.

734 Clinical Restorative Dentistry
DENT 2
Clinical competency examinations; examinations of senior students' ability to perform efficient, high quality routine dentistry.
Wi Qtr. 2 hrs clinical. Prereq: Dent 4th yr standing.

742 Oral Pathology
DENT 1
A review of common oral lesions with emphasis on cause, clinical appearance, signs, symptoms, diagnosis, treatment and management.
Su Qtr. 1 cl. Prereq: Dent 4th yr standing.

744 Clinical Oral Pathology
DENT 2
Review of common oral and paraoral diseases, with emphasis on clinical aspects, diagnosis, and management of various lesions.
Au Qtr. 1-2 hr clinic. Prereq: Dent 4th yr standing.

747 Clinical Oral Radiology I
DENT 1
Clinical Oral Radiology I.
Au Qtr. 2 clinic hrs. Prereq: Dent 3rd yr standing.

748 Clinical Oral Radiology II
DENT 1
A continuation of 747.
Wi Qtr. 2 clinic hrs. Prereq: Dent 3rd yr standing.

749 Clinical Oral Radiology III
DENT 1
A continuation of 748.
Sp Qtr. 2 clinic hrs. Prereq: Dent 3rd yr standing.

756 Orthodontics II
DENT 2
Orthodontic treatment methods.
Wi Qtr. 2 cl. Prereq: Dent 2nd yr standing.

768 Clinical Endodontics III
DENT 2
Clinic.
Au Qtr. 4 clinic hrs. Prereq: Dent 4th yr standing. This course is Progress (P') graded. This course is offered in a series with 769. A 'P' mark as defined by the College of Dentistry may be used.

769 Clinical Endodontics IV
DENT 1
A continuation of 768.
Wi Qtr. 2 clinic hrs. Prereq: Dent 4th yr standing. This course is Progress (P') graded. This course is offered in a series with 769. A 'P' mark as defined by the College of Dentistry may be used.

771 Pharmacology
DENT 1
Pharmacology of drugs used primarily for medical conditions including cardiac glycosides, anti-arrhythmics, calcium channel blockers, anti-anginals, anti-hypertensives, anti-coagulants, anti-neoplastic, and gastrointestinal medications.
Su Qtr. 1 cl. Prereq: Dent 4th yr standing.

776 Clinical Periodontology
DENT 1
Periodontology written periodontal exam and clinical exam of diagnostic findings, scaling and root planing.
Au Qtr. Arr. Prereq: Dent 4th yr standing.

777 Clinical Periodontology
DENT 2
Periodontal clinical and written examinations NE Regional Dental Board format.
Wi Qtr. Arr. Prereq: Dent 4th yr standing.

778 Anxiety and Pain Control
DENT 2
Principles of anxiety control by sedative techniques with nitrous oxide-oxygen conscious sedation and with oral I.M. or I.V. light conscious sedation; methods of pre operative assessment, monitoring, and management of complications; a review of high sedation, deep sedation, and general anesthesia.
Sp Qtr. 2 cl. Prereq: Dent 3rd yr standing.

785 Removable Complete Prosthodontics
DENT 2
Clinical competency examination; examination of Den IV students' ability to provide removable complete prosthodontic treatment.
Wi Qtr. 6 clinic hrs. Prereq: Dent 4th yr standing.

790.09 Advanced Topics: Fixed Prosthodontics
DENT 1-6
Lectures and discussions of current topics, laboratory or clinical participation in problems or investigation related to dentistry. Presented by faculty, guest lecturers or clinicians.
Prereq: Open only to dent students who meet college stated prereqs and who have permission of the college office and instructor. Maximum number of cr hrs course may be repeated varies with student's standing and according to criteria established by college. Repeatable. This course is graded S/U.
790.99 Advanced Topics: Research DENT 1-6
Lectures and discussions of current topics, laboratory or clinical participation in problems or investigation related to dentistry. Presented by faculty, guest lecturers or clinicians.
Prereq: Open only to dent students who meet college stated prerequisites and who have permission of the college office and instructor. Maximum number of cr hrs course may be repeated varies with student's standing and according to criteria established by college. Repeatable. This course is graded S/U.

792.01 Special Lectures in Dentistry: Oral Pathology GRAD 1-5
General principles and concepts of pathology associated with the oral cavity.
Prereq: Permission of instructor. Repeatable.

792.02 Special Lectures in Dentistry: Oral Pathology GRAD 1-5
Local disturbances of the oral cavity.
Prereq: Permission of instructor. Repeatable.

792.03 Special Lectures in Dentistry: Oral Pathology GRAD 1-5
Systemic disturbances and their oral manifestations.
Prereq: Permission of instructor. Repeatable.

792.06 Special Lectures in Dentistry: Dental Therapeutics GRAD 1-5
Principles of pharmacology in relation to patient care.
Prereq: Permission of instructor. Repeatable.

792.07 Special Lectures in Dentistry: Physical Diagnosis GRAD 1-5
Physical evaluation of the dental patient and its correlation with the required treatment.
Prereq: Permission of instructor. Repeatable.

792.08 Conscious Sedation and General Anesthesia GRAD 2
Lectures in special phases in dentistry. Emphasizes drugs and techniques of oral intravenous and inhalation conscious sedation as they are practiced in Dentistry as well as a broad-based overview of general anesthesia deep sedation.
Wi Qtr. 2 cl. Prereq: Permission of instructor. Prereq: DDS or DMD. Repeatable to a maximum of 25 cr hrs.

792.14 Special Lectures in Dentistry: Behavioral Sciences in Dentistry GRAD 1-5
A study of the psychological aspects of dental treatment involving the dentist, patients and dental office staff.
Prereq: Permission of instructor. Repeatable to a maximum of 5 cr hrs.

792.15 Special Lectures in Dentistry: Current Advances in Periodontology GRAD 2
Seminar-based course emphasizing current developments in clinical, translational and basic periodontics. Surgical, technological and therapeutic advances within the past year will be discussed, along with background on previous work in the same area within the last 5 years.
Au, Wi, Sp Qtr. Prereq: Permission of instructor. Prereq: DDS or equiv degree. Repeatable to a maximum of 20 cr hrs. This course is Progress (P) graded. Final grade awarded Spring Quarter. This course is graded S/U.

792.16 Special Lectures in Dentistry: Principles of Mechanics for Orthodontists GRAD 1-5
Study of basic mechanical principles including forces, moments, couples, displacements, rotations, equilibrium, stress-strain, and properties of orthodontic wire.
Wi Qtr. 2-4 cr, 2 hr lab. Prereq: Permission of instructor. Prereq: Enrollment in grad orthodontics program. Open only to grad students in orthodontics.

792.18 Special Lectures in Dentistry: Research Topics in Oral Biology GRAD 1
Presentations by oral biology faculty on their ongoing research projects.
Au Qtr. 1 cl. Prereq: Permission of instructor. Prereq: Permission of instructor.

792.19 Special Lectures in Dentistry: General Dentistry GRAD 1-5
Lectures in special phases of dentistry -- general principles of general dental practice primary oral health care, and related aspects, including practice management, etc. 1-5 hrs seminar and discussion, variable each qtr. Prereq: DDS degree or equiv and permission of instructor. Repeatable. Introduction to the principles of dental specialties in general practice for the graduate in general dentistry.

792.20 Special Lectures in Dentistry: Hospital Dentistry GRAD 1-5
Lectures in special phases of dentistry -- general principles of general hospital dental practice and care of the medical patient.
1-5 seminars. Prereq: DDS or equiv and permission of instructor. Repeatable. Introduction to the principles of interrelationships of medicine and dentistry and the application of these in general practice.

792.21 Special Lectures in Dentistry: Legal Issues in Developing and Managing a Dental Practice GRAD 2
This course outlines and discusses legal issues that a dental professional will be confronted with in dental practice.
Wi Qtr. 10 lecture and discussion sessions. Prereq: Grad standing in a Postdoctoral dental program or permission of instructor. Repeatable.

792.22 Special Lectures in Dentistry: Surgical Orthodontics GRAD 2
To provide the didactic component of the dentofacial deformities program and a prerequisite for participating in the clinical component of interdisciplinary management of patients.
Wi, Sp Qtr. 1 2-hr cl. Prereq: Permission of instructor. Prereq: Enrolled in a postdoctoral (DDS) program or equiv. Repeatable to a maximum of 4 cr hrs. This course is Progress (P) graded. Two qtr sequence. Progress graded first quarter; final grade awarded upon completion of 4 credit hours. This course explains the systematic approach to the diagnosis and treatment planning of complex clinical problems in an interdisciplinary format.

792.23 Special Lectures in Dentistry: Craniofacial Anomalies GRAD 2
Involves presentations of topics on the development, treatment, and management of patients with craniofacial anomalies.
Wi Qtr. 1-5 hr cl. Prereq: DDS or DMD. Limited to first year residents in Orthodontics and Pediatric Dentistry. Repeatable to a maximum of 4 cr hrs.

793.01 Individual Studies: Oral Surgery and Anesthesia GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.02 Individual Studies: Orthodontics GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.03 Individual Studies: Periodontics GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is letter graded.

793.04 Individual Studies: Prosthodontics GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.05 Individual Studies: Oral Pathology GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.06 Individual Studies: Endodontics GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.07 Individual Studies: Pedodontics GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.08 Individual Studies: Operative Dentistry GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.09 Individual Studies: Oral Diagnosis GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.10 Individual Studies: Fixed Partial Prosthodontics GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.11 Individual Studies: Oral Radiography GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

793.12 Individual Studies: Oral Biology Laboratory Rotation GRAD 1-5
Research activities and training in the laboratory of a program faculty member.
Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
793.13 Individual Studies: General Dentistry GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge. 1-5 seminar and discussion hrs, self-paced work. Prereq: DDS degree or equiv, third qtr of post-graduate yr or second post-graduate yr, and permission of instructor. Self-directed course for the upper-level first-yr resident and second-yr resident to pursue areas of interest. Repeatable. This course is graded S/U.

793.14 Individual Studies: Hospital Dentistry GRAD 1-5
Individual assignments in each specialty of dentistry; students will elect to work in desired subjects after a conference with the instructor in charge. 1-5 seminar and discussion hrs, self-paced work. Prereq: DDS or equiv, third qtr of first post-graduate yr or second post-graduate yr and permission of instructor. Self-directed course for upper level first-yr resident and second-yr resident to pursue areas of interest. Repeatable. This course is graded S/U.

793.01 Group Studies: Oral Surgery and Anesthesia DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.01 Group Studies: Oral Surgery and Anesthesia DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.02 Group Studies: Orthodontics DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.03 Group Studies: Periodontics DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.04 Group Studies: Prosthodontics DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.05 Group Studies: Oral Pathology DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.06 Group Studies: Endodontics DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.07 Group Studies: Pedodontics DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.08 Group Studies: Operative Dentistry DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.09 Group Studies: Oral Diagnosis DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.10 Group Studies: Fixed Partial Prosthodontics DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

794.11 Group Studies: Oral Radiography DENT 3-5
Group studies on special problems in each specialty of dentistry. Prereq: Permission of instructor. Repeatable.

795.01 Seminars in Dentistry: Oral Surgery and Anesthesia GRAD 1-5
Discussion of advances in dental science and review of original literature. Prereq: Dent grad standing.

795.02 Seminars in Dentistry: Orthodontics GRAD 1-5
Discussion of advances in dental science and review of original literature. Prereq: Dent grad standing.

795.03 Seminars in Dentistry: Periodontics GRAD 1-5
Discussion of advances in dental science and review of original literature. Wi, 5p Qtrns. Prereq: Dent grad standing. This course is graded S/U.

795.04 Seminars in Dentistry: Prosthodontics GRAD 1-5
Discussion of advances in dental science and review of original literature. Prereq: Dent grad standing.

795.05 Seminars in Dentistry: Oral Pathology GRAD 1-5
Discussion of advances in dental science and review of original literature. Prereq: Dent grad standing.

795.06 Seminars in Dentistry: Endodontics GRAD 1-5
Discussion of advances in dental science and review of original literature. Prereq: Dent grad standing.

795.07 Seminars in Dentistry: Pedodontics GRAD 1-5
Discussion of advances in dental science and review of original literature. Prereq: Dent grad standing.

795.08 Seminars in Dentistry: Operative Dentistry GRAD 1-5
Discussion of advances in dental science and review of original literature. Prereq: Dent grad standing.

795.12 Seminars in Dentistry: General Dentistry GRAD 1-5
Discussion of advances in dental science and review of the original literature that will focus on general community based dental practice and the role of dental specialties. 1-5 hrs of seminar, variable with each qtr. Prereq: DDS or equiv and permission of instructor. Seminar for presentation and discussion of relevant scientific and clinical studies and procedures as they relate to general dental practice.

795.13 Seminars in Dentistry: Hospital Dentistry GRAD 1-5
The focus in this area will be hospital and institutional based general dental practice. Prereq: Dent grad standing.

796.01 Specialty Seminars in Dentistry: Oral Surgery and Anesthesia GRAD 1-5
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. Prereq: Permission of instructor. Repeatable

796.02 Specialty Seminars in Dentistry: Orthodontics GRAD 1-5
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. Prereq: Permission of instructor. Repeatable.

796.03 Specialty Seminars in Dentistry: Periodontics GRAD 1-5
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. Prereq: Permission of instructor. Repeatable.

796.04 Specialty Seminars in Dentistry: Prosthodontics GRAD 1-5
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. Prereq: Permission of instructor. Repeatable.

796.05 Specialty Seminars in Dentistry: Oral Pathology GRAD 1-5
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. Prereq: Permission of instructor. Repeatable.

796.06 Specialty Seminars in Dentistry: Endodontics GRAD 1-5
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. Prereq: Permission of instructor. Repeatable.

796.07 Specialty Seminars in Dentistry: Pedodontics GRAD 1-5
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. Prereq: Permission of instructor. Repeatable.

796.08 Specialty Seminars in Dentistry: Operative Dentistry GRAD 1-5
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. Prereq: Permission of instructor. Repeatable.

796.10 Specialty Seminars in Dentistry: Fixed Partial Prosthodontics GRAD 1-5
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. Prereq: Permission of instructor. Repeatable.

796.12 Specialty Seminars in Dentistry: Oral Biology Seminar
Student presentations of recent research findings, both original and from the literature. Prereq: Permission of instructor. Repeatable to a maximum of 2 cr hrs.
796.13 Speciality Seminars in Dentistry: Advanced General Dentistry
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. 1-5 hrs seminar, variable with each qtr. Prereq: Permission of instructor and DDS or equiv. Repeatable. Seminar for presentation and discussion of clinical cases and advanced techniques with analysis and discussion of relevant literature.

796.14 Speciality Seminars in Dentistry: Hospital General Dentistry
Seminars in each of the specialty areas of dentistry for discussion of pertinent literature, presentation, and discussion of research work and demonstration of advanced techniques. 1-5 seminar hrs, variable each qtr. Prereq: Permission of instructor and DDS or equiv. Seminar for presentation and discussion of clinical cases and advanced techniques with analysis and discussion of the literature in medicine and dentistry. Repeatable.

798.01 Advanced Clinical Practice in Dentistry: Oral Surgery and Anesthesia
Broad exposure to advanced principles and practices in each specialty of dentistry. Prereq: Permission of instructor. Repeatable to maximum of 120 cr hrs.

798.02 Advanced Clinical Practice in Dentistry: Orthodontics
Broad exposure to advanced principles and practices in each specialty of dentistry. Prereq: Orthodontic graduate program. Repeatable to maximum of 120 cr hrs.

798.03 Advanced Clinical Practice in Dentistry: Periodontics
Broad exposure to advanced principles and practices in each specialty of dentistry. Prereq: Permission of instructor. Repeatable to maximum of 120 cr hrs.

798.04 Advanced Clinical Practice in Dentistry: Prosthodontics
Broad exposure to advanced principles and practices in each specialty of dentistry. Prereq: Permission of instructor. Repeatable to maximum of 120 cr hrs.

798.05 Advanced Clinical Practice in Dentistry: Oral Pathology
Broad exposure to advanced principles and practices in each specialty of dentistry. Prereq: Permission of instructor. Repeatable to maximum of 120 cr hrs.

798.06 Advanced Clinical Practice in Dentistry: Endodontics
Broad exposure to advanced principles and practices in each specialty of dentistry. Prereq: Permission of instructor. Repeatable to maximum of 120 cr hrs.

798.07 Advanced Clinical Practice in Dentistry: Pedodontics
Broad exposure to advanced principles and practices in each specialty of dentistry. Prereq: Permission of instructor. Repeatable to maximum of 120 cr hrs.

798.08 Advanced Clinical Practice in Dentistry: Operative Dentistry
Broad exposure to advanced principles and practices in each specialty of dentistry. Prereq: Permission of instructor. Repeatable to maximum of 120 cr hrs.

798.10 Advanced Clinical Practice in Dentistry: Fixed Partial Prosthodontics
Broad exposure to advanced principles and practices in each specialty of dentistry. Prereq: Permission of instructor. Repeatable to maximum of 120 cr hrs.

798.13 Advanced Clinical Practice in Dentistry: Hospital Dentistry
Broad exposure to advanced principles and practices in each specialty of dentistry. To focus in this area will be hospital and institutional based general practice. 35 or more hrs of clinical practice time. Prereq: Permission of instructor and DDS or equiv. Repeatable to a maximum of 120 cr hrs. Clinical practice of application of specialty and general practice principles.

800 Statistical Inferences and its Application to Dentistry
Conceptual foundation of statistics related to basic, clinical and behavioral dental sciences. Su Qtr. Prereq: DDS degree or permission of instructor.

801 Epidemiology of Oral Disease
Principles and techniques used to assess oral disease in human populations. Au Qtr. Prereq: 800 or permission of instructor.

802 Introduction to Dental Research Designs
Conceptual and technical problems in the development and implementation of clinical behavioral and basic science research projects related to dentistry. Wi Qtr. 2 1.5-hr cl. Prereq: 800 or permission of instructor.

803 Biology of Oral Wound Repair
Cell and molecular events of oral wound repair. Focus on biology of hard and soft tissues of oral cavity as related to advanced clinical dentistry. Sp Qtr. 2 1.5-hr cl. Prereq: DDS degree or equiv.

805 Orofacial Pain Management
Review of common non-dental conditions producing chronic pain in the head and neck region. Neurophysiology of pain, diagnosis and treatment are stressed. Sp Qtr. 1 3-hr cl. Prereq: DDS or MD degree.

884 Current Issues in Oral Biology
Overview of current areas of oral health research. Su, Au, Wi, Sp Qtrs. 3 hrs. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course will cover multiple topics of current oral health concern.

894 Group Studies

993 Individual Studies
Advanced individual studies in dentistry. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable. This course is graded S/U.

999 Research in Dentistry
Research for thesis purposes only. Su, Au, Wi, Sp Qtrs. This course is graded S/U. Repeatable.

Dutch

571 Basic Dutch for Reading
Fundamentals of grammar for reading purposes; applicable to students in humanities, sciences, social sciences, and professional schools. * 5 cl. Prereq: Grad standing or permission of instructor.

572 Dutch for Research
Continuation of the principles learned in 571; applied readings in students' disciplines emphasis on close translation, grammatical analysis, and vocabulary building. * 3 cl. Prereq: 571 or equiv or permission of instructor.

Earth Sciences

100 Planet Earth: How it Works
The materials of the Earth's crust, the processes that produce and modify them, and the development of the Earth and its life forms through time. Su, Au, Wi, Sp Qtrs. 4 cl, 1 2-hr lab; or 2 2-hr cl, 1 2-hr lab. Not open to students with credit for Geol Sci 100. Not intended for ASC BS students. This course is available for EM credit. GEC B.A. B.S. course, B.A. B.S. core sequence with 108, 110, 203, 204, 205, 206, 210 or ENR 101 or Geog 120. NS Admis Cond course.

105 Geology and the National Parks
Geologic processes, materials, and history revealed in geologic settings of the National Parks. Au, Wi Qtrs. 4 cl, 1 rec. Not open to students with credit for 100, or Geol Sci 100. Not intended for ASC BS students. GEC B.A. B.S. course, B.A. B.S. core sequence with 108, 110, 203, 205, 206, 210. NS Admis Cond course.

107 Field-based Introduction to Oceanography
Origin, development, and structure of ocean basins and their contents; contemporary oceanic processes of geologic significance. Su Qtr. 1 week, full-time at Stone Lab. Prereq: Permission of instructor. Not open to students with credit for Geol Sci 107.

108 Gems and Precious Stones
General introduction to gems and precious stones, including the origin of gems, identification techniques, and the history of important gems. Su, Sp Qtrs. (H version offered Sp). 4 cl, 1 rec. Honors version is 4 cl, 1 2-hr lab. 108H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for Geol Sci 108. Not intended for ASC BS students. GEC B.A. B.S. course, B.A. B.S. core sequence with 100, 105.

108H Gems and Precious Stones
Gems and Precious Stones.
110 History of Life on Earth—Global Change in the Biosphere
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.
Sp Qtr. 4 cl, 1 lab/discussion. 110H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 100 or 105 or Biology 102 or 114 or Astron 143. Not open to students with credit for Geol Sci 110. This course is available for EM credit. NS Admis Cond course; B.A. phys sci course, B.A. phys sci sequence with 100, 105 or Astron 143.

121 The Dynamic Earth
Minerals, rocks, and their origin; landforms and how they are produced; structural features of the Earth's crust.
Su, Au, Wi, Sp Qtrs. 4 cl, 1 2-hr lab; or 2 2-hr cl, 1 2-hr lab. 121H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Math 104. Not open to students with credit for Geol Sci 121. This course is available for EM credit. GEC B.A. and B.S. phys sci course, B.A. phys sci sequence with 122, 203, 204, 205, 206, 210; B.S. phys sci sequence with 122. NS Admis Cond course.

122 Earth Through Time
Origin and evolution of Earth, including its physical, chemical and biological components; principles of geologic inference and their application to interpreting Earth evolution.
Au, Wi, Sp Qtr. 2 2-hr cl and 1 1-hr rec. Prereq: GEC data analysis course; soph standing and above. Not open to students with credit for Anthro 315. Cross-listed in Anthropology.

151 Natural Disasters: Earthquakes, Volcanic Eruptions and Related Hazards
Occurrence and causes of earthquakes, volcanoes and related hazards, and impact on climate, society, and history.
Sp Qtr. 2 2-hr cl, 1 2-hr recitation. GEC B.A. phys sci course, B.A. phys sci sequence with 205.

155 Energy and Environment
Introduces and examines the fundamentals of energy sources, energy use, energy efficiency and resulting environmental implications of the various energy supplies.
Sp Qtr. 5 1-hr cl or 2 2.5-hr cl. Not open to students with credit for Enr 155. Cross-listed with Enr 155. GEC B.A. phys sci course, B.A. phys sci sequence with 203 and 210.

203 Environmental Geoscience
Concepts and challenges of geological hazards and resources, environmental pollution and health, regional and long-range planning, and global change and sustainability.
Su, Au, Sp Qtrs. 4 cl, 1 2-hr lab; or 2 2-hr cl, 1 2-hr lab. Prereq: 100 or 105 or 121 or 155 or Geol Sci 100 or 105 or 121 or 155. Not open to students with credit for Geol Sci 203. GEC B.A. phys sci course, B.A. phys sci sequence with 100, 105, 121 and 155. NS Admis Cond course.

204 Exploring Water Issues
Water on Earth, human impacts, and scientific and technological issues related to water resources development and conservation.
Wi Qtr. 5 cl. Prereq: 100 or 105 or 121 or 151 or Geol Sci 100, 105, 121 or permission of instructor. Not open to students with credit for Enr 204. GEC B.A. phys sci course, B.A. phys sci sequence with 100 and 121. NS Admis Cond course.

205 The Planets
Comparison of the geological processes of Earth to the planets and moons in the solar system with particular attention to surface environments.
Sp Qtr. 5 cl. Prereq: 100 or 105 or 121 or 151 or Geol Sci 100, 105, 121 or permission of instructor. Not open to students with credit for Geol Sci 205. GEC B.A. phys sci course, B.A. phys sci sequence with 100, 105, 121 or 151.

206 Principles of Oceanography
The origin, development, and structure of ocean basins and their contents; contemporary oceanic processes of geologic significance.
Au, Wi, Sp Qtrs. 4 cl, 1 2-hr lab; or 2 2-hr cl, 1 2-hr lab. Prereq: 100 or 105 or 121 or Geol Sci 100 or 105 or 121 or 155. Not open to students with credit for Geol Sci 206. GEC B.A. phys sci course, B.A. phys sci sequence with 100, 105, 121, or 155. NS Admis Cond course.

210 Energy, Mineral Resources, and Society
Geologic origin, world distribution, and uses of mineral resources critical to society; topics include mineral and fossil fuels, metallic ores, and industrial minerals.
Su, Wi Qtrs. 5 cl. Prereq: 100 or 105 or 121 or 151 or Geol Sci 100 or 105 or 121 or 155. Not open to students with credit for Geol Sci 206. GEC B.A. phys sci course, B.A. phys sci sequence with 100, 105, 121, or 155. NS Admis Cond course.

212 Introduction to Earth Materials
A study of the common minerals and rocks, their associations, occurrences, identifying properties, and origin.
* Sp Qtr. 3 2-hr labs. Prereq: 121 or Geol Sci 121 and Chem 121. Not open to students with credit for Geol Sci 212.

220H Contemporary Topics in Geological Sciences
Geological processes and their underlying principles; diverse issues of current interest and modern investigative techniques introduced in laboratory. 2 cl, 1 3-hr lab. 1 2-hr rec/disc, 1 4-day field trip. Prereq: Introductory geological sciences; and honors student or permission of instructor. Not open to students with credit for Geol Sci H220.

245 Introductory Data Analysis for Earth and Environmental Sciences
Data analysis using cooperative learning environment; topics include data visualization, error analysis, error propagation, probability distributions, hypothesis testing, ANOVA, linear regression, and spatial statistics.
Wi Qtr. 2 2-hr cl, 1 2-hr lab. Prereq: Math 152, or written permission of instructor. Not open to students with credit for Geol Sci 245. GEC data analysis course.

294 Group Studies
Group study of special topics in various fields of the geological sciences.

310 Earth Systems Data Collection and Analysis
Designed to provide an introduction to the basic competencies in observation of earth systems, image interpretation, and software integration.
Au Qtr. 3 1-hr cl, 1 3-hr lab. Prereq: GEC data analysis course; soph standing and above. Not open to students with credit for Geol Sci 310.

315 Evolution: Contemporary and Interdisciplinary Perspectives
Develop an understanding of the interplay among different disciplinary approaches to evolutionary studies.
Sp Qtr. 2 2-hr cl. Prereq: one biology, one anthropology or one earth sciences course.

410 Water in the Basin Hydrologic Cycle
The occurrence and transfer of water in the hydrologic cycle, common measurement approaches, and the importance of water in geological processes and as a resource.
Wi Qtr. 3 1-hr cl and 1 3-hr lab. Prereq. 100, or 121, or Geol Sci 100 or 121 or equiv, or permission of instructor. Not open to students with credit for Geol Sci 410.

411 Water Security for the 21st Century
Examines the major issues that are contributing to the decline in quantity and quality of global freshwater resources and the resultant environmental and societal impacts.
Sp Qtr. 2 2-hr and 1 1-hr cl. Prereq: GEC data analysis course; soph standing and above. Not open to students with credit for Geol Sci 411.

420 Global Oil and Gas Production, Occurrence, and Movement
The origin, migration, accumulation, exploration, and exploitation of oil and gas deposits within a historical context of the evolving global petroleum economy.
3 2-hr cl. Prereq: GEC data analysis course; soph standing and above. Not open to students with credit for Geol Sci 420.

421 Introductory Mineralogy and Crystallography
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.
Au Qtr. 3 cl, 2 2-hr labs. Prereq. Chem 121. Not open to students with credit for Geol Sci 221 or 421.

423 Introductory Petrology
Origin, occurrence, association, and mineral composition of the common rocks; laboratory includes work by macroscopic and microscopic methods.
Wi Qtr. 2 cl, 2 3-hr labs. Prereq: 121 or Geol Sci 121 and 421 or Geol Sci 421. Not open to students with credit for 212 or Geol Sci 212 or 423.

425 Peak Oil and Sustainability
An examination of the problem of decreasing supplies of fossil fuel, alternative energy sources, and possible accommodations.
Wi Qtr. 2 2-hr cl and 1 1-hr rec. Prereq. GEC data analysis course; soph standing and above. Not open to students with credit for Geol Sci 425.

450 The Cryosphere
An introduction to the snow, frozen and ice covered environments; their importance to the overall climatic and geologic systems of the Earth; their variations in time and space.
Au Qtr. 5 1-hr cl. Prereq: 100 or 121, or Geol Sci 100 or 121, or Geog 210 or 220 or H410 or 420 or 520 or permission of instructor.

451H Science in the Courtroom
Development and presentation of expert testimony in a mock trial of a landmark toxic torts case, based on analysis of hydrologie, geologic, and toxicological data.
3 cl, 1 3-hr lab. Prereq: 121 or Geol Sci 121, Chem 122, and Math 152; or permission of instructor. Not open to students with credit for Geol Sci H451. GEC phys sci course.
501 Paleontology UGRD 5
Fundamentals of paleontology and processes responsible for the fossil record, including application of paleontology to paleoclimatology and paleoenvironmental reconstruction. Applications of biological and geological sciences to solution of problems. Students not open to students with credit for Geol Sci 501 or Geol Sci 502.

502 Stratigraphy and Sedimentation UGRD 5
Principles of, and procedures in, stratigraphy and sedimentation, illustrated by field and laboratory studies of sedimentary rocks. Applications of biological and geological sciences to solution of problems. Students not open to students with credit for Geol Sci 502.

530 Structural Geology UGRD 5
An introduction to the principles of rock deformation, the classification and physical origin of rock structures, and crustal tectonic processes. Students not open to students with credit for Geol Sci 530.

550 Geomorphology UGRD 5
Investigation of concepts of landscape development; interpretation of materials, processes, and evolution of landforms produced under diverse climates. Students not open to students with credit for Geol Sci 550.

560 Introductory Geophysics UGRD 5
Methods and techniques of pure and applied geophysics; geological interpretation of geophysical data. Students not open to students with credit for Geol Sci 560.

570 Senior Thesis UGRD 1
The preparation of a report of professional quality, based on a research project. Students not open to students with credit for Geol Sci 570. To be taken during the qtr the student intends to hand in the thesis.

580 Standards-Based Earth Science for Educators UGRD 1-5
Examination of selected essential geoscience topics through appropriate field, laboratory, and classroom activities. Students not open to students with credit for Geol Sci 580.

581 Field Geology I UGRD 5
Concentrated training in the basic essentials of field observation and mapping; the work is done in central Utah, with headquarters in Ephraim. Students not open to students with credit for Geol Sci 581.

582 Field Geology II UGRD 4
Continuation of 581. Students not open to students with credit for Geol Sci 582.

583.01 Field Geology for Educators: Appalachian Mountains UGRD 3
Application of geological principles and interpretation of Earth features in selected areas, with related research reports and teaching units. Students not open to students with credit for Geol Sci 583.01. Intended primarily for in-service and pre-service teachers and education majors. May not be used to satisfy BS degree requirements in Geol. Sci.

583.02 Field Geology for Educators: Bahamas UGRD 3
Application of geological principles and interpretation of Earth features in selected areas, with related research reports and teaching units. Students not open to students with credit for Geol Sci 583.02. Intended primarily for in-service and pre-service teachers and education majors. May not be used to satisfy BS degree requirements in Geol. Sci.

583.03 Field Geology for Educators: Lake Erie UGRD 3
Application of geological principles and interpretation of Earth features in selected areas, with related research reports and teaching units. Students not open to students with credit for Geol Sci 583.03. Intended primarily for in-service and pre-service teachers and education majors. May not be used to satisfy BS degree requirements in Geol. Sci.

583.04 Field Geology for Educators: Unspecified UGRD 3
Application of geological principles and interpretation of Earth features in selected areas, with related research reports and teaching units. Students not open to students with credit for Geol Sci 583.04. Intended primarily for in-service and pre-service teachers and education majors. May not be used to satisfy BS degree requirements in Geol. Sci.

584 Principles of Oceanography for Educators UGRD 3
Origin, development, and structure of ocean basins and their contents; contemporary oceanic processes of geologic significance. Students not open to students with credit for Geol Sci 584.

600 Sedimentology UGRD 5
Source, dispersal, and accumulation of sediments; the interpretation of the environment of sedimentation. Students not open to students with credit for Geol Sci 600.

601.01 Sedimentary Petrology: Sandstones UGRD 5
Identification and interpretation of sedimentary rocks based on mineralogic and textural study of thin sections and hand specimens. Students not open to students with credit for Geol Sci 601.01.

601.02 Sedimentary Petrology: Carbonate Rocks UGRD 5
Identification and interpretation of sedimentary rocks based on mineralogic and textural study of thin sections and hand specimens. Students not open to students with credit for Geol Sci 601.02.

602.01 Carbonate Depositional Systems I UGRD 3
The study of carbonates in modern settings including the origin, composition, and identification of constituents and cement, and depositional environments. Students not open to students with credit for Geol Sci 602.01.

602.02 Carbonate Depositional Systems II UGRD 2
The field study of carbonates in a modern setting such as the Bahamas or southern Florida. Students not open to students with credit for Geol Sci 602.02.

603 Stratigraphy UGRD 5
Advanced study of the principles and procedures of stratigraphic nomenclature, subdivision, correlation, and interpretation, with examples from the international stratigraphic record. Students not open to students with credit for Geol Sci 603.

604 Sequence Stratigraphy UGRD 5
Advanced study of the principles and practice of sequence stratigraphy; cyclicality in stratigraphic record; computer modeling of sedimentary patterns; and reservoir characterization. Students not open to students with credit for Geol Sci 604.

605 Biogeochemical Evolution of the Oceans UGRD 5
Basic principles of stable and radiogenic isotope methods as applied to paleoenvironmental investigation of ancient sediments. Students not open to students with credit for Geol Sci 605.

607 Fundamentals of Geographic Information Systems UGRD 5
Basic principles of geographic and land information systems and their use in spatial analysis and information management. Students not open to students with credit for Geol Sci 607 or Geog 685; or 607 in C&R Plan, Civil En, Geod Sci, Geog, or Nat Res.

613 Micropaleontology UGRD 3
Advanced consideration of the preservation, collection, laboratory methods, interrelationships, and stratigraphic distribution of major groups of animal microfossil in selected areas. Students not open to students with credit for Geol Sci 613.

614 Paleobiology UGRD 3
Advanced consideration of palaeontological principles, palaeontological inference, and evolutionary theory, including patterns and processes, paleoecology, numerical analysis, and fossilization. Students not open to students with credit for Geol Sci 614.
615 Paleocology UGRD 5
Concepts and numerical methods for the advanced treatment of paleoecology, marine community paleoecology, and evolutionary paleoecology in the fossil record.
4 cl, 1 2-hr lab, 1 wkend field trip. Prereq: 614 or Geol Sci 614 or permission of instructor. Not open to students with credit for Geol Sci 615.

617 Petrology of Earth and Planets UGRD 5
Interpretation of processes operating on Earth and on other planets from a petrological perspective.
1 cl, 4 2-hr labs. Prereq: 423 or Geol Sci 423 or equiv. Not open to students with credit for Geol Sci 617.

618 Advanced Historical Geology UGRD 3
Principles of historical-geological analysis and interpretation of Earth's physical, chemical, and biological history.
3 cl. Prereq: 502 or Geol Sci 502 or equiv. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 618 and Earth Sci 618.

620 Principles of Isotope Geology UGRD 5
Theory of natural isotope abundance variations and applications to problems in the earth sciences.
5 cl. Prereq: Sr standing in geol sci or earth sci or related fields. Not open to students with credit for Geol Sci 620.

621 Principles of Geochemistry UGRD 5
Introduction to the chemistry of the solid Earth and hydrosphere describing the processes controlling the distribution of elements.
Au Qtr. 5 cl. Prereq: Sr standing in geol sci or earth sci or related fields; Chem 123 or permission of instructor. Not open to students with credit for Geol Sci 621.

622 Stable Isotope Biogeochemistry UGRD 5
Focus on theoretical and applied aspects of stable isotope biogeochemistry in the natural environment with emphasis on carbon, oxygen and nitrogen.
Prereq: Sr standing in any science program or grad standing in any of the sciences or permission of instructor. Not open to students with credit for Geol Sci 622.

624 Microscopy of Opaque Minerals UGRD 3
Application of the petrographic microscope to the study of opaque minerals and ores, their identification, textures, and paragenesis.
3 2-hr labs. Prereq: 423 or Geol Sci 423. Not open to students with credit for Geol Sci 624.

625 Igneous Petrology UGRD 5
Petrography, petrogenesis, and occurrence of igneous rocks, with special emphasis on phase equilibria; macroscopic and microscopic examination of igneous and petrographic suites in the laboratory.
3 cl, 2 2-hr labs. Prereq: 423 or Geol Sci 423. Not open to students with credit for Geol Sci 625.

627 Global Biogeochemical Cycles UGRD 5
Examination of processes influencing the cycling of major elements in the environment: anthropogenic alteration of these cycles (e.g. nutrient addition, acid rain). The greenhouse gases).
5 cl. Prereq: 621 or Geol Sci 621. Not open to students with credit for Geol Sci 627.

628 Environmental Isotope Geochemistry UGRD 5
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.
5 cl. Prereq: 621 or Geol Sci 621. Not open to students with credit for Geol Sci 628.

629 Principles of Petrology UGRD 5
Application of physics, chemistry, and mathematics to the interpretation of igneous and metamorphic rocks.
5 cl. Prereq: Sr standing in geol sci or earth sci or related fields, or permission of instructor. Not open to students with credit for Geol Sci 629.

635 Advanced Crystallography UGRD 4
Point isometries, derivation of crystallographic point groups, space-lattice types, and crystallographic space-group types; crystallographic calculations emphasizing the metrical matrix and changes of basis.
2 2-hr cl. Prereq: 421 or Geol Sci 421 or equiv. Repeatable to a maximum of 12 cr hrs for the combination of Geol Sci 635 and Earth Sci 635.

636 Advanced Mineralogy UGRD 4
Crystallography and crystal chemistry of the rock-forming silicate minerals.
2 2-hr cl. Prereq: 221 or Geol Sci 221 or 414 or Geol Sci 414 or equiv. Not open to students with credit for Geol Sci 636.

637 X-Ray Diffraction UGRD 3
Emphasis on diffraction by crystalline powders; factors affecting the position and intensity of diffraction maxima; applications include qualitative and quantitative analysis.
2 cl, 1 2-hr lab. Prereq: 414 or Geol Sci 414 or permission of instructor. Not open to students with credit for Geol Sci 637.

641 Geostatistics UGRD 3
Application of statistical methods to geoscience data, including linear error propagation, least-squares estimation, confidence interval estimation, and analysis of variance.
Prereq: Math 153 and Stat 528, or permission of instructor. Not open to students with credit for Geol Sci 641.

642 Geomathematical Analysis UGRD 5
Principles of geoscientific analysis and computing, including digital inversion, factor analysis, discriminant analysis, spectral analysis, digital systems analysis, and presentation graphics for the earth sciences.
5 cl. Prereq: 641 or Geol Sci 641 and Math 153, or written permission of instructor. Not open to students with credit for Geol Sci 642.

644 Tectonic Evolution of Continents UGRD 5
Survey of lithotectonic assemblages and structural associations in Archean, Proterozoic, and Phanerzoic orogenic terranes in relation to tectonic models for crustal evolution.
3 2-hr cl. Prereq: 423 or Geol Sci 423, 502 or Geol Sci 502, and 530 or Geol Sci 530; or written permission of instructor. Not open to students with credit for Geol Sci 644.

645 Advanced Structural Geology UGRD 5
Mechanisms of deformation; dynamic and kinematic analysis of rock structures; field and laboratory methods of structural analysis.
2 2-hr cl, 1 2-hr lab, 1 3-4 day fieldtrip. Prereq: 530 or Geol Sci 530 or equiv. Not open to students with credit for Geol Sci 645.

646 Geodynamics UGRD 5
Application of mathematical and physical methods to the solution of geologic problems in heat flow, plate tectonics, interior dynamics, mountain building, groundwater flow, river mechanics.
5 cl. Prereq: 530 or Geol Sci 530 and written permission of instructor. Not open to students with credit for Geol Sci 646.

650 Glaciers and Landscapes UGRD 5
Glaciers and glacial landforms, glacier flow, and the history of glaciation during the Pleistocene, with emphasis on Ohio.
2 2-hr cl, 1 2-hr lab, field trip. Prereq: 550 or Geol Sci 550 or equiv., or permission of instructor. Not open to students with credit for Geol Sci 650.

651 Hydrogeology UGRD 5
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.
Au Qtr. 4 cl, 1 2-hr lab, 1 all-day field trip. Prereq: 121 or Geol Sci 121 and Math 153. Not open to students with credit for Geol Sci 651.

652 Hydrologic Field Methods for Surface Water and Ground Water UGRD 5
Field study of various ground water and surface water environments (rivers, lakes, wetlands) incorporating the use of hydrologic field equipment and testing procedures. See 3 2-hr cl, 3-5 day field trips, 2 3-day field trips. Prereq: 651 or Geol Sci 651. Not open to students with credit for Geol Sci 652.

660 Geology of Metallic Deposits UGRD 5
Occurrence, origin, distribution, properties, and exploration for metallic deposits.
4 cl, 1 2-hr lab. Prereq: 423 or Geol Sci 423. Not open to students with credit for Geol Sci 660.01 or Geol Sci 660.

661 Petroleum Geology UGRD 5
Petroleum Geology.
Not open to students with credit for Geol Sci 661.

665 Global Change and Sustainability in the Earth System UGRD 5
Analysis of Earth systems, global environmental change and options for sustainability.
Wi Qtr. 5 cl, 1 2-hr lab. Prereq: Sr or grad standing in Geol Sci or Earth Sci, or permission of instructor, 203 or Geol Sci 203 recommended. Not open to students with credit for Geol Sci 663.

670 General and Economic Geology of Selected Areas UGRD 3-5
Concentrated field study of the stratigraphy, structural geology, tectonics, petrology, and geomorphology of a selected region, with special attention to the economic utilization of earth materials.
Au, Sp Qtrs. 5 or 10-day field trip preceding or following the qtr. Post-trip readings and report required. Prereq: 502 or Geol Sci 502, 530 or Geol Sci 530, and 550 or Geol Sci 550; or permission of instructor. Repeatable to a maximum of 15 cr hrs for the combination of Geol Sci 670 and Earth Sci 670.

674 Introduction to Applications of Elemental Chemical Analysis and Electron Microscopy in Earth and Env
Introduction to instrument facilities and how elemental chemical analysis and electron microscopy data can be applied to research in earth and environmental sciences.
Au Qtr. 1 1-hr cl. Repeatable to a maximum of 2 cr hrs. This course is graded S/U.
675 Scanning Electron Microscopy UGRD 2
Basic theoretical concepts and practice of scanning electron microscopy (SEM). Emphasis on hands-on experience, understanding and optimization of SEM images. 1 cl, 1 2-hr lab arr. Prereq: Written permission of instructor. Not open to students with credit for Geol Sci 675. Students use their own samples in lab. This course is graded S/U.

680 Advanced Geophysics UGRD 5
Methods and techniques for study of Earth's crust and interior, involving potential fields, seismology, and heat flow. Au Qtr. 4 cl, 1 2-hr lab. Prereq: 530 or Geol Sci 530, Math 153, and Physics 133. Not open to students with credit for Geol Sci 680.

686 Environmental Geophysics UGRD 5
Principles and applications of geophysical techniques to environmental and site characterization in the shallow subsurface. 4 cl, 1 2-hr lab. Prereq: 121 or Geol Sci 121, Math 151, and Physics 131. Not open to students with credit for Geol Sci 686.

687 Exploration Geophysics UGRD 5
Geophysical practices in exploration; seismology and methods in sedimentary rocks; electrical methods in crystalline rocks; remote-sensing and potential-field methods in regional analysis. 4 cl, 1 2-hr lab. Prereq: 121 or Geol Sci 121, Math 151, and Physics 131. Not open to students with credit for Geol Sci 687.

693.01 Individual Studies: Economic Geology UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.02 Individual Studies: Engineering Geology UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.03 Individual Studies: Earth and Planetary Sciences UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.04 Individual Studies: Field Geology UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.05 Individual Studies: Geochemistry UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.06 Individual Studies: Geomorphology UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.07 Individual Studies: Geophysics UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.08 Individual Studies: Glaciology and Glacial Geology UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.09 Individual Studies: History of the Geological Sciences UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.10 Individual Studies: Hydrogeology UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.11 Individual Studies: Marine Geology, Limnology, and Oceanography UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.12 Individual Studies: Paleontology UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.13 Individual Studies: Petrology and Petrography UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.14 Individual Studies: Remote Sensing and Geographic Information Systems UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.15 Individual Studies: Sedimentation UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.16 Individual Studies: Stratigraphy UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.17 Individual Studies: Structural Geology UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.18 Individual Studies: Earth Science Education UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.19 Individual Studies: Unscheduled UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.20 Individual Studies: Global Change UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.
693.21 Individual Studies: Sustainability UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.22 Individual Studies: Neotectonics UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.23 Individual Studies: Mineralogy UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

693.24 Individual Studies: Mineral Physics UGRD 1-5
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 45 cr hrs for the combination of Geol Sci 693 and Earth Sci 693. Courses repeatable in any combination of decimal subdivisions. This course is graded S/U.

694 Group Studies UGRD 1-5
Group study of special topics in various fields of the geological sciences.

699 Undergraduate Research in Earth Sciences UGRD 1-15
Undergraduate research or creative activities in variable topics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs for the combination of Geol Sci 699 and Earth Sci 699. This course is graded S/U.

703 Principles of Biostatigraphy UGRD 3
Principles of zonal and azonal biostatigraphy; definition, identification, and correlation of standard biostatigraphic units; quantitative development of chronostratigraphically significant azonal frameworks.
3 cl. Prereq: 501 or Geol Sci 501 or 613 or Geol Sci 613 or 614 or Geol Sci 614, and 603 or Geol Sci 603 or 604; or written permission of instructor. Not open to students with credit for Geol Sci 703.

713 Taxonomy and Phylogeny in the Fossil Record UGRD 3
Theory and practice of taxonomy and phylogenetic reconstruction as applied to organisms in the fossil record.
3 cl. Prereq: 614 or Geol Sci 614 or permission of instructor. Not open to students with credit for Geol Sci 713.

714 Biometry UGRD 3
Biometric principles and methods as applied to the solution of taxonomic, ontogenetic and evolutionary problems in the fossil record.
3 cl. Prereq: 614 or Geol Sci 614 and 641 or Geol Sci 641 or equiv; or permission of instructor. Not open to students with credit for Geol Sci 714.

717 Critical Issues in World Freshwater Resources UGRD 5
Examination of major issues relating to the world’s freshwater resources; consideration of increasing water needs with a diminishing supply.
3 cl. 2 labs. Prereq: 651 or Geol Sci 651; 752 or Geol Sci 752 recommended. Not open to students with credit for Geol Sci 717.

718 Aquatic Geochemistry UGRD 5
Examination of the processes that control chemical equilibria in natural waters: acid/base reactions, metal complexation/speciation and oxidation-reduction processes.
Sp Qtr. 2 2-hr cl, 1 1-hr rec. Prereq: Chem 122 and Math 152; or equivs. Not open to students with credit for Geol Sci 718.

719 Environmental Organic Geochemistry UGRD 5
Fate and distribution of organic pollutants in the environment including aqueous solubility, vapor pressure, air/water, air/solvent/water and soil/water partial coefficients.
Au Qtr. 5 cl. Prereq: 718 or Geol Sci 718, and Chem 520 or permission of instructor.
Intended for students in Geol. Sci., Earth Sci, Civil En, and the Grad Environmental Sci Program. Not open to students with credit for Geol Sci 719.

720 Noble Gas Geochemistry UGRD 4
Application of noble gases, K-Ar, and Ar/Ar/ 39Ar/40Ar methods to geological and geochemical problems.
4 cl. Prereq: 620 or Geol Sci 620 or equiv, or written permission of instructor. Not open to students with credit for Geol Sci 720.

725 Isotope Geochemistry of Igneous and Metamorphic Systems UGRD 4
Advanced study of the principles, methods, and applications of stable isotope geochemistry to igneous and metamorphic processes and the origin and evolution of the Earth.
4 cl. Prereq: 620 or Geol Sci 620 or equiv or written permission of instructor. Geol Sci 625 recommended. Not open to students with credit for Geol Sci 725.

746 Rheological Properties of Solids UGRD 3
Principles of rheology of solids and empirical studies of brittle and ductile deformatioin mechanics, with special reference of applications to crust and mantle problems and glacial flow.
1 cl. Prereq: 530 or Geol Sci 530. Not open to students with credit for Geol Sci 746.

750 Paleoclimatology GRA 5
Examination of climate records in ice, lake and marine cores, tree rings, corals and historical records for a global perspective of Quaternary climate change.
2 2-hr cl, 1 1-hr rec. Prereq: Grad standing or permission of instructor. Not open to students with credit for Geol Sci 750. BPRC facilities for recapitation demonstrations.

751 Quantitative Ground-Water Flow Modeling UGRD 5
Principles of analytical and numerical techniques in modeling ground-water flow in porous media, development of two- and three-dimensional steady-state and transient flow codes.
4 cl. 1, 2-hr lab. Prereq: 651 or Geol Sci 651. Not open to students with credit for Geol Sci 751.

752 Contaminants in Aqueous Systems UGRD 5
Examination of the occurrence, fate, and transport of contaminants in waters; emphasis on concepts of fluid flow and mass transport along with practical problems.
4 1 2-hr cl, 2 all-day field trips. Prereq: 651 or Geol Sci 651. Not open to students with credit for Geol Sci 752.

754 Risk Assessment and Management in Earth Systems UGRD 5
Quantitative risk assessment for geologic processes and human activities by applying numerical modeling approaches.
2 2-hr cl, 1 2-hr lab. Prereq: 651 or Geol Sci 651 or appropriate course in engineering or environmental sciences, or permission of instructor. Not open to students with credit for Geol Sci 754.

779 Physical Properties of Minerals and Rocks UGRD 3
Quantitative survey of electrical, magnetic, elastic, inelastic, radiactive, thermal, density, and seismic properties and chemical compositions of rocks and minerals.
3 cl. Prereq: 421 or Geol Sci 421, 680 or Geol Sci 680, and 617 or Geol Sci 617; or equivs; or written permission of instructor. Not open to students with credit for Geol Sci 779.

780 REFLECTION SEISMOLOGY UGRD 3
REFLECTION SEISMOLOGY.
Not open to students with credit for Geol Sci 780.

781 Gravimetry UGRD 3
Analytical treatment of concepts and methods of gravimetry; introductory theory of gravitational potential; geological interpretation of gravity data.
3 cl. Prereq: 680 or Geol Sci 680 or written permission of instructor. Not open to students with credit for Geol Sci 643, Geol Sci 643, or Geol Sci 781.

782 Magnetometry GRA 3
Advanced magnetic theory and practice applied to investigations of the subsurface, including interpretation of surface, airborne, and satellite magnetic measurements.
3 cl. Prereq: 680 or Geol Sci 680 or written permission of instructor. Not open to students with credit for Geol Sci 782.

784 Paleomagnetism UGRD 3
Physical and mineralogical basis for permanent magnetization in rocks, physical basis of measurement, geological basis for sampling, and geological constraints on interpretation of results.
3 cl. Prereq: 680 or Geol Sci 680 or written permission of instructor. Not open to students with credit for Geol Sci 784.

800 Seminar in Stratigraphy and Basin Analysis GRA 1-3
Consideration of current and classical problems and procedures in biostatigraphic and lithostratigraphic analysis and synthesis.
1-3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 800 and Earth Sci 800.

801 Seminar in Sedimentology GRA 1-3
Consideration of sedimentation, and the structures, petrography, depositional environments, and paleontologic interpretation of sedimentary rocks.
1-3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 801 and Earth Sci 801.

810 Seminar in Paleobiology GRA 1-3
Advanced topics in paleozoologic and paleobotanic morphology, taxonomy, and procedure; current questions in biostatigraphy, paleoecology, and evolutionary development of fossil floras and faunas.
1-3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 810 and Earth Sci 810.
821 Seminar in Isotope Geology and Geochemistry
Discussion of selected topics in isotope geochemistry, geochronology, and cosmochemistry. 1-3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 821 and Earth Sci 821.

822 Seminar in Mineralogy, Mineral Physics, and Petrology
Selected topics in optical mineralogy and igneous, sedimentary, and metamorphic petrology. 1-3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 822 and Earth Sci 822.

824 Seminar in Structural Mineralogy
Seminar in Structural Mineralogy. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 824 and Earth Sci 824.

840 Seminar in Structural Geology
Selected topics in structural geology, rock deformation, and geotectonics. 1-3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 840 and Earth Sci 840.

850 Seminar in Geomorphology and Quaternary Geology
Topics on formation of fluvial, desert, coastal volcanic, mass wasting, weathering, periglacial and glacial landforms; interpretation of Quaternary processes and history of field and classroom. 1-3 hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 850 and Earth Sci 850.

860 Seminar in Mineralogy and Energy Resources
Study of selected deposits of metallic minerals, industrial rocks, and minerals and fossil fuels. 1-3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 860 and Earth Sci 860.

874 Seminar in History of Geologic Concepts
Investigation of geoscience concepts and techniques, of the early literature and of geoscience leaders to provide a firm basis for comprehension of modern science. 1-3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 874 and Earth Sci 874.

880 Seminar in Geophysics
Investigation and discussion of recent developments in geophysics, including exploration geophysics, glaciology, solid-earth geophysics, paleomagnetism, tectonics or engineering evaluation. 1-3 cl. Prereq: Written permission of instructor. Repeatable to a maximum of 18 cr hrs for the combination of Geol Sci 880 and Earth Sci 880.

888 Colloquium in the Earth Sciences
Discussion of current research in the earth sciences. Au, Wi, Sp Qutrs. 1 cl. Prereq: Grad standing in Geol. Sci. or Earth Sci. Repeatable to a maximum of 8 cr hrs for the combination of Geol Sci 888 and Earth Sci 888. This course is graded S/U.

896 Interdepartmental Seminar in Polar and Alpine Studies
Selected topics of instructor's choice including anthropology, biology, climatology, exploration, geology, glaciology, global change, resources and soils. 1 cl. Prereq: Permission of instructor. Not open to students with credit for Geol Sci 896. Given cooperatively by the Byrd Polar Research Center, the College of Biological Sciences, the School of Earth Sciences, and the departments of Geography, and EEOB.

999 Research in the Earth Sciences
Research for thesis and dissertation purposes only. Su, Au, Wi, Sp Qtrns. Repeatable. This course is graded S/U.

East Asian Languages and Literatures

131 East Asian Humanities
Introduction to the contemporary and traditional cultures of China, Korea, and Japan taught through readings, films, demonstrations, and discussions. Su, Au, Wi, Sp Qtrns. 5 cl. GEC arts and hums cultures and ideas course.

293 Individual Studies
Individual investigation of problems in East Asian cultures, languages, and literatures Su, Au, Wi, Sp Qtrns. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

294 Group Studies
Special group studies course in some special area of East Asian language, literature, or culture. Su, Au, Wi, Sp Qtrns. Arr. Repeatable to a maximum of 20 cr hrs.

323 The Buddhist Tradition
History and structure of Buddhism from founding to present in South, Southeast, and East Asia; emphasis on rituals, beliefs, and local and regional variations. 5 cl. Prereq: Rel Stds or Comp Std 270; Comp Std 202.01 or 202.02 recommended. Not open to students with credit for Rel Stds or Comp Std 323. Cross-listed in Comparative Studies.

341 Thought in China, Korea, and Japan
The shaping of three cultures; essentials of the major traditional schools of thought in China, Korea, and Japan and their impact on society. Au, Wi, Sp Qtrns. 5 cl. GEC arts and hums cultures and ideas course.

346 Asian American Film
Introduction to Asian American cinema from the 1960s to the present, including documentaries, feature films, and experimental films. Au, Wi, Sp Qtrns. 2-2 hr cl. GEC arts and hums VPA course.

357 East Asian Folklore
Diverse folk traditions in China, Korea, and Japan; relevant theory; song, narrative, epic, dance, ritual, material culture, tourism; emphasis on local and ethnic cultures. Taught in English.

399H East Asian Thought in the Western Imagination, 1600-2000
Examination of the construction and impact of Buddhism, Confucianism, and Taoism on a number of Western disciplines, including religion, philosophy, literature, economics, and science. Au, Wi, Sp Qtrns. 2-2 hr cl.

601 Classical Tibetan I
Introduction to the basics of classical Tibetan script, pronunciation, and grammar. Au Qtr. 2.1-5 hr cl. Repeatable to a maximum of 15 cr hrs. Taught with real-time videoconferencing delivery.

602 Classical Tibetan II
Introduction to classical Tibetan grammar. Wi Qtr. 2.1-5 hr cl. Prereq: 601. Repeatable to a maximum of 15 cr hrs. Taught with real-time videoconferencing delivery.

603 Classical Tibetan III
Acquaints learners with classical Tibetan grammar and exposes them to introductory readings in the literature. Sp Qtr. 2.1-5 hr cl. Prereq: 602. Repeatable to a maximum of 15 cr hrs. Taught with real-time videoconferencing delivery.

675 Women Writers, Culture, and Society in East Asia
Close examination of representative works of major women writers from China, Japan, and Korea in the cultural and ideological context of each country. Au, Wi, Sp Qtrns. 2-2 hr cl. No knowledge of East Asian languages is required. All reading materials are in English.

677 Performance Traditions in Contemporary East Asia
Introduction to performance traditions of East Asia (China, Korea, and Japan) as they are practiced today; ethnographic methods. Au, Wi, Sp Qtrns. 2-2 hr cl.

683 Scripts of East Asia
A critical survey of writing systems that use Chinese characters, popular and scholarly myths about them, and their impact on the history of ideas. Au, Wi, Sp Qtrns. 2-2 hr cl. Prereq: Chinese or Japanese 103, or permission of instructor.

693 Individual Studies
Individual investigation of East Asian cultures, languages, and literatures. Su, Au, Wi, Sp Qtrns. Prereq: Permission of dept chairperson. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies
Special topics to be announced in the quarter prior to the one in which the course is offered. Su, Au, Wi, Sp Qtrns. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.
607  Study at a Foreign Institution  
UGRD  1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtr. Arr cl. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

700  Learning East Asian Languages in Cross- Cultural Contexts: College Level  
GRAD  4
Principles and practices of teaching an East Asian language as a foreign language at post-secondary level American academic institutions.
Su Qtr. 5 cl. Prereq: High-level competency in the target East Asian language, concurrent registration in 703 and 704, and permission of instructor. Repeatable to a maximum of 8 cr hrs.

701  Pedagogical Syntax for East Asian Languages  
UGRD  5
Training in the presentation of grammar in East Asian language classes; special attention given to problems of translating linguistic studies into teachable units.
Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

702  Materials Preparation for East Asian Languages  
UGRD  5
Preparation of materials for teaching Chinese, Japanese, and Korean; emphasis on the special problems faced by English-speaking students in learning these languages.
Au, Wi, Sp Qtrs. 5 cl. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

703  Presentation of East Asian Languages and Cultures: College Level  
GRAD  4
Preparation and presentation of curriculum and syllabus for East Asian language program at the college level.
Su Qtr. 5 cl. Prereq: High-level competency in the target East Asian language, concurrent registration in 700 and 704, and permission of instructor. Repeatable to a maximum of 10 cr hrs.

704  Teaching Practicum in East Asian Languages: College Level  
UGRD  3-7
Training as a classroom teacher through practice teaching to college students and the observation of classes taught by trainees and master teachers.
Su, Au, Wi, Sp Qtrs. 10 cl. Prereq: High-level competency in the target East Asian language, and permission of instructor. Repeatable to a maximum of 10 cr hrs.

705  Seminar in the Learning of East Asian Languages and Cultures  
UGRD  5
Critical analysis and discussion of insights and theories from various disciplines relevant to the pedagogy of East Asian languages and cultures.
Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: High level competence in an East Asian language, grad standing or advanced undergrad standing, and permission of instructor. Repeatable to a maximum of 10 cr hrs.

710  Learning East Asian Languages in Cross-Cultural Contexts: High School Level  
GRAD  2
Principles and practices of teaching an East Asian language as a foreign language in American high schools.
Su Qtr. 5 cl per week for 4 weeks. Prereq: Intermediate to high competency in the target East Asian language, concurrent registration in 713 and 714, and permission of instructor. Repeatable to a maximum of 4 cr hrs.

710.01 Presentation of East Asian Languages: High School Level: Year One  
GRAD  2
Principles and practices of an East Asian language at the high school level. 5 cl per week for 4 weeks. Prereq: Intermediate to high competency in the target East Asian language, concurrent registration in 710 and 714.01, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is Progress (P) graded. Credit will be given upon completion of 713.02.

710.02 Presentation of East Asian Languages: High School Level: Year Two  
GRAD  1
Principles and practices of an East Asian language at the high school level. 5 cl per week for 2 weeks. Prereq: Intermediate to high competency in the target East Asian language, concurrent registration in 710 and 713.01, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is Progress (P) graded.

714  Teaching Practicum in East Asian Languages: High School Level: Year One  
GRAD  2
Training as a classroom teacher through practice teaching to high school students and the observation of classes taught by trainees and master teachers. 10 cl per week for 4 weeks. Prereq: Intermediate to high competency in the target East Asian language, concurrent registration in 710 and 713.01, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is Progress (P) graded. Credit will be given upon completion of 714.02.

714.02 Teaching Practicum in East Asian Languages: High School Level: Year Two  
GRAD  2
Training as a classroom teacher through practice teaching to high school students and the observation of classes taught by trainees and master teachers. 10 cl per week for 4 weeks. Prereq: Intermediate to high competency in the target East Asian language, concurrent registration in 710 and 714.01, concurrent registration in 713.02, and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is Progress (P) graded.

797  Introduction to Graduate-level East Asian Studies  
GRAD  5
We explore the origin, 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 History 797 or Hist Art 797. Cross-listed in History and History of Art.

801  Teaching East Asian Languages at the College Level  
GRAD  5
Methods and techniques of teaching college-level East Asian languages; selection and preparation of teaching, testing, and laboratory materials; observation of a variety of language classes.
Au Qtr. Two wks intensive workshop previous to qtr followed by a 2-hr wkly cl. Prereq: Permission of instructor. Not open to students with credit for Chinese or Japanese 801. For students enrolled in this course, the minimum number of cr hrs required for graduation is increased by 5 hrs.

850  Analytical Methods  
GRAD  5
Introduction to the literary and linguistic analysis of Chinese and Japanese texts.
Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Chinese or Japanese 800.

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**East European Languages and Literatures**

294  Group Studies  
UGRD  1-5
Topics related primarily to Albanian, Estonian, Hungarian, Latvian, and Lithuanian.
Arr. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. Each language repeatable to a maximum of 20 cr hrs.

671  Grammar of Selected East European Languages  
UGRD  1-5
Fundamentals of grammar as required for reading one of the following: Albanian, Estonian, Hungarian, Latvian, Lithuanian, or Romanian.
Prereq: Permission of instructor. Repeatable to a maximum of 25 cr hrs. Individual languages not repeatable.

672  Reading of Selected East European Languages  
UGRD  5
Reading of elementary and intermediate texts and translating into English one of the following: Albanian, Estonian, Hungarian, Latvian, Lithuanian, or Romanian.
Prereq: 671 (same language) or equiv, and permission of instructor. Repeatable to a maximum of 25 cr hrs. Individual languages not repeatable.

693  Individual Studies  
UGRD  1-10
Topics related primarily to Albanian, Estonian, Hungarian, Latvian, Lithuanian, and Romanian.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of chairperson. Repeatable to a maximum of 20 cr hrs. Including cr hrs earned in 693.40. This course is graded S/U.

694  Group Studies  
UGRD  1-10
Topics related primarily to Albanian, Estonian, Hungarian, Latvian, Lithuanian, and Romanian.
Arr. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. Each language repeatable to a maximum of 20 cr hrs.

697  Study at a Foreign Institution  
UGRD  1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

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**Economics**

110.01 Basic Economic Concepts: Current Economic Events in Historical Perspective  
UGRD  5
Discuss current issues in the political economy within a historical framework, including such topics as taxes and unemployment.
Intended for students who desire a one-course introduction to economics. GEC soc sci human, natural, and economic resources courses.

110.02 Basic Economic Concepts: Freakonomics  
UGRD  5
Discuss current social problems and issues within an economics framework, including topics such as job discrimination and integration.
Intended for students who desire a one-course introduction to economics. GEC soc sci human, natural, and economic resources courses.
110.03 Basic Economic Concepts: Economics of the Internet UGRD 5
Rise of new electronic technology; operation of markets; online shopping; auctions; trading; the evolution of the world economy; and economic growth. Intended for students who desire a one-course introduction to economics. GEC soc sci human, natural, and economic resources courses.

200 Principles of Microeconomics UGRD 5
Introduction to economic theory: supply and demand for goods and services; market structure; the distribution of income. Su, Au, Wi, Sp Qtr. 2-2 hr-cl. 200H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. First required course for students planning to take 500-level courses in econ. GEC soc sci human, natural, and economic resources course. SS Admis Cond course.

201 Principles of Macroeconomics UGRD 5
Theory of national income determination; economic fluctuations; money; government policy; international economics. Su, Au, Wi, Sp Qtr. 2-2 hr-cl. 201H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for 400. GEC soc sci organizations and polities course.

271H Law and Economics UGRD 5
Study of the use of economic analysis to understand the sources of legal rules and the effect of those rules on society. Wi Qtr. 2-2 hr-cl. Prereq: H200 recommended and enrollment in an honors program.

294 Group Studies UGRD 1-5
Current problems not covered in other courses; application of economic analysis of scarcity and choice of current policy significance. 2-2 hr-cl. Prereq: 100 or 200 or equiv. Repeatable to a maximum of 10 cr hrs.

348 Ethics and Social Responsibility in Economic Life UGRD 5
Examines the role of ethical norms and social constraints in determining economic outcomes. At least one of these courses (Econ 110.01 or 110.02 or 110.03 or 200 or 201) is recommended. GEC soc sci individuals and groups course.

367.01 Second Writing Course: The American Economy in the 20th Century UGRD 5
Survey of major economic developments in the American economy during the 20th century. Au, Wi Qtr. Prereq: 200 and 201 or 400, or equivs. GEC second writing courses.

367.02 Second Writing Course: Current Economic Issues in the United States UGRD 5
Study of problems currently facing the U.S. economy. Su, Au, Wi, Sp Qtrs. Prereq: 200 and 201 or 400, or equivs. GEC second writing courses.

371 Economics and the Law UGRD 5
Course covers the ways in which economic theory can be used to understand what the legal system does and where our laws come from. 2-2 hr-cl. Prereq: 200 recommended.

443 The Analysis and Display of Data UGRD 5
Analysis of data; introduction to the internet; introduction to techniques in the graphical presentation of data; designed for economics and international studies majors. Sp Qtr. 2-2 hr-cl, lab, arr. Prereq: Completion of GEC data analysis requirement. Not open to students with credit for Int Stds 443. Cross-listed in International Studies.

444 Elementary Econometrics UGRD 5
Basic methods of data analysis used in economics, including descriptive statistics, hypothesis testing, and regression analysis. Su, Au, Wi, Sp Qtrs. 4 1-hr-cl, or 2-2 hr-cl. Prereq: Stat 145 or 245, or AED Econ 205 or equiv.

479 Economics of Crime UGRD 5
Investigates incentives and deterrents to criminal activity with respect to general economic conditions and analyzes the effectiveness of public policies designed to deter crime. Sp Qtr. 2-2 hr-cl. Prereq: 200.

482 The Economics of Gender in Labor Markets UGRD 5
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. Au Qtr. 2-2 hr-cl. Prereq: 200. GEC social diversity course.

485 Diversity Economics UGRD 5
Examines race, gender, and ethnicity in labor markets; impact of labor market discrimination and differences in human capital acquisition on labor market outcomes Sp Qtr. 2-2 hr-cl. Prereq: 200. GEC social diversity course.

501.01 Intermediate Microeconomic Theory UGRD 5
Theory of consumer behavior; theory of the firm; costs and production; factor price determination; general equilibrium. Prereq: 200 and 201 or 400, or equivs.

501.02 Intermediate Microeconomic Theory UGRD 5
Theory of consumer behavior; theory of the firm; costs and production; factor price determination; general equilibrium. Prereq: 200 and 201 or 400, or equivs.; Designates a calculus based version which requires Math 132 or 151 or 152 or 153 or 161 or 162 or 263 or H263 or H190, or equiv., or permission of instructor.

502.01 Intermediate Macroeconomic Theory UGRD 5
Analysis of the determinants of national output, income and employment levels; theor of economic growth and progressive equilibrium in an economy. Prereq: 200 and 201 or 400, or equivs.

502.02 Intermediate Macroeconomic Theory UGRD 5
Analysis of the determinants of national output, income and employment levels; theor of economic growth and progressive equilibrium in an economy. Prereq: 200 and 201 or 400, or equivs.; Designates a calculus based version which requires Math 132 or 151 or 152 or 153 or 161 or 162 or 263 or H263 or H190, or equiv., or permission of instructor.

505 Experimental Economics UGRD 5
Develops techniques of experimental economics to study individual decision-making, game theory and behavior within markets. Sp Qtr. 2-2 hr-cl. Prereq: 200.

508 Comparative Economic Systems UGRD 5
Principles and institutions for economic decision making under capitalism, socialism, communism, and mixed systems; comparison of selected countries.

515 World Economic Development in Historical Perspective I UGRD 5
First course in a survey of economic development from the middle ages through the 20th century.

516 World Economic Development in Historical Perspective II UGRD 5
Second course in a survey of economic development from the middle ages through the 20th century.

520 Money and Banking UGRD 5
Organization, operation, and economic significance of our monetary and banking system; special reference to current conditions and problems. Su, Au, Wi, Sp Qtrs. 2-2 hr-cl. 520H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 200 and 201 or 400, or equivs.

530 Government Finance in the American Economy UGRD 5
Analysis of fiscal institutions and decision making in the public sector of the America economy; budget planning and execution; taxation, debt, and fiscal policy. Au, Wi, Sp Qtrs. 2-2 hr-cl. Prereq: 200.

531 State and Local Government Finance UGRD 5
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 530 or PubAffs 730 or equivalent. Not open to students with credit for PubAffs 531. Cross-listed in PubAffs.

532 Public Expenditure and Cost-Benefit Analysis UGRD 5
Economics of public choice, public goods, non-market allocations, collective decision making, and net-benefit maximization; case studies. Wi Qtr. 4 cl. Prereq: 200.

537 Middle Eastern Economic Development UGRD 5
Economic conditions, problems, integrations and potentials of Middle Eastern economies using principles of economic development and growth models. Sp Qtr. 2-2 hr-cl. Prereq: 200 or AED Econ 200. Not open to students with credit for AED Econ 437, Int Stds 437, AED Econ 537, or Int Stds 537. Cross-listed in Agricultural, Environmental, and Developmental Economics and International Studies.

547 Economics of War UGRD 5
Concepts of economics are applied to war and conflict, defense spending alliance building, the arms trade, peacekeeping, terrorism, and weapons of mass destruction proliferation. Sp Qtr. Prereq: 200 and 201.
550 Economic Development UGRD 5
Empirical and theoretical consideration of long-term economic changes, including changes in industrial structure, technology, and level of national product; emphasis on developing economies. Prereq: Sp Qtr. 2 2-hr cl. Prereq: 200 and 201, or equivs. Not open to students with credit for 610 or 650.

553 Economics of Population UGRD 5
Uses economic principles to analyze population growth, fertility, mortality, mating, dating, marriage, teen pregnancy, divorce and migration. Sp Qtr. 2 2-hr cl. Prereq: 200.

556 Cooperation and Conflict in the Global Economy UGRD 5
The economic, social, and political bases for and responses to increasing global economic integration. Sp Qtr. 2 2-hr cl. 556H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 200 and 201 or 400, or equivs. Not open to students with credit for Int Stds 556. Cross-listed in International Studies.

560 International Economic Relations UGRD 5
Survey of international economic relations; the basis of world trade; commercial and financial policy, particularly of the United States; and recent international economic organization. Su, Wi Qtr. 2 2-hr cl. Prereq: 200 and 201 or 400, or equivs. Not recommended for students who plan to take 665 and 666.

570 Government and Business UGRD 5
Economic and legal aspects of government regulation of business in the United States philosophies and concepts of public control; contemporary problems. Au, Wi Qtr. 2 2-hr cl. Prereq: 200.

580 Labor Economics and Industrial Relations UGRD 5
Survey of the field of labor economics; trade unionism, collective bargaining; wage determination, employment, unemployment; labor legislation. Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 200.

583 Economics of Sports UGRD 5
Analysis of economic and business aspects of sports teams and their strategic interactions in sports markets. Wi Qtr. 2 2-hr cl. Prereq: 200.

589 Internships UGRD 1-5
Allow students to apply knowledge from their economics courses and learn from hands on experience in approved positions. Su, Au, Wi, Sp Qtrs. Prereq: 200 and 201 with a competitive GPA (many internships require a 3.2 or above but this is not required) open to juniors and seniors, approval of DUS. Applies toward an Econ 500 level elective, 5 credit hours maximum toward major. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

592 Housing Economics UGRD 5
The study of housing markets using the tools of economics. Demand and supply, prices and appreciation, ownership and renting, government policy, and brokerage. Sp Qtr. 2 2-hr cl. Prereq: 200 or AED Econ 200.

594 Group Studies UGRD 5
Topics vary from quarter to quarter and will be announced in advance. Wi Qtr. 2 2-hr cl. Prereq: 200 and/or 201. Repeatable to a maximum of 15 cr hrs.

596H Honors Seminar in Economics UGRD 5
Prepares students to write an undergraduate thesis. Group discussion of research problems, methods, and strategies. Wi Qtr. 1 2-hr cl. Prereq: Honors program enrollment or permission of instructor.

597.01 Issues of the Underground Economy UGRD 5
Focuses on the informal sectors of the underground economy: illegal drugs, arms sale and human trafficking. Applies economic reasoning to analyze these social issues. Wi Qtr. 2 2-hr cl. Prereq: 200 or 201 recommended and minimum rank junior. GEC issues of the contemporary world.

601 Game Theory in Economics UGRD 5
Game theory and applications to strategic situations. Au, Sp Qtrs. 2 2-hr cl or 4 cl. Prereq: 501 and Math 132 or 151 or 152 or 153 or 161 or 162 or 263 or H263 or H110, or equiv.

613 Economic History of the United States UGRD 5
General survey from discovery of America to present; European economic background; westward movement and its effects; development of economic institutions in the United States. Au, Sp Qtrs. 2 2-hr cl. Prereq: 444 or 641, or Stat 245, 501 and 502; or grad standing.

614 Economic History of Western Europe UGRD 5
Survey from 1750 through the post-World War II period; from Britain in the West to Russia in the East. Wi Qtr. 2 2-hr cl. Prereq: 444 or 641, or Stat 245, 501 and 502; or grad standing.

615 Economic Transitions in the 20th Century UGRD 5
Surveys major themes in transitioning economies in the 20th century; focus on planne economies and developing economies as they integrate into world economy. Sp Qtr. 2 2-hr cl. Prereq: 444 or 641 or Stat 245, and Econ 501 or 502 or permission of instructor.

625 National and International Money Markets UGRD 5
Organization, functions, and control of money markets and their submarkets; flow of funds in these markets and investment policies of market participants. 2 2-hr cl. Prereq: 444 or 641, 501, and 520.

640 Probability Theory UGRD 5
Probability, random variables, Markov chains, discrete and continuous distributions, transformations, moment generating function techniques, limit theorems, expectation, variance. Au Qtr. 2 2-hr cl. Prereq: Math 153 or equiv. Not open to students with credit for Stat 520 or 620.

641 Applied Regression and Correlation Analysis UGRD 5
The general linear regression model; multiple correlation, path analysis, analysis of variance and tests of significance; specification errors. Wi Qtr. 2 2-hr cl. Prereq: 501 and Stat 245 or equivs.

642 Applied Economic Models and Forecasting UGRD 5
Application of economic and statistical principles to economic problems; applications include topics in labor economics, industrial organization, macro models, and international trade. Sp Qtr. 2 2-hr cl. Prereq: 501, 502, 641, and Math 132; or equivs.

Comparative advantage and the gains from trade; tariffs and other trade restrictions; economic effects of protective policies; U.S. commercial policies; regional economic integration. Au, Wi, Sp Qtrs. Prereq: 444 or 641 and 501.

666 Financial Aspects of International Trade UGRD 5
International payments and receipts; foreign exchange markets; balance-of-payments adjustment under different monetary systems; macroeconomic policy; international monetary reforms; foreign investments; multinational corporations. Wi, Sp Qtrs. 2 2-hr cl. Prereq: 444 or 641, and 502.

670 Structure of Industry UGRD 5
Nature, role, and regulation of competition; market structure and social performance; antitrust laws; current economic, legal, and policy problems in the antitrust area. Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 444 or 641, and 501, or grad standing.

672 Economic Analysis of Japanese Firms and Markets UGRD 5
Applications of economic analysis to Japanese industrial organization including the firm's internal incentive structure, labor markets, and financial institutions. Sp Qtr. 2 2-hr cl. Prereq: 501 or 501A or 570.

685 Labor Economics UGRD 5
Labor demand and supply; wages, unemployment , and inflation; economics of the household's allocation of time. Wi Qtr. 2 2-hr cl. Prereq: 501 or equiv.

693 Individual Studies UGRD 1-5
Advanced readings in economics and related fields. Su, Au, Wi, Sp Qtrs. Prereq for jrs: An average of B or better in all econ courses taken and a CPRH of 3.00 or above. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies UGRD 3-5
Advanced courses in economics and related fields. Repeatable to a maximum of 15 cr hrs. ~

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (‘P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

699 Undergraduate Research in Economics UGRD 1-10
Directed research related to tasks of an internship for an Economics major, or involve collection and analysis of data and information for a research project. Prereq: 200 or 201. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
700 Advanced Mathematical Techniques in Economics
Advanced mathematical analysis of economics problems; topics to include basic set theory and real analysis; optimization subject to inequality constraints and dynamic optimization.
Prereq: 706 or equiv. Not open to students with credit for this topic under 894.
Au Qtr. 2 6.6-hr cl. Prereq: 600 or equiv. Not open to students with credit for this topic under 894.

701 Dynamic Analysis in Economics
Optimization methods and economic applications, calculus of variations, optimal control, and elements of dynamic programming.
Prereq: 700 or permission of instructor. Primarily for the first year economics Ph.D. students to complement micro, macro and econometrics core courses
Wi Qtr. 2 2.2-hr cl. Prereq: 700 or permission of instructor. Primarily for the first year economics Ph.D. students to complement micro, macro and econometrics core courses

702 Survey of Econometric Methods I
Survey of fundamental methods and applications of econometrics from economists' viewpoints. Emphasis on essential aspects of linear regression and a range of econometric topics.
Prereq: Stat 245 or equiv; Math 571 or equiv; or their econ course equiv with permission of instructor. Not open to students with credit for 741 or 742.

703 Survey of Econometric Methods II
Course explores topics in the econometrics of time series and panel data, with emphasis on empirical examples in econometrics.
Prereq: 702 or equiv or permission of instructor. Not open to students with credit for 741 or 742.

704 Survey of Microeconomics I
A survey of neoclassical economics, its methodology, scope and paradigm extensions: production, consumption and competitive market equilibrium.
Prereq: 501 or permission of instructor. Not open to students with credit for 804 or first course of PHD microeconomics curriculum.

705 Survey of Microeconomics II
The second course in the graduate level survey of microeconomic theory, with emphasis on economics of information and incentives.
Prereq: 704 or equiv with permission of instructor. Not open to students with credit for 805 or 806.

706 Survey of Macroeconomics I
Study of short-run macroeconomic fluctuations and business cycles. Aggregate fluctuations in output, consumption and investment as well as various business cycle theories will be examined.
Prereq: 502 or equiv or permission of instructor. Not open to students with credit for 806, or other first course of PhD macroeconomics curriculum.

707 Survey of Macroeconomics II
Finishes the overview of macroeconomics begun in 706 and then introduces new models of money, banking, unemployment and inflation before turning to economic growth.
Prereq: 706 or equiv with permission of instructor. Not open to students with credit for 807 or 809.

730 Public Finance
Comprehensive survey and analysis of the principal fiscal activities of contemporary governments; logic of public sector activity, taxation principles and practice, intergovernmental relations, current fiscal problems.
Prereq: 2.2-hr cl. Prereq: PubPol&M 830, or Econ 501A and grad standing, or permission of instructor. Not open to students with credit for 809.02.
Wi Qtr. 2 2-hr cl. Prereq: PubPol&M 830, or Econ 501A and grad standing, or permission of instructor. Not open to students with credit for 809.02.

735 Comparative Political Economy
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: 1.3-hr cl. Prereq: Grad standing or permission of instructor. Not open to students with 10 cr hrs of Polit Sc 735. Repeatable to a maximum of 15 cr hrs. Cross-listed in Public Policy and Management.

740 Inference and Decision Analysis
Distinction theory, point and interval estimation, statistical hypothesis testing, decision analysis under uncertainty.
Wi Qtr. 4 cl. Prereq: 640 or equiv.

741 General Linear Regression Analysis
Multiple regression analysis; the general linear model; non-linear and distributed lag models.
Sp Qtr. 4 cl. Prereq: 600 and 740, or Stat 521.

742 Econometrics
Review of the general linear model; identification; estimating criteria; single and simultaneous equation estimation; econometric application.
Prereq: 741 or equiv. Prereq: 741.
819 Economic Behavior under Uncertainty GRAD 5
Axiomatic approaches to economic behavior under uncertainty, classical expected utility paradigm, subjective probability, and behavioral theory of economic choice under uncertainty.
Prereq: 804, 805, and 808, or equiv of the first-year graduate microeconomics sequence with permission of instructor. S/U option available only upon the Economics DGS approval.

820 Monetary Theory GRAD 5
Role of money in theoretical analysis of forces determining and influencing level of income, employment, and prices.
Au Qtr. Prereq: 520, 805, and 806; or equivs.

821 Monetary Economics GRAD 5
Develops monetary economics as a research field and covers a range of topics in the theoretical, empirical and policy aspects of money, credit and banking.
Wi Qtr. Prereq: 806, 807, 809 or permission of instructor. May be graded S/U with approval of Economics Director of Graduate Studies.

830 Advanced Public Finance I GRAD 5
A theoretical and empirical investigation of the economic behavior of the public sector; theory of social goods, problems of tax structure, incidence, multi-unit finance
Au Qtr. Prereq: 805.

832 Advanced Public Finance II GRAD 5
Continuation of 830; topics include intergovernmental relations, tax incidence, and tax reform.
Wi Qtr. Prereq: 830.

840 Time-Series Econometrics GRAD 5
Fundamental elements of time series methods; recently developed techniques for the analysis of economic time series.
Au Qtr. 2-2 hr cl. Prereq: 742.

841 Advanced Econometrics I GRAD 5
Selected advanced topics in econometrics such as non-parametric and semiparametric estimation, numerical optimization, Markov chain, Monte Carlo methods and duration models used in economics.
Prereq: 742 or equiv with permission of instructor.

842 Advanced Econometrics II GRAD 5
Theory and application of advanced quantitative research methods; computerized application of econometric methods developed in 742.
Sp Qtr. Prereq: 742.

843 Research Topics in Micro Econometrics GRAD 5
Surveys and trains advanced PhD students in recent developments in micro econometrics; both theoretical and applied topics in economics will be covered.
Au Qtr. 2 2-hr cl. Prereq: 742, 841 and 842 or equiv with permission of instructor. Repeatable to a maximum of 15 cr hrs.

844 Research Topics in Time Series Econometrics GRAD 5
Surveys and trains advanced PhD students in economics with recent techniques and concepts in the econometric analysis of times series models.
Wi Qtr. 2 2-hr cl. Prereq: 742 or equiv with instructor's permission, 840 recommended. Repeatable to a maximum of 15 cr hrs.

861 Advanced Microeconomic Trade Theory GRAD 5
Advanced nonmonetary international trade theory; analysis of the effect of trade and commercial policies on the allocation of resources, income distribution, and growth.
Au Qtr. 4 cl. Prereq: 805.

862 Advanced Macroeconomic Trade Theory GRAD 5
Advanced monetary international trade theory; analysis of payments adjustments under alternative international monetary institutions.
Wi Qtr. Prereq: 805 and 806; 861 recommended.

863 Economic Growth and International Trade GRAD 5
Evolution of the world economy, from theoretical and empirical perspectives, including Solow growth models, optimal economic growth, models of overlapping generations, and endogenous economic growth.
Sp Qtr. 2 2-hr cl. Prereq: 808.

871 Industrial Organization I GRAD 5
An investigation of information economics and market-based transactions in the theorem of the firm.
Wi Qtr. 2 2-hr cl. Prereq: 808.

872 Industrial Organization II GRAD 5
Economic analysis of industry structure, conduct, performance, and related issues of public policy.
Sp Qtr. Prereq: 808 and 871.

883 Advanced Labor Economics I GRAD 5
The firm as production function, employment contracting in a competitive market, and collective action (labor unions and employment contracting).
Au Qtr. Prereq: 805 and 806.

884 Advanced Economics of the Labor Market GRAD 5
Economic theory and empirical evidence relating to labor allocation and wage determination.
Wi Qtr. Prereq: 805 and 806.

893 Individual Studies GRAD 1-15
Advanced readings in economics and related fields.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable. This course is graded S/U.

894 Group Studies GRAD 3-5
Advanced courses in economics and related fields.
Su, Au, Wi, Sp Qtrs. Repeatable.

901 Supervised Teaching in Economics GRAD 5
Supervised teaching of undergraduate courses in economics for students pursuing the Doctor of Arts degree.
Au Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

915 Seminar in Price Theory GRAD 1-5
Special topics in economic theory.
Au, Sp Qtrs. Prereq: 808 and 809. Repeatable to a maximum of 30 cr hrs.

920 Seminar in Monetary Policy GRAD 1-5
Application of monetary theory to issues of public policy in banking and monetary affairs; examination of public hearings and policy literature.
Au, Sp Qtrs. Prereq: 820 and 821. Repeatable to a maximum of 30 cr hrs.

940 Seminar in Econometrics GRAD 1-5
Examination of economic problems whose solutions may advantageously be sought by use of the methods of mathematics and mathematical statistics.
Au, Sp Qtrs. Prereq: 742 and 842 or equiv or permission of instructor. Repeatable to a maximum of 30 cr hrs.

970 Seminar in Structure and Regulation of Industry GRAD 1-5
Economic bases for government participation in business activities; antitrust, regulation, and collective decision making.
Au, Sp Qtrs. Prereq: 872. Repeatable to a maximum of 30 cr hrs.

981 Seminar in the Economics of the Labor Market GRAD 5
Selected topics and issues in wage determination, employment, and unemployment.
Sp Qtr. Prereq: 884. Repeatable to a maximum of 10 cr hrs.

999 Research in Economics: Dissertation GRAD 1-18
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Education

289 Field Experience: Tutoring UGRD 2-5
Professional service with children or youth in a school or community agency.
Repeatable to a maximum of 20 cr hrs.
This course is graded S/U.

494 Group Studies UGRD 1-5
Group studies on special issues in education.
Arr depending upon number of hrs 1-5. Repeatable to a maximum of 20 cr hrs.

692 Workshop UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices.
Arr cl. Repeatable to a maximum of 12 cr hrs.

693 Individual Studies UGRD 1-4
Individual study in the field of education.
Arr according to number of hrs 1-4. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

727 Special Topics in Education GRAD 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. Repeatable. This course is graded S/U.

Education: Educational Policy and Leadership

159 Online Learning Strategies and Skills UGRD 3
Explores how to use the web for a successful college experience. Covers navigating web resources and services, basic software, communicating content and writing collaboratively.
Su Qtr.
Provides overview of leadership definitions and discusses the evolution of leadership.

270.01 Seminar: Self-Career Development
Designed to provide opportunities for self-exploration and skill development, exploration of and clarification of vocational and educational interests. This course is graded S/U.

270.04 Seminar: Career Development and Leadership Training in Higher Education
Designed to explore possible careers in higher education and to conduct leadership training in terms of higher educational functions and organizations. Su, Au, Wi, Sp Qtrs. 2.5-hr cl., arr.

271 Leadership in Community Service
Introduction to the knowledge, skills, and competencies for responsible service and leadership in diverse communities. Prepares students for engaged, responsible, and active community involvement and leadership. Off-campus field experience required for minimum of 3 hrs. week.

305 Childhoods in Historical and Comparative Perspective
Comparative and historical study of the childhood experience.

306.07 School and Society: General Student Body
Use of concepts and methods of history, philosophy, and the social sciences to grasp the interrelationship between society and education.

306.20 School and Society: Middle Childhood Education
Use of concepts and methods of history, philosophy, and the social sciences to grasp the interrelationship between society and education.

306.70 School and Society: Early Childhood Education
Use of concepts and methods of history, philosophy, and the social sciences to grasp the interrelationship between society and education.

307 History of American Education
Designed to develop a more thorough and systematic understanding of education and schooling in the United States.

309.07 Psychological Perspectives on Education: General Student Body
Examination of research, theory, and practice pertaining to important aspects of learning and teaching; the nature of learners, cognition, problem solving, motivation, teaching approaches, and assessment.

309.20 Psychological Perspectives on Education: Middle Childhood Education
Examination of research, theory, and practice pertaining to important aspects of learning and teaching; the nature of learners, cognition, problem solving, motivation, teaching approaches, and assessment.

309.70 Psychological Perspectives on Education: Early Childhood Education
Examination of research, theory, and practice pertaining to important aspects of learning and teaching; the nature of learners, cognition, problem solving, motivation, teaching approaches, and assessment.

311 Impact of Technology in Learning and Education
The theories, function, impact, and use of technology in formal and informal learning and education environments.

359 Technology-Enhanced Learning Strategies
Impart specific and general strategies for learning in college with special attention to technology and tools that enhance learning in individual and group settings. Au, Wi, Sp Qtrs. 2.5-hr cl., coursework as assigned, collaborative work as arranged. Taught as a hybrid course. In addition to class time, students will work independently and collaboratively online and outside of class meetings.

370 Computers in the Classroom: An Introduction
An introduction to educational computing. 1 2.25-hr cl, 1 2.75-hr lab. Not open to students with credit for Ed-P&L 671.

371 Introduction to Leadership Development in Learning Organizations
Provides overview of leadership definitions and discusses the evolution of leadership concepts while offering assessments to develop leadership abilities. Au, Wi, Sp Qtrs. Repeatable to a maximum of 12 cr hrs.
609.20  Teaching as a Profession: Middle Childhood Education
Examines complexities surrounding the practice of teaching at national, state and local levels, highlighting legal, professional, and ethical issues surrounding American schools and teaching.
Part of a prescribed series of courses leading to teacher licensure in Early Childhood, Middle Childhood and Young Adult Education.

609.70  Teaching as a Profession: Early Childhood Education
Examines complexities surrounding the practice of teaching at national, state and local levels, highlighting legal, professional, and ethical issues surrounding American schools and teaching.
Part of a prescribed series of courses leading to teacher licensure in Early Childhood, Middle Childhood and Young Adult Education.

615.07  Developing Discipline for Effective Learning: General Student Body
Causes of and procedures for dealing with school discipline problems; focus upon the teacher, student, classroom, and school situations.
Prereq: teaching experience or enrolled in student teaching.

615.99  Developing Discipline for Effective Learning: Language, Literacy & Culture
Causes of and procedures for dealing with school discipline problems; focus upon the teacher, student, classroom, and school situations.
Prereq: teaching experience or enrolled in student teaching.

626.01  Sport and Popular Culture Overview
A variety of themes present in selected popular cultural forms dealing with a variety of sports such as football, basketball, baseball, and track and field.
Cross-listed with Edu PAES.

626.02  Sport and Popular Culture - Race and Gender
A variety of themes present in selected popular cultural forms dealing with a variety of sports such as football, basketball, baseball, and track and field.
Cross-listed with Edu PAES.

650.01  Humanistic Foundations of Education: Philosophy of Education
Designed to provide students with an application of philosophy of education to issues and problems of teaching and living in a culturally diverse society.
Prereq: 3rd yr standing in a recognized university teacher education program, or grad standing, or permission of dept office.

650.02  Humanistic Foundations of Education: History of Modern Education
Education and schools as factors in the development of the modern world; theories, practice, relations with other social institutions and forces, especially in Europe and America.
Prereq: 3rd yr standing in a recognized university teacher education program, or grad standing, or permission of dept office.

650.03  Humanistic Foundations of Education: Applied Ethics for Teachers
An examination of selected moral/ethical issues which face practicing educators; emphasis on developing ethical decision-making skills.
Prereq: 3rd yr standing in a recognized university teacher education program, or grad standing, or permission of dept office.

650.04  Humanistic Foundations of Education: Social Criticism in American Education
Analysis and interpretation of critical stances taken by selected major writers on educational topics of current interest.
Prereq: 3rd yr standing in a recognized university teacher education program, or grad standing, or permission of dept office.

658  Sport in Western Culture
Examines sport in North American, South American, and European countries with emphasis on influences of political ideology, economics, gender, race, and nationalism.

671  Fundamentals of Computer Applications in Education and Training
An introduction to the common uses of computers in educational and training settings emphasis on instruction and management.
Not open to students with credit for Ed-P&L 370. Open only to professional educators.

673  Improving Professional Practice of Teaching with Technology using Action Research
Teachers learn action research in order to study the effective use of technology in teaching and learning in their classroom(s).
Wi Qtr. Distance Learning Course (Web taught).

676  Planning and Preparing Teacher-Made Educational Media
Demonstration and practice in the preparation of teaching materials using desktop publishing; emphasis on the development of fliers, worksheets, overheads, and simple animations.
Prereq: 4th yr or grad standing.

677  Educational Telecommunications
The varied types of educational telecommunications in relation to designs, planning, production, utilization, and evaluation.
Prereq: 4th yr standing.

678  Introduction to Instructional Systems Development
Paradigms for instructional development; learner, task, and curriculum analysis; prototype development; completion of a production proposal/storyboard; subsequent enrollment in 778 expected.

680  Educational Videography
Functions and operations of small format video production and post-production equipment; application of theory and research to the production of video materials for instruction.
Prereq: 677 and 678 recommended.

681  Introduction to Developing Educational Web Sites
In this introductory course students will begin to develop the visual, technical, and pedagogical design skills to create educational web sites.
Au Qtr.

682  Introduction to Teaching Online for K12 Educators
This online course introduces educators to the methods of teaching K12 students online.
Wi Qtr. Distance Learning course.

683  Solving Classroom Problems
Exploration of problem areas of classroom control, student learning, parent relationships, relationships with other teachers, and time management.
Prereq: Student teaching or permission of instructor.

692.10  Workshops: Educational Policy and Leadership
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices related to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

692.30  Workshops: Educational Administration
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices related to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

692.32  Workshops: Higher Education
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

692.44  Workshops: Educational Administration and Supervision
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

692.46  Workshops: Instructional Design Workshop
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

692.49  Workshops: Curriculum and Instruction
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.
692.50 Workshops: General Professional Studies GRAD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

692.60 Workshops: Quantitative Research, Evaluation and Measurement in Education GRAD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

693.10 Individual Studies: Educational Policy and Leadership GRAD 1-15
Educational Policy and Leadership.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the masters degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.30 Individual Studies: Educational Administration GRAD 1-15
Educational Administration.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the masters degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.32 Individual Studies: Higher Education GRAD 1-15
Higher Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the masters degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.36 Individual Studies: Teacher Education GRAD 1-15
Teacher Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the masters degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.40 Individual Studies: History of Education and Comparative Education GRAD 1-15
History of Education and Comparative Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the masters degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.46 Individual Studies: Instructional Design GRAD 1-15
Instructional Design.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the masters degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.49 Individual Studies: Curriculum and Instruction GRAD 1-15
Curriculum and Instruction.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the masters degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.50 Individual Studies: General Professional Studies GRAD 1-15
General Professional Studies.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the masters degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.60 Individual Studies: Quantitative Research, Evaluation and Measurement GRAD 1-15
Quantitative Research, Evaluation and Measurement in Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the masters degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

694.10 Group Studies: Educational Policy and Leadership GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.30 Group Studies: Educational Administration GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.32 Group Studies: Higher Education GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.36 Group Studies: Teacher Education GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.40 Group Studies: History and Education and Comparative Education GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.44 Group Studies: Educational Administration and Supervision GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.46 Group Studies: Instructional Design GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.49 Group Studies: Curriculum and Instruction GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.50 Group Studies: General Professional Studies GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.60 Group Studies: Quantitative Research, Evaluation and Measurement in Education GRAD 1-15
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

697 Study at a Foreign Institution GRAD 0-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Arr Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress ("P") graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic GRAD 1-5
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign GRAD 1-5
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

699 Undergraduate Research in Educational Policy and Leadership GRAD 0-15
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 20 cr hrs. This course is graded S/U.

700.01 Interprofessional Education: Seminar on Interprofessional Care GRAD 3
Treatment of the whole person through the analysis of the interrelated problems of actual cases.
Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work, and theology. Cross-listed in Edu P&L, Edu PAES, Edu T&L.
Repeatable to a maximum of 9 cr hrs; subdivisions not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs.
700.02 Interprofessional Education: Changing Societal Values
Identification and clarification of values considerations as they relate to professional problems in dealing with consumer/clients/ patients. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work, and theology. Cross-listed in Edu P&L, Edu PAES, Edu T&L. Repeatable to a maximum of 9 cr hrs; subdivisions not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs.

700.03 Interprofessional Education: Seminar on Ethical Issues Common to the Helping Professions
Ethical issues of concern to the professions and arising out of advanced technology: euthanasia, enforced treatment, privacy and confidentiality, malpractice, and the social responsibility of the professions. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work, and theology. Cross-listed in Edu P&L, Edu PAES, Edu T&L. Repeatable to a maximum of 9 cr hrs; subdivisions not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs.

700.04 Interprofessional Education: Interprofessional Practicum in Clinical Settings
Interprofessional teamwork in clinical settings. Prereq: Permission of instructor. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work, and theology. Cross-listed in Edu P&L, Edu PAES, Edu T&L. Repeatable to a maximum of 9 cr hrs; subdivisions not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs.

700.05 Interprofessional Education: Interprofessional Seminar in Policy Analysis
Explores interprofessionally the history, formation, and implementation of public policy issues of significance to seven helping professions. Prereq: Permission of instructor. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work, and theology. Cross-listed in Edu P&L, Edu PAES, Edu T&L. Repeatable to a maximum of 9 cr hrs; subdivisions not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs.

700.06 Interprofessional Education: Care of Chemically Dependent Families
Interprofessionally explores issues in the identification and treatment of chemical dependency within the family context. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work, and theology. Cross-listed in Edu P&L, Edu PAES, Edu T&L. Repeatable to a maximum of 9 cr hrs; subdivisions not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs.

700.07 Interprofessional Education: Interprofessional Approaches to Child Abuse and Neglect
Interprofessionally explores issues in the identification, treatment, and prevention of child abuse and neglect. Prereq: Permission of instructor. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work, and theology. Limited to 12 students each in allied medicine, education, law, medicine, nursing, psychology, social work, and theology through Columbus Cluster. Cross-listed in Edu P&L, Edu PAES, Edu T&L. Repeatable to a maximum of 9 cr hrs; subdivisions not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs.

701 Logic in Teaching
Study of the logical aspects of teaching; includes attention to definitions, arguments, explanations, questions, and value judgments. Prereq: 650.01 and 4th yr standing.

702 Modern Trends in Educational Philosophy
A study of contemporary work in philosophy of education and applications of that work to educational practice.

705 Education and Spirituality: Holistic Perspectives
Examination of emerging themes and theories of spirit and spirituality in curriculum thought and educational practice, including cross-cultural, feminist, ecological, and postmodern perspectives.

707 Educational Technology Leadership and Administration
Overview of the uses of technology in schools. Prepares administrators with knowledge and skills to help shape, evaluate, and supervise technology initiatives in educational organizations.

708 Administering Service-Learning Programs
Provides knowledge, skills, and competencies for leading, directing, and administering service-learning programs.
727.44 Special Topics: Educational Administration GRAD 1-5
and Supervision
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: Educational Administration and Supervision. Prereq: Grad standing or registration in one of the professional schools. Special Topics in Education (Edu-P&L 727) may be offered by any of the program areas listed below. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

727.46 Special Topics: Instructional Design GRAD 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: Instructional Design. Prereq: Grad standing or registration in one of the professional schools. Special Topics in Education (Edu-P&L 727) may be offered by any of the program areas listed below. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

727.49 Special Topics: Curriculum, Instruction, and Professional Development
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: Curriculum, Instruction, and Professional Development. Prereq: Grad standing or registration in one of the professional schools. Special Topics in Education (Edu-P&L 727) may be offered by any of the program areas listed below. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

727.50 Special Topics: General Professional Studies GRAD 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: General Professional Studies. Prereq: Grad standing or registration in one of the professional schools. Special Topics in Education (Edu-P&L 727) may be offered by any of the program areas listed below. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

727.60 Special Topics: Quantitative Research, Evaluation and Measurement in Education
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: Quantitative Research, Evaluation and Measurement in Education. Prereq: Grad standing or registration in one of the professional schools. Special Topics in Education (Edu-P&L 727) may be offered by any of the program areas listed below. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

732 Graduate Teaching Fellows GRAD 4
Students will study important aspects of teaching and learning support at the university level, and examine models for departmental GTA preparation and support programs. Su Qtr. 2-1.5-hr cl, 20 arr hrs. Prereq: Enrollment by permission only. This course is graded S/U.

744 Introduction to Educational Measurement GRAD 3
Concepts and techniques in educational testing and assessment. Prereq: Grad standing. Repeatable to a maximum of 3 cr hrs.

745 The Inquiry Process - The Classroom Teacher as an Inquirer and Consumer of Research
Approaches to educational research with critical review of research studies and their relationship to practice. 2.1 hr cl for 2 cr hrs, 20 hrs cl, 8 hrs lab. Prereq: Grad standing and enrollment in a teacher education program. Repeatable to a maximum of 4 cr hrs.

756 Professional Development for Teachers GRAD 3
An overview of the goals, problems, practices, issues, research, theory, organizations, and literature of inservice education for teachers.

760 Survey of Feminist Methodologies GRAD 5
An overview of feminist methodological issues and dilemmas and an introduction to a variety of research methods. Field research. Prereq: Grad standing in Edu-P&L or wom stds or permission of instructor. Not open to students with credit for Wom Stds 760. Cross-listed in Women's Studies.

765 Introduction to Educational Evaluation GRAD 3
Introduction to educational evaluation including history, models, theories, politics of evaluation, and types of evaluation. Prereq: 785 and/or permission of instructor.

768 Directing Student Teachers GRAD 3
Principles and techniques for directing the laboratory experiences of student teachers and other teacher education students. Prereq: experience.

778 Formative Evaluation of Instructional Systems
Theory and practice of developmental testing and field evaluation of instructional systems. Prereq: 678 and course(s) in media production resulting in a prototype instructional system.

779 Development and Management of Educational Media Centers
Media specialist's responsibilities for the successful operations of a media program; planning, organization, administration, and service functions; emphasis on school library media programs. Prereq: 675 or equiv.

780 Introduction to Student Affairs GRAD 3
The nature and issues involved in the work of student affairs in higher education.

782 Practice of College Student Development GRAD 3
First practical course in professional sequence; prerequisite to field work; major college student development practices are examined; research on practitioners' projects are examined. 2.1-5 hr cl.

785 Introduction to Inquiry, Principles, Strategies, and Techniques
Introduction to inquiry strategies and their role in educational development; emphasis is on the conceptualization of educational problems. Prereq: 4th year or grad standing.

786 Introduction to Inquiry: Quantitative Methods
An introduction to quantitative techniques, with emphasis on application in educational settings. 2-2 hr cl, 1.5-hr lab, arr hrs. Prereq: 4th year or grad standing.

788.01 Computer Concepts and Skills for Educators: PILOT Authoring Language
Systematic exploration of instructional and educational problems for which interactive instructional courseware can provide powerful solutions; practical experience in using the PILOT authoring system to address those problems. 2 cl, 8 hrs lab. Prereq: 671, 678, Cptr/Inf 548, Ed-P&L, or permission of instructor.

789 Urban Communities, Technology and Education
Students use critical race theory to study the pedagogical, political, and historical factors that frame and impact the integration of educational technologies in urban schools. Wi Qtr.

791.07 Media and Technology in Education: General Student Body
Overview of the impact and use of media and technology in education; courses directed to teacher education students.

791.20 Media and Technology in Education: Middle Childhood Education
Overview of the impact and use of media and technology in education; courses directed to teacher education students.

791.70 Media and Technology in Education: Early Childhood Education
Overview of the impact and use of media and technology in education; courses directed to teacher education students.

791.99 Media and Technology in Education: Language, Literacy and Culture
Overview of the impact and use of media and technology in education; courses directed to teacher education students.

795 Proposal Development
Principles, processes, and research relating to the creation of proposals for developmental and research activities in educational agencies and institutions. Prereq: 785 or equiv.

796 Classroom Test Construction GRAD 3
General principles and techniques for construction and utilization of classroom tests for assessment of student achievement. Prereq: 786 or equiv or permission of instructor.

797 Cooperative Learning for Teachers and Supervisors
Examines research, theory, and practice related to cooperative and collaborative learning, including teacher's role, strategies and structures, and assessment of outcomes.

798 Qualitative Research for Educators GRAD 3
An introduction to qualitative research at the Master's level, this course offers an introduction to the history and substantive topics of educational ethnography.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Notes</th>
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<tbody>
<tr>
<td>800</td>
<td>Qualitative Research in Education</td>
<td>GRAD 3</td>
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<td></td>
<td>Issues and problems of scientific inquiry in educational research with emphasis on field research.</td>
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<td>802</td>
<td>Comparative Perspectives on Education and Democratization</td>
<td>GRAD 3</td>
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<td>Cross-cultural and theoretical perspectives on the relationship between education and democratization.</td>
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<td>803</td>
<td>Psychological Perspectives on Teachers, Teaching and Teacher Education</td>
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<td>Psychological research (including quantitative and qualitative studies) on teaching; teacher characteristics, knowledge and beliefs; learning to teach; and the role of educational psychology in teacher education.</td>
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<td>804</td>
<td>Technology in Education Network (TIENET) Forum: Application of Technology to Engaged Life-Long Learn</td>
<td>GRAD 4</td>
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<td></td>
<td>Explores integration of technology in the curriculum. Arr field trips. Prereq: 871 or equiv; teaching experience. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.</td>
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<td>805</td>
<td>Education in Developing Societies</td>
<td>GRAD 3</td>
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<td>Comparative examination of the social and cultural contours of education in developing societies, and the contrast between educational problems in these societies and the industrial world.</td>
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<td>806</td>
<td>Administration of Higher Education</td>
<td>GRAD 3</td>
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<td>Purposes and scope of higher education; governance; problems of administration-student-staff relationships; and administrative organization.</td>
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<td>807</td>
<td>Educational Survey Research Methods</td>
<td>GRAD 3</td>
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<td>A study of the design principles, sampling, and data-gathering methods used in the conduct of educational survey research. Prereq: 785, and 786 or equivs with written permission of instructor.</td>
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<tr>
<td>808</td>
<td>Experimental Design in Education I</td>
<td>GRAD 5</td>
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<td></td>
<td>An examination of logical and quantitative principles, especially the analysis of variance, underlying basic experimental designs employed in educational research. 3-hr cl, 2-hr lab. Prereq: 786 or equiv. Not open to students with credit for Edu T&amp;L 808.</td>
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<tr>
<td>809</td>
<td>Experimental Design in Education II</td>
<td>GRAD 5</td>
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<tr>
<td></td>
<td>An examination of intermediate quantitative principles and issues underlying experimental design in education, especially principles and issues associated with factorial designs employing multiple response measures. 3-hr cl, 2-hr lab. Prereq: 808.</td>
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<tr>
<td>810</td>
<td>Experimental Design in Education III</td>
<td>GRAD 5</td>
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<td></td>
<td>An examination of repeated measurements, mixed, hierarchical, partial hierarchical, and quasi-experimental designs and associated methods of univariate and multivariate statistical analyses. 3-hr cl, 2-hr lab. Prereq: 809 or equiv.</td>
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<td>811</td>
<td>Sources of Progressive Thought in American Education</td>
<td>GRAD 3</td>
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<td></td>
<td>An examination of the ideas that provided the philosophical basis for progressive education with an emphasis on the historical context in which these ideas were developed.</td>
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<tr>
<td>812</td>
<td>American Schools and American Society</td>
<td>GRAD 3</td>
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<tr>
<td></td>
<td>Education and schooling in the United States. Prereq: Grad standing.</td>
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<tr>
<td>813</td>
<td>Understanding Educational Organizations:</td>
<td>GRAD 3</td>
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<tr>
<td></td>
<td>An introductory survey of the applications of formal organization theory for the purpose of understanding educational organizations-a core course in administrator certification. Certification students must also enroll for 1 hr in 884B44.</td>
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<tr>
<td>814</td>
<td>Historical Bases of Curriculum Development</td>
<td>GRAD 3</td>
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<td></td>
<td>Intensive analysis of the outstanding contributions made by scholars in the field from 1900 to 1960. Prereq: 860.</td>
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<td>815</td>
<td>The Community College</td>
<td>GRAD 3</td>
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<td></td>
<td>History of community colleges; evaluation of organization and administration; campus planning; and federal, state, and local governmental relations with these colleges.</td>
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<tr>
<td>816</td>
<td>Contemporary Research and Issues in Teacher Thinking, Curriculum, and Educational Technology</td>
<td>GRAD 4</td>
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<td></td>
<td>Surveys research about teacher thinking, curriculum, and educational technology and explores issues related to it and its implications.</td>
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<tr>
<td>817.01</td>
<td>Qualitative Research: Introduction to the Analysis of Interaction in Educational Settings</td>
<td>GRAD 3</td>
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<td></td>
<td>As the first course of the 817 sequence, this course offers an introduction to the intellectual history of qualitative research and the analysis of interaction.</td>
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<tr>
<td>817.02</td>
<td>Qualitative Research: Analysis of Classroom Discourse</td>
<td>GRAD 3</td>
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<td></td>
<td>An introduction to the discourse structures of the classroom, this course addresses the face to face organization of classroom order, interaction and instruction. Prereq: 817.01 or permission of instructor. Not open to students with credit for 817.</td>
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<tr>
<td>817.03</td>
<td>Qualitative Research: Advanced Topics in the Analysis of Interaction in Education</td>
<td>GRAD 3</td>
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<td></td>
<td>An advanced course in the analysis of interaction in classroom and instructional contexts, bringing to bear literature in analysis of discourse and situated action. Prereq: 817.01, 817.02; or permission of instructor.</td>
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<tr>
<td>818</td>
<td>Contemporary Perspectives on Instruction</td>
<td>GRAD 3</td>
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<td></td>
<td>Overview of the research basis of classroom instruction, both historical and contemporary; the conceptual framework used, the paradigm used, questions explored variables studied, and findings will be examined.</td>
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<td>820</td>
<td>Financing Higher Education</td>
<td>GRAD 3</td>
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<td></td>
<td>A study of financing higher education with emphasis on issues affecting higher education; criteria for identifying and developing sources of financial support for institutions of higher education.</td>
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<td>1.5-3 hr cl or 2 1.5-hr cl. Prereq: 806 or 815.</td>
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<td>821</td>
<td>Comparative Perspectives on Education in Latin America</td>
<td>GRAD 3</td>
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<td></td>
<td>Comparative examination of the social and cultural contours of education through Latin America.</td>
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<td>822</td>
<td>Cultural Studies in Education</td>
<td>GRAD 3</td>
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<td></td>
<td>Examines how cultural studies frames questions and themes pertinent to the study of education, technology, inquiry, sport, and the body.</td>
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<td>823</td>
<td>Issues and Practices in Educational Technology</td>
<td>GRAD 3</td>
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<td>A critical examination of the issues raised by the implementation and use of information technology in education.</td>
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<td>824</td>
<td>Educational Policy Analysis in Contemporary Culture</td>
<td>GRAD 5</td>
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<td></td>
<td>An exploration of traditional and emerging approaches to policy analysis in education</td>
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<td>825</td>
<td>Visualizing the Curriculum</td>
<td>GRAD 3</td>
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<td></td>
<td>Investigates questions relating to visual literacy with emphasis on the design and use of images in educational settings.</td>
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<td>826</td>
<td>Cultural Diversity, Equity, and School Reform</td>
<td>GRAD 3</td>
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<td></td>
<td>Examination of intersections of cultural diversity, equity and school reform.</td>
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<td>827</td>
<td>Analyzing Categorical Data in Educational Research</td>
<td>GRAD 3</td>
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<td></td>
<td>An introduction to the use of log-linear models and related statistical techniques for the purpose of analyzing multidimensional contingency tables and categorical responses Prereq: 808.</td>
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<td>828</td>
<td>Ethical Problems in Education</td>
<td>GRAD 3</td>
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<td></td>
<td>An examination of theories of value in education which focuses on the philosophical problems of formulating and defending moral judgements.</td>
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<td>829</td>
<td>Technology, Society, and Schools</td>
<td>GRAD 3</td>
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<td></td>
<td>Examination of theories and history of interaction of society and technology with implications for instructional technology and schooling. Resources for constructing personal definitions of technology.</td>
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<tr>
<td>830</td>
<td>Critical Issues in Global Education</td>
<td>GRAD 3</td>
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<td></td>
<td>Examines pedagogy for global perspectives in teaching about cultures, global inequalities, advocacy, positionality, privilege, marginalization and resistance to oppression.</td>
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<td>831</td>
<td>Integrating Multicultural and Global Education</td>
<td>GRAD 3</td>
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<td></td>
<td>Alternative conceptual and programmatic approaches to the integration of multicultural and global education.</td>
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<td>832</td>
<td>Appreciative Inquiry</td>
<td>GRAD 4</td>
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<td></td>
<td>This course provides theoretical background and pragmatic applications of Appreciative Inquiry in a seminar format with action research fieldwork applications as an essential component. Au, Wi Qtrs.</td>
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</table>
833 The Politics of Curriculum Knowledge: Critical Issues in Curriculum
Examination of how politics, ideology, economics and cultural perspectives impact on curricular knowledge.

834 An Interpretative History of African American Education 1950 to 1990
Examination of African American education from the perspective of African American scholars from the 1950s to the 1990s.

835 Personnel Administration in Higher Education
A study of the staff personnel function in institutions of higher education through a consideration of personnel policies and operating principles.

836 Evaluation Methods: Principles of Needs Assessment I
Introduction to the concept of need, issues in needs assessment, and types of needs assessment strategies with a special emphasis on basic techniques and procedures. 1 2.5-hr cl. Prereq: 765 or permission of instructor.

837 Evaluation Methods: Principles for the Evaluation of Professional Personnel in Education
Designed to help people to manage the design, implementation, and evaluation of performance appraisal and review systems in educational organizations. Ed-P&L 765 recommended.

838 Evaluation Methods: Principles of Needs Assessment II
A brief overview of needs assessment followed by an inspection of in-depth needs assessment, procedures used in education, agencies, and business/industry settings. 1 2.5-hr cl. Prereq: 765 or 851 or permission of instructor.

839 Women in Higher Education
Examines conditions and positions of women in higher education and strategies for enhancing the quality of their experiences in the academy. 1 2.5-hr cl.

840 Legal Aspects of Higher Education Administration
Statutory and case law are analyzed for administrative implications; changing legal developments in college and university governance patterns.

841 Curriculum in Higher Education
A study of representative and experimental college programs in the United States. 1 2.5-hr cl.

842 Administration of Academic Affairs in Higher Education
Principles and problems of administering academic affairs in light of development, financial considerations, and evaluation. Prereq: 806.

843 Administrative Responsibilities and Perspectives: Equity, Learning, and the Individual
Administrators' responsibility to see equity and the rights of individual are recognized and enhanced in the school setting. Prereq: 846 or permission of instructor. Mandated requirement for the Certification of Administrators in the State of Ohio.

844 The Educational Leader as Learner: Knowledge and Administration
Designed to increase the educational administrator's ability to accept and use the notion that human beings believe differently (alternative ideologies) and learn differently (alternate epistemologies).

845 Politics and Political Leadership in American Education
A critical examination of national, state, and local politics and political leadership in American education.

846 Introduction to Educational Administration
Introduction to the organizational setting of the school, the nature of administration, and personal decision making about careers in educational administration—a core course in administrator certification.

847 Human Relations in Educational Administration
Interpersonal behavior in educational organizations with emphasis on such topics as values, groups, power, communicating, conflict management, motivation, and human diversity. Prereq: 806 or 846.

848 Educational Inquiry Within the Affective Domain: Theory and Methods
Provides theory and practice for advanced graduate students to conduct scientific inquiry within the affective domain including attitudes, values, perceptions, opinions, orientations, and belief. Prereq: 785 and 786.

849 Feminist Perspectives of Women in Education
Examines current positions and conditions of female faculty and students in schools, colleges, and universities. Feminist scholarship provides theoretical lenses through which to consider the intersections of gender, sexuality, race, ethnicity, and class, and their impact on daily lives of women. 1 3-hr cl. Prereq: Written permission.

850 Internship in Educational Research and Development
Internship experiences in research, development, or evaluation settings. Prereq: Permission of instructor. Arr. Repeatable to a maximum of 12 cr hrs.

851 College Teaching
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 at the college level. This course is graded S/U.

852 A History of the Education of Women
Investigation and critical analysis of selected educational theories by significant past and present theorists who have addressed the education of women. Prereq: Grad standing.

853 Women, Technology, and Education
Analysis of issues in the relationships between women's lives and technological development; exploration of current needed educational response to these issues.

854 Evaluation Methods: Principles and Techniques for the Evaluation of Teaching and Teachers
Designed to help people manage the design, implementation, and evaluation of performance appraisal and review systems in educational organizations. 1 2.5-hr cl. Prereq: 765.

856 Observing Classroom Instruction
Exploration of different approaches used to observe the nature of instruction in classrooms and other educational settings; examines theoretical bases and assumption

857 Individualizing Instruction
A study of theory, practice, and materials related to individualizing instruction.

858 Case Studies in Higher Education Administration
Designed to enhance decision-making skills and managerial communication and to increase understanding of current problems and practices in higher education governance and administration. Prereq: 806.

859 Junior High School Curriculum
A study of various types of junior high school programs, with special emphasis upon teaching-learning procedures as they apply to the early adolescent years.

860 Fundamentals of Curriculum
Designed to serve as an overview of the field of curriculum and instruction; kindergarten through 12th grade. 1 2.5-hr cl.

861 Fundamentals of Supervision
Supervision of instruction emphasizing general principles and practices in elementary and secondary schools.

862 Role of the School in the Social Order
An orientation for teachers and administrators which deals with the basic purposes of secondary education in relation to major issues and current trends.

863 An Interpretive History of African-American Education: 1700-1950
Designed to give students an understanding of the education of African-Americans from the perspective of African-American scholars.

864 Fundamentals of Instruction
Survey of instructional theory and related behavioral science disciplines; emphasis is on application of principles of instructional theory to classroom teaching. Prereq: Secondary (587) student teaching or equiv.

865 Curriculum Theory
Advanced study of curriculum; kindergarten through the 12th grade. 2 1.5-hr cl. Prereq: 860 or equiv.
866 Supervision Theory  GRAD  3
Advanced study of supervision of instruction; kindergarten through the 12th grade.
Prereq: 861 or equiv.

867 Educational Experimentation  GRAD  2-5
Analysis of contribution of selected experiments to elementary, secondary, and higher education; design of experimental method for attacking educational problems.
Prereq: 785 and 15 cr hrs of grad work in educ. Repeatable to a maximum of 5 cr hrs.

868 Laboratory in Curriculum Development  GRAD  3
Advanced study of techniques of curriculum development and organization; specific problems in curriculum development which are of concern to the students enrolled.
Prereq: 862 or equiv.

869 Instructional Theory  GRAD  3
Advanced study dealing with theoretical conceptions, basic principles, and generalization techniques involved in developing, executing, and evaluating instructional activities.
Prereq: Permission of instructor.

870 Internationalizing Colleges and Universities  GRAD  3
Examines goals and program strategies for internationalizing colleges and universities including implications for faculty, students, and the curriculum. Explores both broad rationale for internationalizing institutions, as well as specific program elements such as study abroad, international student enrollment, language or international study.

871 Theories of Gender in Education  GRAD  5
Introduces major intellectual currents informing theories of gender in education.
1 3-hr cl 3-hr lab.

872 Practicum in Curriculum, Instruction  GRAD  3
A study of the literature and methods of curriculum, instruction, and supervision in a field setting, with emphasis on curriculum.
Prereq: 860 or 861; and master's degree.

873 Problems of Secondary School  GRAD  3
Supervision and curriculum development emphasizing problems involved in initiating and conducting change in the secondary school curriculum.
Prereq: 860.

874 Item Response Theory (Rasch Model)  GRAD  3
Techniques for Competency Testing
Item Response Theory (IRT) specifically the Rasch Model, is examined in-depth followed by hands-on applications of IRT procedures.
Prereq: 786. Requires basic statistics and measurement.

876 Alternative Assessment for Student  GRAD  3
Learning
Study of alternative assessment of student learning including performance, authentic, portfolio, and small group learning. Emphasis focuses on principles, procedures and issues in assessment of student learning.

877 Developing Computer-Based Concepts  GRAD  5
Lessons
Application of research knowledge to the development of computer-based lessons for teaching concepts.
Prereq: 678, or permission of instructor.

880 Educational Psychology: Cognition,  GRAD  4
Learning and Instruction
Examination of theory and research about cognitive perspectives on classroom learning and instruction, particularly research on the teaching and learning of school subjects.

881 Applications of Regression Analysis to  GRAD  3
Educational Research
An introduction to the concepts of regression analysis and their application to research in education and behavioral sciences.
1 2.5-hr cl. Prereq: 786.

882 Philosophy of Science and Educational  GRAD  3
Research: Issues and Controversies
Examines the controversies in educational research in light of work in the philosophy of science.
Sp Qtr. 1 2.5-hr cl, other course-work as assigned.

883 Structural Equation Modeling  GRAD  4
Includes an introduction to the basic concepts of structural equation modeling, including approaches to regression, path analysis, confirmatory factor analysis, and model building.
Sp Qtr. Prereq: Graduate level quantitative methods coursework (2 or 3 statistics courses minimum as basic foundation).

884.02 Planned Field Experience: Foreign  GRAD  1-15
Planned professional teaching experience under supervision in a public school or other educational agency.
Prereq: Written permission of area adviser. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

884.10 Planned Field Experience: Educational  GRAD  1-15
Policy and Leadership
Planned professional teaching experience under supervision in a public school or other educational agency.
Prereq: Written permission of area adviser. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

884.32 Planned Field Experience: Higher  GRAD  1-15
Education
Planned professional teaching experience under supervision in a public school or other educational agency.
Prereq: Written permission of area adviser. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

884.36 Planned Field Experience: Teacher  GRAD  1-15
Education
Planned professional teaching experience under supervision in a public school or other educational agency.
Prereq: Written permission of area adviser. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

884.44 Planned Field Experience: Educational  GRAD  1-15
Administration and Supervision
Planned professional teaching experience under supervision in a public school or other educational agency.
Prereq: Written permission of area adviser. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

884.46 Planned Field Experience: Instructional  GRAD  1-15
Design
Planned professional teaching experience under supervision in a public school or other educational agency.
Prereq: Written permission of area adviser. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

884.49 Planned Field Experience: Curriculum and  GRAD  1-15
Instruction
Planned professional teaching experience under supervision in a public school or other educational agency.
Prereq: Written permission of area adviser. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

884.50 Planned Field Experience: General  GRAD  1-15
Professional Studies
Planned professional teaching experience under supervision in a public school or other educational agency.
Prereq: Written permission of area adviser. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

884.60 Planned Field Experience: Quantitative  GRAD  1-15
Research, Evaluation and Measurement
Planned professional teaching experience under supervision in a public school or other educational agency.
Prereq: Written permission of area adviser. Repeatable to a maximum of 15 cr hrs.
This course is graded S/U.

885.01 Educational Leadership, Learning and  GRAD  4
Teaching: Early Childhood
Applies theory from classroom management, learning, motivation, and teaching to the practice of elementary education.
Repeatable to a maximum of 8 cr hrs; subdivisions not repeatable. Administrative Licensure course.

885.02 Educational Leadership, Learning and  GRAD  4
Teaching: Middle Childhood, Adolescence to Young Adulthood
Applies theory from classroom management, learning, motivation, and teaching to the practice of secondary education.
Repeatable to a maximum of 8 cr hrs; subdivisions not repeatable. Administrative Licensure course.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>886</td>
<td>Educational Leadership, Organization and Dynamics and School Culture</td>
</tr>
<tr>
<td>887</td>
<td>Diversity in Higher Education</td>
</tr>
<tr>
<td>888</td>
<td>Group Interventions in Higher Education</td>
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<tr>
<td>889</td>
<td>Practicum in Instructional Design and Technology</td>
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<tr>
<td>890</td>
<td>Action Research to Understand and Improve Educational Practices</td>
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<tr>
<td>891.02</td>
<td>Educational Leadership: Instructional Leadership and Supervision</td>
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<tr>
<td>892</td>
<td>Learning, Culture and Technology</td>
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<tr>
<td>893.10</td>
<td>Advanced Individual Studies: Educational Policy and Leadership</td>
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<td>893.30</td>
<td>Advanced Individual Studies: Educational Administration</td>
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<td>893.46</td>
<td>Advanced Individual Studies: Instructional Design</td>
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<td>Advanced Individual Studies: Curriculum and Instruction</td>
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<td>894.50</td>
<td>Advanced Group Studies: General Professional Studies</td>
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<td>894.60</td>
<td>Advanced Group Studies: Quantitative Research, Evaluation and Measurement in Education</td>
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<tr>
<td>895</td>
<td>Fundamentals of Instructional Materials and Media</td>
</tr>
<tr>
<td>896</td>
<td>Educational Leadership Portfolio Development</td>
</tr>
<tr>
<td>897</td>
<td>Designing Multimedia for Instruction</td>
</tr>
<tr>
<td>899</td>
<td>Interdepartmental Seminar</td>
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</table>

**General Professional Studies**

Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

**Advanced Individual Studies: General Professional Studies**

Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

**Advanced Group Studies: Educational Policy and Leadership**

Advanced group studies on special problems in education: Educational Policy and Leadership.

**Advanced Group Studies: Teacher Education**

Advanced group studies on special problems in education: Teacher Education.

**Advanced Group Studies: History of Education and Comparative Education**

Advanced group studies on special problems in education: History of Education and Comparative Education.

**Advanced Group Studies: Educational Administration**

Advanced group studies on special problems in education: Educational Administration.

**Advanced Group Studies: Educational Administration and Supervision**

Advanced group studies on special problems in education: Educational Administration and Supervision.

**Advanced Group Studies: General Professional Studies**

Advanced group studies on special problems in education: General Professional Studies.

**Advanced Group Studies: Quantitative Research, Evaluation and Measurement in Education**

Advanced group studies on special problems in education: Quantitative Research, Evaluation and Measurement in Education.

**Interdepartmental Seminar**

Two or more departments may collaborate in presenting seminars on subjects of mutual interest; topics to be announced.
901 Motivation in Learning and Teaching GRAD 3
Examines research and theory about motivation to learn in academic settings,
including studies of goal theory, social cognitive approaches and teaching practices.

902 Educational Philosophy of John Dewey GRAD 3
A systematic study of the writings of John Dewey in their bearings upon educational
theory and practice.

903 Fundamentals of Journal Editing GRAD 3
Fundamentals of journal writing, editing, management, and ethics. Practice in the use
of copy-editing symbols and styles of publication.

904 Women: Leadership and Empowerment GRAD 5
Focus on understanding and enacting leadership and empowerment that is congruent
with women's lives and feminist perspectives.

905 Cultural Foundations of Education GRAD 3
Examines themes and theories that undergird the cultural foundations of education,
technology, and qualitative Inquiry.

906 Social Foundations of Education GRAD 3
Examines themes and theories that undergird the social foundations of education,
technology, and qualitative Inquiry.

907 Research in Cultural Foundations, Technology, and Qualitative Inquiry GRAD 3
Discussion of current research in cultural foundations, technology, and qualitative
inquiry.

909 Cultural Process in Education GRAD 3
Uses anthropological perspectives to examine how culture, ethnicity, and power
operate in informal and formal educational settings in multiple context.

910 Admissions and Retention in Higher Education GRAD 3
Analysis and review of research and practice in college admissions and retention
programs. Elective in MA and PhD programs in higher education and student affairs.

912 Impact of College on Students GRAD 3
Analysis of philosophical assumptions and statistical evidence on the impact of
colleges.

913 Leadership in Educational Administration GRAD 3
Study of theory and practice of leadership in educational administration; course
directed to doctoral students concentrating in K-12 administration.
Limited to 1st yr doctoral students in educational administration. Part of the doctoral
core in educational administration.

914 Strategy and University Leadership GRAD 3
Advanced study of institutional strategy, resource management and leadership issues
for colleges and universities.

915 Professional Development in Higher Education GRAD 3
Introduction to research and theoretical foundations of organizational, faculty, and
instructional development in higher education; emphasis on major issues and careers
in professional development.

916 Data Based Decision Making in Educational Administration GRAD 3
Examines research in educational administration from a critical perspective.

919 Research on Teachers' Knowledge and Beliefs GRAD 3
Research on teachers' knowledge/beliefs about planning, academic subjects, classroom
management, epistemology, and self-efficacy, primarily as these pertain to teaching
and learning in K-12 classrooms.

922 Educational Policy in Democratic Society GRAD 3
Focus on conceptions of democracy, democratic aims of public education, and the
processes of developing, implementing and analyzing policies that further those aims.

924 Pedagogy in Teacher Education GRAD 6
Provides for an in-depth study of and experiences with the dimensions of planning,
instruction, and assessment at the professoriate level in teaching professional
education.

925.10 Seminars: Educational Policy and Leadership GRAD 2-5
Educational Policy and Leadership.

925.30 Seminars: Educational Administration GRAD 2-5
Educational Administration.

925.32 Seminars: Higher Education GRAD 2-5
Higher Education.

925.36 Seminars: Teacher Education GRAD 2-5
Teacher Education.

925.40 Seminars: History of Education and Comparative Education GRAD 2-5
History of Education and Comparative Education.

925.44 Seminars: Educational Administration and Supervision GRAD 2-5
Educational Administration and Supervision.

925.46 Seminars: Instructional Design GRAD 2-5
Instructional Design.

925.49 Seminars: Curriculum and Instruction GRAD 2-5
Curriculum and Instruction.

925.50 Seminars: General Professional Studies GRAD 2-5
General Professional Studies.

925.60 Seminars: Quantitative Research, Evaluation and Measurement in Education GRAD 2-5
Quantitative Research, Evaluation and Measurement in Education.

927 History of the Universities GRAD 3
The university as an institution through 10 centuries; patterns of development in
different countries; German, English, and American contributions to the idea of the
American university.

928 Inquiry in Teacher Education GRAD 3
Study of a variety of research in teacher education with emphasis on research on
teacher effectiveness.

929 Program Development in Teacher Education GRAD 4
Focuses on relevance of teacher education through the development of a teacher
preparation program.

Open only to PhD students.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>930</td>
<td>Internship in Higher Education</td>
<td>6-12</td>
<td>Permission of instructor. Repeatable to a maximum of 18 cr hrs.</td>
</tr>
<tr>
<td>931</td>
<td>Applied Evaluation Design</td>
<td>3</td>
<td>Permission of instructor. Repeatable to a maximum of 18 cr hrs.</td>
</tr>
<tr>
<td>932</td>
<td>Trends, Issues, and Problems in Teacher Education</td>
<td>3</td>
<td>Grad standing</td>
</tr>
<tr>
<td>937</td>
<td>Field Experiences and Clinical Practices in Teacher Education</td>
<td>3</td>
<td>Master's degree, college supervision of student teachers, or permission of instructor.</td>
</tr>
<tr>
<td>938</td>
<td>Applied Multilevel Data Analysis</td>
<td>4</td>
<td>Joy Qtr. Prereq: 881 or permission of instructor.</td>
</tr>
<tr>
<td>943</td>
<td>Interaction of the Student and the Environment</td>
<td>3</td>
<td>A focus on the nature of the college environment, entering student, academic procedures, student performance, and student culture for those planning careers in college student personnel work. 2.5-hr cl.</td>
</tr>
<tr>
<td>944</td>
<td>Classroom Research on Student Motivation</td>
<td>3</td>
<td>In depth study of theories and research that address the development and support of students' motivation to achieve in classroom settings. Sp Qtr.</td>
</tr>
<tr>
<td>945</td>
<td>Practicum in Higher Education</td>
<td>5</td>
<td>Supervised practicum in higher education offices such as admissions, dean of students academic affairs, housing, international students, financial aid, student union. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.</td>
</tr>
<tr>
<td>946</td>
<td>The Writings of C. G. Jung: Implications for Educational Research and Practice</td>
<td>3</td>
<td>The writings of Jung are critically examined; implications for educational research as practice are discussed, with emphasis on student/professional development, interpersonal communications, and learning. Prereq: Grad standing</td>
</tr>
<tr>
<td>947</td>
<td>The Theory of Psychological Types: Applications to Education</td>
<td>3</td>
<td>The theory of psychological types (C.G. Jung) and related literature will be critically examined, with applications to learner/teacher behaviors, achievement, academic advisement, assessment methods, and research.</td>
</tr>
<tr>
<td>949</td>
<td>Collective Bargaining and Contract</td>
<td>3</td>
<td>Introduction to the processes of collective bargaining in educational organizations. 1 2.5-hr cl. Prereq: 813, 846, 847, or permission of the instructor.</td>
</tr>
<tr>
<td>952</td>
<td>Legal Aspects of School Administration</td>
<td>3</td>
<td>A study of statutory and case law, legal principles, and provisions relevant to educational administration, particularly in the areas of personnel, finance, curriculum, contracts, property, liability, and organization. Prereq: 846 or equiv.</td>
</tr>
<tr>
<td>953</td>
<td>School Community Relations</td>
<td>3</td>
<td>Principles and practice in developing and maintaining appropriate school community relationships; opinion analysis; communication processes; decision-making patterns. Prereq: 846 or equiv.</td>
</tr>
<tr>
<td>954</td>
<td>Theory and Practice Student Development in Higher Education</td>
<td>3</td>
<td>The organization and practice of student development services; college student development theory and approaches to student development. Repeatable to a maximum of 6 cr hrs.</td>
</tr>
<tr>
<td>955</td>
<td>Staff Personnel Administration</td>
<td>3</td>
<td>Study of personnel administration in educational institutions; theory, principles, and practices as they relate to personnel policy, recruitment, selection, orientation, appraisal, in-service education, promotion, collective negotiations, and general welfare. Prereq: 846.</td>
</tr>
<tr>
<td>956</td>
<td>School Finance</td>
<td>3</td>
<td>Examination of the theory and economics of financing public education; emphasis on sources of revenue, variations in ability and effort, state-local plans, and the federal role. Prereq: 846.</td>
</tr>
<tr>
<td>957</td>
<td>Business Administration of Schools</td>
<td>3</td>
<td>Function and role of business administrators in schools; emphasis on budgeting; payroll and accounting; purchasing; planning, constructing, operating, and maintaining the school plant. Prereq: 846.</td>
</tr>
<tr>
<td>958</td>
<td>Educational Facility Planning</td>
<td>3</td>
<td>Problems and techniques in determining educational facility needs, evaluating facilities, planning for new construction and remodeling, and utilizing specialized personnel; related legal and financial aspects. Prereq: 846 or equiv.</td>
</tr>
<tr>
<td>959</td>
<td>Doctoral Core I</td>
<td>4</td>
<td>Analysis of significant research in organization theory. 2 2-hr cl. lab arr. Prereq: Master's degree and permission of instructor.</td>
</tr>
<tr>
<td>960</td>
<td>Doctoral Core II</td>
<td>4</td>
<td>Advanced study of administrative problems, leadership, and organization behavior from personality and developmental perspectives. Prereq: Master's degree and permission of instructor.</td>
</tr>
<tr>
<td>961</td>
<td>Doctoral Core III</td>
<td>4</td>
<td>Advanced study of the political and social settings of education. Prereq: Master's degree and permission of instructor.</td>
</tr>
<tr>
<td>962</td>
<td>Board Relations</td>
<td>3</td>
<td>A study of the respective ideas and responsibilities of the board of education (board of trustees) and the superintendent (chief educational administrator) in the governance of the school district (college/university). Prereq: 810, 813, 846, 849, 861, and 925D44.</td>
</tr>
<tr>
<td>963</td>
<td>Legal Aspects of Special Education Administration</td>
<td>3</td>
<td>Legislative, executive, and judicial action pertaining to the rights of students with disabilities, with focus on the responsibilities of school administrators and state officials. 1 cl. Prereq: 840, 952N, or permission of instructor.</td>
</tr>
<tr>
<td>965</td>
<td>Practicum in Educational Research and Evaluation</td>
<td>3</td>
<td>The utilization of research strategies and evaluation techniques in studying education problems with emphasis upon the development, conduct, and completion of individual projects. 3 cl. Prereq: Previous courses in the basic sequence in educational research or evaluation or permission of instructor.</td>
</tr>
<tr>
<td>967</td>
<td>Analyzing Qualitative Data in Educational Research</td>
<td>5</td>
<td>Focus on the interpretation of qualitative data and the writing of research reports. 3-1.5-hr cl, 6 hrs lab. Prereq: 800 and 966 or equivs.</td>
</tr>
<tr>
<td>971</td>
<td>Legal Research in Educational Administration</td>
<td>3</td>
<td>Inquiry into the field of educational administration using legal research methodology. Limited to doctoral students only.</td>
</tr>
<tr>
<td>999.10</td>
<td>Research: Educational Policy and Leadership</td>
<td>1-18</td>
<td>Research for thesis or dissertation purposes only: Educational Policy and Leadership. Repeatable. This course is graded S/U.</td>
</tr>
<tr>
<td>999.30</td>
<td>Research: Educational Administration</td>
<td>1-18</td>
<td>Research for thesis or dissertation purposes only: Educational Administration. Repeatable. This course is graded S/U.</td>
</tr>
<tr>
<td>999.32</td>
<td>Research: Higher Education</td>
<td>1-18</td>
<td>Research for thesis or dissertation purposes only: Higher Education. Repeatable. This course is graded S/U.</td>
</tr>
<tr>
<td>999.36</td>
<td>Research: Teacher Education</td>
<td>1-18</td>
<td>Research for thesis or dissertation purposes only: Teacher Education. Repeatable. This course is graded S/U.</td>
</tr>
<tr>
<td>999.44</td>
<td>Research: Educational Administration and Supervision</td>
<td>1-18</td>
<td>Research for thesis or dissertation purposes only: Educational Administration and Supervision. Repeatable. This course is graded S/U.</td>
</tr>
<tr>
<td>999.46</td>
<td>Research: Instructional Design</td>
<td>1-18</td>
<td>Research for thesis or dissertation purposes only: Instructional Design. Repeatable. This course is graded S/U.</td>
</tr>
</tbody>
</table>
Research: Curriculum and Instruction  
Research for thesis or dissertation purposes only: Curriculum and Instruction. Repeatable. This course is graded S/U.

Research: General Professional Studies  
Research for thesis or dissertation purposes only: General Professional Studies. Repeatable. This course is graded S/U.

Research: Quantitative Research, Evaluation and Measurement  
Research for thesis or dissertation purposes only: Quantitative Research, Evaluation and Measurement in Education. Repeatable. This course is graded S/U.

Education: Physical Activity and Ed Services

100 School of PAES Survey  
Academic requirements and resources; University policies, college procedures and resources; student rights and responsibilities; academic areas of specialization; careers in PAES.
Prereq: Direct enrollment into the School of PAES. Not open to students with credit in other freshman survey courses.

102 First Aid  
A consideration of first aid practices to the injured; designed to lead to Red Cross certification in first aid.

103 Health and Well-Being in American Society  
A study of student health problems; designed to foster understandings and attitudes needed for intelligent decision-making related to present and future health needs. Not open to students with credit for 200.

122 Techniques in Cardiopulmonary Resuscitation  
Development of skills and competency in recognizing and reacting to situations requiring cardiopulmonary resuscitation measures; completion leads to certification in CPR by American Red Cross.
This course is graded S/U.

137 Sport for the Spectator  
A study of the great American spectator sports including football, basketball, baseball, ice hockey, golf, tennis, and others which meet the interests of the class.

139.01 Introductory Program of Outdoor Pursuits: Scuba II  
Introduction to fresh water diving.
Preregistration with department required. Prereq: 179 or equiv. Not open to students who have completed a corresponding subdivision of 140. Travel and subsistence costs for activities will be borne by the student. Student must provide wetsuit (rentals may be available). This course is graded S/U.

139.02 Introductory Program of Outdoor Pursuits: Whitewater Rafting  
Introduction to basic whitewater rafting, including: river reading, paddling techniques, equipment, trip planning, and safety. 6 cl hrs, 24 lab hrs, arr trip. Preregistration with department required. Not open to students who have completed a corresponding subdivision of 140. Prereq: Student must provide sleeping bag and appropriate clothing for river conditions. Travel and subsistence costs for activities will be borne by the student. This course is graded S/U.

139.03 Introductory Program of Outdoor Pursuits: Backpacking I  
Introduction to basic backpacking techniques, equipment, wilderness travel, emergency procedures, and environmental awareness.
Preregistration with department required. Not open to students who have completed a corresponding subdivision of 140. Travel and subsistence costs for activities will be borne by the student. Student must provide sleeping bag and hiking boots. This course is graded S/U.

139.05 Introductory Program of Outdoor Pursuits: Winter Backpacking  
Designed for the experienced backpacker and covers winter camping, clothing, travel techniques, and advanced first aid.
Preregistration with department required. Prereq: 139.03 or previous backpacking experience. Not open to students who have completed a corresponding subdivision of 140. Travel and subsistence costs for activities will be borne by the student. Student must provide sleeping bag and hiking boots. This course is graded S/U.

139.07 Introductory Program of Outdoor Pursuits: Experimental Sections  
Activities will be announced and publicized whenever an experimental section is deemed worthy of trial.
Preregistration with department required. Not open to students who have completed a corresponding subdivision of 140. Travel and subsistence costs for activities will be borne by the student. This course is graded S/U.

139.09 Introductory Program of Outdoor Pursuits: Caving I  
Introduction to basic caving techniques, equipment, trip planning, and safety; cave related ecology, flora, and fauna will also be emphasized.
Preregistration with department required. Not open to students who have completed a corresponding subdivision of 140. Travel and subsistence costs for activities will be borne by the student. Student must provide sleeping bag. This course is graded S/U.

139.10 Introductory Program of Outdoor Pursuits: Lightweight Backpacking  
Advanced backpacking activities including navigation, rope handling skills, and survival techniques.
Preregistration with department required. Prereq: 139.03 or previous backpacking experience. Not open to students with credit for 140.05. Travel and subsistence costs for activities will be borne by the student. This course is graded S/U.

139.11 Introductory Program of Outdoor Pursuits: Rock Climbing  
Basic rock climbing techniques, rope handling, and safety systems will be covered.
Preregistration with department required. Prereq: Good physical condition. Not open to students who have completed a corresponding subdivision of 140. Travel and subsistence costs for activities will be borne by the student. Students must provide sleeping bag, appropriate footgear for the climbing trip and a 20' length of new 1'' nylon webbing. This course is graded S/U.

139.12 Introductory Program of Outdoor Pursuits: Beginning Trap Shooting  
An introductory course covering equipment selection and maintenance, shooting techniques, scoring, safety, and the opportunities for lifetime involvement.
Preregistration with department required. Not open to students who have completed a corresponding subdivision of 140. Travel and subsistence costs for activities will be borne by the student. Student must provide compass and bear transportation costs. This course is graded S/U.

139.13 Introductory Program of Outdoor Pursuits: Orienteering  
Introduction to the sport of orienteering involving compass skills, map reading, and cross-country travel; cross-country racing in its competitive form.
Preregistration with department required. Not open to students who have completed a corresponding subdivision of 140. Travel and subsistence costs for activities will be borne by the student. Student must provide compass and bear transportation costs. This course is graded S/U.

139.14 Introductory Program of Outdoor Pursuits: Skydiving  
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.
Au, Sp, Su Qtrs. This course is graded S/U.

139.16 Introductory Program of Outdoor Pursuits: Small Bore Outdoor Rifle Shooting  
A continuation of 171.01 and 171.02 in the sport of outdoor prone shooting as practiced locally and nationally.
Arr. Preregistration with department required. Prereq: 171.01 or 171.02 or permission of instructor. Not open to students who have completed a corresponding subdivision of 140. Repeatable to a maximum of 2 cr hrs. Travel and subsistence costs for activities will be borne by the student. Fee for supplies required. This course is graded S/U.

139.18 Hot Air Ballooning  
Introduction to hot air ballooning. Covers history, design, structure, and flight procedures of the modern balloon. Students crew flights and act as balloon chasers.
Au, Sp, Su Qtrs. This course is graded S/U.

139.19 Introductory Program of Outdoor Pursuits: Introduction to Small Boat Sailing  
Introduction to small boat sailing will cover information needed to select, assemble, and safely use equipment. Only very basic skills will be taught.
Sp Qtrs. This course is graded S/U.

139.20 Introductory Program of Outdoor Pursuits: Introduction to Windsurfing  
Introduction to windsurfing (boardsailing) will cover information needed to select, assemble, and safely use equipment. Only very basic skills will be taught.
Sp Qtrs. This course is graded S/U.

140.03 Outdoor Pursuits Program: Backpacking II  
Opportunity for practice in advanced camping and outing skills on an extended trip. Preregistration with dept is required. Prereq: Backpacking 1 or prior backpacking experience.
140.05 Outdoor Pursuits Program: Lake Erie UGRD 3
   Sport Fishing
   An introduction to techniques and equipment used in Lake Erie sport fishing featuring
   Lake Erie angling trips with lectures that include related aquatic science information.
   Su Qtr. 2-13 hrs/day. Preregistration with dept. is required. Prereq: Permission of
   instructor.

140.06 Outdoor Pursuits Program: Skiing UGRD 3
   Preregistration with dept is required.

140.07 Outdoor Pursuits Program: Experimental Sections UGRD 3
   Activities deemed worthy of developing on an experimental basis; activities will
   be announced and published when course is offered.
   Preregistration with dept is required.

140.10 Outdoor Pursuits Program: Wilderness Advanced First Aid UGRD 3
   Will prepare students for emergency situations that involve prolonged patient care and
   transport, severe environments, and improvised gear. 4 day Intensive live-in program.
   Arr. Preregistration with dept is required. Repeatable to a maximum of 6 cr hrs.
   Prereq: Must have taken 147. This course is graded S/U.

142.01 Archery I UGRD 1
   Introductory skills and knowledges essential for target shooting.

143.01 Badminton I UGRD 1
   Beginning skills and knowledge essential for playing badminton.

143.02 Badminton II UGRD 1
   Continuation of 143.01 with emphasis on advanced strategy in doubles and singles;
   intermediate skills.
   Prereq: 143.01 or equiv racquet sport experience.

144.01 Basketball Women UGRD 1
   Skill and strategy necessary for playing basketball.
   Prereq: Previous playing experience. Those with varsity experience should elect
   631.02. Limited to Women only.

144.02 Basketball Men UGRD 1
   Skill and strategy necessary for playing basketball.
   Prereq: Previous playing experience. Those with varsity experience should elect
   631.02. Limited to Men only.

145.01 Bowling I UGRD 1
   Introductory skills and knowledge essential for bowling.
   Students must provide bowling shoes (rentals available) and have ID card.

145.02 Bowling II UGRD 1
   Emphasis on improving the average through increased efficiency in the use of the hoo
   ball and spot bowling.
   Prereq: 145.01 or ability to average at least 125. Students must provide bowling shoes
   (rentals available) and have ID card.

146 Fundamentals of Boxing UGRD 1

147 Conditioning Principles UGRD 1
   Students will have the opportunity to study conditioning materials and principles.
   Register for desired concurrent sections using 148 decimal designation.
   1-1 hr class. Prereq: Must take 148.01 or 148.02 or 148.03 or 148.04 or 148.05 or
   148.06 concurrently.

148.01 Conditioning Activities: Circuit Training UGRD 1
   Students will have the opportunity to experience a conditioning activity of their choice.
   Prereq: Must be taken concurrently with 147.

148.02 Conditioning Activities: Jogging UGRD 1
   Students will have the opportunity to experience a conditioning activity of their choice.
   Prereq: Must be taken concurrently with 147.

148.03 Conditioning Activities: Swimming UGRD 1
   Students will have the opportunity to experience a conditioning activity of their choice.
   Prereq: Must be taken concurrently with 147.

148.04 Conditioning Activities: Weight Training UGRD 1
   Students will have the opportunity to experience a conditioning activity of their choice.
   Prereq: Must be taken concurrently with 147.

148.05 Conditioning Activities: Cardio Equipment Training UGRD 1
   Students will have the opportunity to experience a conditioning activity of their choice.
   Prereq: Must be taken concurrently with 147.

148.06 Conditioning Activities: Rhythmic Aerobics UGRD 1
   Students will have the opportunity to experience a conditioning activity of their choice.
   Prereq: Must be taken concurrently with 147.

149.01 Lifetime Fitness Programs: Circuit Training UGRD 1
   Continued application of the principles covered in 147 and 148.
   Prereq: Must have taken 147. This course is graded S/U.

149.02 Lifetime Fitness Programs: Jogging UGRD 1
   Continued application of the principles covered in 147 and 148.
   Prereq: Must have taken 147.

149.03 Lifetime Fitness Programs: Swimming UGRD 1
   Continued application of the principles covered in 147 and 148.
   Prereq: Must have taken 147.

149.04 Lifetime Fitness Programs: Weight Training UGRD 1
   Continued application of the principles covered in 147 and 148.
   Prereq: Must have taken 147.

149.05 Lifetime Fitness Programs: Cardio Equipment Training UGRD 1
   Continued application of the principles covered in 147 and 148.
   Prereq: Must have taken 147.

149.06 Lifetime Fitness Programs: Rhythmic Aerobics UGRD 1
   Continued application of the principles covered in 147 and 148.
   Prereq: Must have taken 147.

150 Increasing Free Living Physical Activity UGRD 2
   Web-based course to promote self-regulation skills to support adherence to physical
   activity.

152.01 Social Dance I Women UGRD 1
   Opportunities provided to learn a variety of standard social dances such as foxtrot,
   waltz, swing; dance positions; and related cultural paradigms.
   Introduction to basic steps and variations of selected dances.
   Cross-listed with 152.02.

152.02 Social Dance I Men UGRD 1
   Opportunities provided to learn a variety of standard social dances such as foxtrot,
   waltz, swing; dance positions; and related cultural paradigms.
   Social Dance I Men. Cross-listed with 152.01.

152.03 Social Dance II Women UGRD 2
   Opportunities provided to learn a variety of standard social dances such as foxtrot,
   waltz, swing; dance positions; and related cultural paradigms.
   Continuation of 152.01 with emphasis on style and technique; introduction of
   additional social dance contents.
   Prereq: 152.02 or equivalent experience. Cross-listed with 153.04.

152.04 Social Dance II Men UGRD 2
   Opportunities provided to learn a variety of standard social dances such as foxtrot,
   waltz, swing; dance positions; and related cultural paradigms.
   Continuation of 152.02 with emphasis on style and technique; introduction of
   additional social dance contents.
   Prereq: 152.02 or equivalent experience. Cross-listed with 152.03.

152.05 Social Dance III Women UGRD 2
   Opportunities provided to learn a variety of standard social dances such as foxtrot,
   waltz, swing; dance positions; and related cultural paradigms.
   Advanced social dance skills and techniques with increased emphasis on design and
   development of steps and variations; a performance project is required.
   Prereq: 152.03 or equivalent experience. Repeatable to a maximum of 4 cr hrs.
   Cross-listed with 152.06.

152.06 Social Dance III Men UGRD 2
   Opportunities provided to learn a variety of standard social dances such as foxtrot,
   waltz, swing; dance positions; and related cultural paradigms.
   Advanced social dance skills and techniques with increased emphasis on design and
   development of steps and variations; a performance project is required.
   Prereq: 152.04 or equivalent experience. Repeatable to a maximum of 4 cr hrs. Cross-
   listed with 152.05.

153.05 Recreational Dance: Folk and Square Dance I UGRD 1
   Introduction to basic folk and square dance steps and patterns.

154.01 Fencing I UGRD 1
   Fundamentals of foil fencing.

154.02 Fencing II UGRD 1
   Continuation of 154.01 with emphasis on the bout.
   Prereq: 154.01 or equiv.

155.01 Physical Fitness Training for the ROTC: Army UGRD 1
   Designed to allow ROTC student to demonstrate improvement in overall physical
   conditioning, body composition, and general health.
   Concurrent enrollment in Military Science Program. Limited to students enrolled in
   Reserve Officer Training Corps (ROTC). Repeatable to a maximum of 8 cr hrs. This course is graded S/U.
155.02 Physical Fitness Training for the ROTC: UGRD 1
Navy
Designed to allow ROTC student to demonstrate improvement in overall physical conditioning, body composition, and general health. Concurrent enrollment in Military Science Program. Limited to students enrolled in Reserve Officer Training Corps (ROTC). Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

156.03 Flag Football UGRD 1
Fundamental skills of touch football. Co-ed sections for experienced touch football players.

157.01 Golf I UGRD 1
Introductory skills and knowledge preparatory to course play with emphasis on irons.

157.02 Golf II UGRD 1
Continuation of 157.01 with emphasis on woods and on introduction to course play. Prereq: 157.01 or equiv. Advanced players should elect 631.06.

158.10 Tumbling I UGRD 1
Development and practice of gymnastic skills. Introduction to basic through advanced-basics tumbling skills. Subdivisions 158.01 and 158.04 not repeatable.

158.11 Tumbling II UGRD 1
Development and practice of gymnastic skills. Introduction to advanced-basic through intermediate tumbling skills. Prereq: 158.10 or previous experience. Subdivisions 158.01 and 158.04 not repeatable.

161.01 Horseback Riding: Western Style I UGRD 1
Student will safely halt, lead, groom, saddle, bridle, ride at a walk and jog/canter in the Western riding discipline. Travel and stable costs (rental of horse and equipment) for activities must be borne by the student. Offered only when arrangements can be made with local stables. Preregistration with dept required. This course is graded S/U.

161.02 Horseback Riding: Western Style II UGRD 1
Student will effectively troubleshoot equipment, walk, jog, or trot without breaking gait, halts on command; learn to canter/lope, and good seat and control. Prereq: 161.01 or prior experience. Travel and stable costs (rental of horse and equipment) for activities must be borne by the student. Offered only when arrangements can be made with local stables. Preregistration with dept required. This course is graded S/U.

161.03 Horseback Riding: Western Style III UGRD 1
Student will refine level I and II skills, effectively execute patterns and transitions; identify and explain bits, clean equipment, identify concentrates and roughages (feeding).

161.05 Horseback Riding: English Style I UGRD 1
Student will safely halt, lead, groom, saddle, bridle, ride at a walk and jog/canter in the English riding discipline. Travel and stable costs (rental of horse and equipment) for activities must be borne by the student. Offered only when arrangements can be made with local stables. Preregistration with dept required. This course is graded S/U.

161.06 Horseback Riding: English Style II UGRD 1
Student will effectively access equipment; walk, jog, or trot without breaking gait, halts on command; learn to canter/lope, and good seat and control. Prereq: 161.05 or prior experience. Travel and stable costs (rental of horse and equipment) for activities must be borne by the student. Offered only when arrangements can be made with local stables. Preregistration with dept required. This course is graded S/U.

161.07 Horseback Riding: English Style III UGRD 1
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. Prereq: 161.06 or equiv. Travel and stable costs (rental of horse and equipment) for activities must be borne by the student. Offered only when arrangements can be made with local stables. Preregistration with dept required. This course is graded S/U.

162.01 Ice Skating I UGRD 1
Fundamentals of balance, movement, and safety on the ice; forward, backward, and stopping. Guidance in choice, use and care of equipment. Open only to beginners. Students must provide skates (rentals available). This course is graded S/U.

162.02 Ice Skating II UGRD 1
Elementary skating with emphasis on correct technique for basic skills. Prereq: 162.01 or ability to skate forward, backward, and stop with no balance problems. Students must provide skates (rentals available).

162.03 Ice Skating III UGRD 2
Power skating: designed for persons having had more than 30 hrs on ice and who can execute the basic strokes (including back crossovers) with correct techniques. Prereq: 162.02 or 162.04 or equiv level skill. Students must provide skates (rentals available).

163.01 Figure Skating I UGRD 2
Figure skating skills and techniques including the elements of free skating and compulsory figures. Lectures: survey of figure skating includes history, types of competition, judging, recreational, and show skating. Lab: introduction to free skating, compulsory figures, and dance skating.

163.02 Figure Skating II UGRD 2
Intermediate and advanced freestyle; intermediate: all single jumps, basic spins, and advanced footwork; advanced: jump combinations, spin combinations, and double jumps.

163.03 Creative Skating UGRD 2
Figure skating skills and techniques including the elements of free skating and compulsory figures. Students must provide figure skates (no rentals). VPA Admins Cond courses.

163.05 Competitive Figure Skating UGRD 2
Compulsory figures and freestyle designed to prepare skater for United States Figure Skating Association tests and competitions.

164.01 Ice Hockey I UGRD 1
Introductory skills and techniques of ice hockey. Prereq: 162.02 or equiv. Open only to beginners. Students must provide hockey skates (rentals available).

164.03 Ice Hockey II UGRD 1
Intermediate-advanced play. Prereq: 164.01 or previous playing experience. Students must provide hockey skates (rentals available).

168 Movement and Self Awareness UGRD 1
Student's natural movement vocabulary is explored and extended through movement experiences designed to heighten self and social awareness; creative rather than imitative approach is used.

169.01 Martial Arts Forms: Aikido UGRD 1
An introduction to a harmonizing martial art, designed to increase physical and mental centeredness; to improve grace, balance, awareness, and general movement abilities; to aid in self defense.

169.04 Martial Arts Forms: Judo I UGRD 1
Introductory skills and knowledge essential in throwing techniques and mat work of Judo.

169.05 Martial Arts Forms: Judo II UGRD 2
Intermediate skills and techniques of Judo as well as an introduction to the skills involved in competitive Judo.

169.06 Martial Arts Forms: Judo III UGRD 2
Advanced skill acquisition in techniques of sport Judo and experience in competitive Judo.

169.07 Martial Arts Forms: Karate I UGRD 1
Introduction to the fundamental forms and techniques of Karate.

169.08 Martial Arts Forms: Karate II UGRD 2
The refinement of basic forms and techniques and the introduction of advanced forms more emphasis on free fighting.

169.10 Martial Arts Forms: Shuai Chiao UGRD 1
An introduction to the various forms and techniques of Shuai Chiao-Chinese wrestling, a combination of Karate and Judo.

169.13 Martial Arts Forms: Tae Kwon Do I UGRD 1
Beginning course in the Korean martial art form; includes etiquette, basic blocking, throwing and kicking techniques, and self defense.

169.14 Martial Arts Forms: Tae Kwon Do II UGRD 2
Continuation of Tae Kwon Do I, refinement of technique and form; introduction of intermediate forms and skills, breaking, and conditioning techniques.

169.16 Martial Arts Forms: Tai Chi Ch’uan UGRD 1
An introduction to Tai Chi Ch’uan with emphasis on an exploration of body/energy awareness. Repeatable to a maximum of 3 cr hrs.
169.17  **Martial Arts Forms: T'ai Chi Ch'uan II**  UGRD  1  
Intermediate forms and techniques of T'ai Chi Ch'uan and experience in joint hands operation as well as in combat T'ai Chi Ch'uan.

169.18  **Martial Arts Forms: T'ai Chi Ch'uan III**  UGRD  2  
Further development of the form practiced in T'ai Chi Ch'uan II; principles of breath control, mediation, and self massage are introduced.

PreReq: 169.17. Repeatable to a maximum of 12 cr hrs.

170.01  **Racquetball I**  UGRD  1  
Beginning skills and knowledge for students with no prior experience in racquetball.

170.02  **Racquetball II**  UGRD  1  
Continuation of 170.01 with emphasis on strategy and the playing of singles.

PreReq: 170.01 or equiv.

171.01  **Riflery I**  UGRD  1  
Introduction to target shooting techniques in the prone and standing positions.

PreReq: 171.01.

171.03  **International Air Pistol Target Shooting**  UGRD  1  
Introduction to the sport of international air pistol shooting.

172.01  **Self Defense Women**  UGRD  1  
Skills and understandings essential to defend oneself against an aggressor with emphasis on avoiding attack.

Self Defense Women. Limited to women only.

172.02  **Self Defense Men**  UGRD  1  
Skills and understandings essential to defend oneself against an aggressor with emphasis on avoiding attack.

Self Defense Men.

174.01  **Soccer: Women**  UGRD  1  
Techniques and knowledge essential for playing soccer.

174.03  **Soccer: Men**  UGRD  1  
Techniques and knowledge essential for playing soccer.

175.01  **Softball: Women's Slo Pitch I**  UGRD  1  
Skills and knowledge necessary for playing softball.

PreReq: Intermediate level skills.

175.02  **Softball: Women's Slo Pitch II**  UGRD  1  
Skills and knowledge necessary for playing softball.

PreReq: Intermediate level skills.

175.06  **Softball: Men's Slo Pitch I**  UGRD  1  
Skills and knowledge necessary for playing softball.

175.07  **Softball: Men's Slo Pitch II**  UGRD  1  
Skills and knowledge necessary for playing softball.

PreReq: Intermediate skills.

176  **Squash**  UGRD  1  
Skills and knowledge necessary for playing squash. 2 lab hrs arr.

178.01  **Swimming I**  UGRD  2  
Beginning swimming.

Open only to non-swimmers and students with no deep water experience. Student must provide bathing suit. See 147 and 148 for swim conditioning. This course is graded S/U.

178.02  **Swimming II**  UGRD  2  
Elementary swimming skills for those who can swim in deep water but no farther than 2 pool lengths (50 yards). Student must provide bathing suit. See 147 and 148 for swim conditioning.

178.03  **Swimming III**  UGRD  2  
Intermediate skills for those who can swim at least 100 yards using the front crawl and at least 2 other strokes.

PreReq: 178.01 or equiv. Student must provide bathing suit. See 147 and 148 for swim conditioning.

179  **Skin and Scuba Diving**  UGRD  3  
Skills and knowledge essential for safe diving and preparation for open water checkout dives.

PreReq: Ability to swim .25-mile in 10 min. Student must provide bathing suit and bea cost of required special scuba medical exam. See 139 and 140 for additional offerings.

180.01  **Springboard Diving I**  UGRD  1  
Fundamentals of diving from the one meter (low) board.

PreReq: 178.02 or equiv. Student must provide bathing suit.

182.02  **Water Safety Instructor**  UGRD  3  
Designed to lead to certification as an American Red Cross Water Safety Instructor. Student must provide bathing suit. Repeatable to a maximum of 12 hrs.

182.05  **Lifeguard Training I**  UGRD  3  
Designed to lead to ARC Lifeguard Training and CPR for the Professional Rescue certification.

PreReq: 178.03 or equiv. Student must provide bathing suit. Repeatable to a maximum of 12 hrs.

183  **Water Polo**  UGRD  2  
Introductory skills and knowledge essential in the sport of water polo.

PreReq: 178.03 or equiv. Student must provide bathing suit.

185.01  **Table Tennis I**  UGRD  1  
Beginning skills and knowledge essential for playing table tennis with emphasis on the use of backspin and topspin in the singles game.

185.02  **Table Tennis II**  UGRD  1  
Continuation of 185.01 with emphasis on advanced strokes and their application in the playing of singles and doubles.

PreReq: 185.01 or the ability to do backspin and topspin serves.

188.01  **Tennis I**  UGRD  1  
Skills and knowledge essential in playing tennis. Beginning skills; forehand, backhand and serve-singles play.

Student must provide racket and 6 balls; advanced students should elect 631.10.

188.02  **Tennis II**  UGRD  1  
Skills and knowledge essential in playing tennis. Elementary skills; introduction to doubles play.

PreReq: 188.01 or equiv. Student must provide racket and 6 balls; advanced students should elect 631.10.

190.04  **Aerosport I**  UGRD  1  
Basic skills in tumbling, and hand balancing. Subdivisions not repeatable.

190.05  **Aerosport II**  UGRD  1  
Introduction to power volleyball. Advanced students should elect 631.14.

191.01  **Volleyball I**  UGRD  2  
Introduction to power volleyball.

191.02  **Volleyball II**  UGRD  2  
Continuation of power volleyball fundamental skill perfection and game strategies woven to produce an intermediate playing experience.

PreReq: 191.01 or equiv. Advanced students should elect 631.14.

195.01  **Yoga I**  UGRD  1  
Introduction to fundamental techniques and basic yogic principles of pranayama (breath control), asana (posture), relaxation, and meditation; emphasis on major postures.

195.02  **Yoga II**  UGRD  1  
Introduction to fundamental techniques and basic yogic principles of pranayama (breath control), asana (posture), relaxation, and meditation; emphasis on major postures.

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: 195.01 or equiv.

195.03  **Yoga in Depth**  UGRD  3  
This course will allow students the opportunity to explore the theory behind the practice of yoga, in addition to its meditative benefits.

PreReq: 195.01 or permission of instructor.

196.01  **Varsity Squads: Baseball**  UGRD  2  
Participation as a player on a varsity squad.

PreReq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.02  **Varsity Squads: Basketball**  UGRD  2  
Participation as a player on a varsity squad.

PreReq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.03  **Varsity Squads: Cross Country**  UGRD  2  
Participation as a player on a varsity squad.

PreReq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.04  **Varsity Squads: Fencing**  UGRD  2  
Participation as a player on a varsity squad.

PreReq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.05  **Varsity Squads: Field Hockey**  UGRD  2  
Participation as a player on a varsity squad.

PreReq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.06  **Varsity Squads: Football**  UGRD  2  
Participation as a player on a varsity squad.

PreReq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.
196.07  Varsity Squads: Golf  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.08  Varsity Squads: Gymnastics  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.09  Varsity Squads: Ice Hockey  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.10  Varsity Squads: Lacrosse  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.11  Varsity Squads: Pistol  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.12  Varsity Squads: Riflery  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.13  Varsity Squads: Soccer  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.14  Varsity Squads: Softball  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.15  Varsity Squads: Swimming  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.16  Varsity Squads: Swimming (Synchronized)  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.17  Varsity Squads: Tennis  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.18  Varsity Squads: Track and Field  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.19  Varsity Squads: Volleyball  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.20  Varsity Squads: Wrestling  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.21  Varsity Squads: Rowing  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

196.22  Varsity Squads: Diving  UGRD  2
Participation as a player on a varsity squad.
Prereq: Admission by tryout. Repeatable to a maximum of 10 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

197  Competitive Club Sports  UGRD  1
Participation as a member of a competitive club sport team.
Prereq: Prior experience on at least one competitive club sport team and standing. Repeatable to a maximum of 3 cr hrs. Preregistration with dept required. This course is graded S/U.

204  Sexuality and Health  UGRD  3
The study of sexuality as an aspect of the healthy individual; the demystifying of sexual beliefs and behaviors; sexual behavior and attitudes in young adults.

205  Social Recreation  UGRD  2
Age characteristics and developmental levels relative to social activities; techniques, rules, strategy and social behaviors in a range of cultural activities, i.e., social games and pastimes.
SS Admis Cond course.

208  Orientation to Sport and Leisure Studies  UGRD  3
A general introduction to sport and leisure studies. Examination of the current scene, curricular opportunities, careers, and needed personal competencies. Two observations in various sport and leisure settings.

209  Orientation to Exercise Science  UGRD  1
A general introduction to exercise science focusing on instrumentation; measurement, and training equipment.
Open only to students admitted to the Exercise Science program.

210  History of Sport, Physical Culture and the Body in Nineteenth Century America  UGRD  5
Explores intersection of sport and society in 19th century America. Looks at influences of modernity; economics, class, race, gender, ethnicity; religion, intellect and scientific thought.

211  History of Sport, Physical Culture and the Body in Twentieth Century America  UGRD  5
Explores intersection of sport and society in 20th century America. Looks at influences of consumer society; commercialization; class, race, gender, ethnicity; media; international sport.

214  Introduction to Sexuality Studies  UGRD  5
This course will provide an introduction to sexuality studies through an interdisciplinary approach. To apply the knowledge learned, this course requires a fieldwork component.

221.01  Sports Officiating: Baseball  UGRD  2
Study of playing rules, rule interpretation, techniques, and mechanics of officiating various interscholastic and intercollegiate athletic sports.
Prereq: Satisfactory evidence of playing skill in the elected athletic sport.

221.02  Sports Officiating: Basketball  UGRD  2
Study of playing rules, rule interpretation, techniques, and mechanics of officiating various interscholastic and intercollegiate athletic sports.
Students completing the course are eligible for certification to officiate in Ohio school
Prereq: Satisfactory evidence of playing skill in the elected athletic sport.

221.04  Sports Officiating: Football  UGRD  2
Study of playing rules, rule interpretation, techniques, and mechanics of officiating various interscholastic and intercollegiate athletic sports.
Students completing the course are eligible for certification to officiate in Ohio school
Prereq: Satisfactory evidence of playing skill in the elected athletic sport.

221.12  Sports Officiating: Wrestling  UGRD  2
Study of playing rules, rule interpretation, techniques, and mechanics of officiating various interscholastic and intercollegiate athletic sports.
Students completing the course are eligible for certification to officiate in Ohio school
Prereq: Satisfactory evidence of playing skill in the elected athletic sport.

221.14  Sports Officiating: Volleyball  UGRD  2
Study of playing rules, rule interpretation, techniques, and mechanics of officiating various interscholastic and intercollegiate athletic sports.
Prereq: Satisfactory evidence of playing skill in the elected athletic sport.

221.15  Sports Officiating: Softball  UGRD  2
Study of playing rules, rule interpretation, techniques, and mechanics of officiating various interscholastic and intercollegiate athletic sports.
Prereq: Satisfactory evidence of playing skill in the elected athletic sport.

245  Sport and Recreation Leadership  UGRD  3
Methods and materials for comprehensive programming with individuals and different groups in a variety of sport and recreation settings.

250  How to Avoid Dying from Cancer Now and Later  UGRD  2
Discussion of the latest findings on avoiding cancer through lifestyle choices and assessment of one's family health history.

251  Introduction to the Special Education Profession  UGRD  5
Overview of Special Education, including individuals identified as gifted, and those with sensory, orthopedic, behavioral, and learning problems.
Not open to students with credit for Edu P&L 260.
262 Coaching the Young Athlete UGRD 3
Skills and knowledges essential to planning, coaching, and supervising competitive sports programs which are consistent with the needs of children.

263 Special Issues Affecting Contemporary UGRD 3
Student-Athletes
An exploration of current topics and problems concerning collegiate athletes and the decision-making skills needed to facilitate college adjustment.

270.01 Seminar: Self-Career Development UGRD 3
Designed to provide opportunities for self-exploration and skill development, exploration of and clarification of vocational and educational interests. Repeatable hrs, including cr hrs in Ed-P&L 270.04; with a maximum of 3 cr hrs in any decimal subdivision. This course is graded S/U.

270.02 Seminar: Personal Growth to Increase UGRD 3
Career Competencies
Designed to provide opportunities to assist in self-exploration of and clarification for more effective development beyond the level of average performance. Repeatable hrs, including cr hrs in Ed-P&L 270.04; with a maximum of 3 cr hrs in any decimal subdivision. This course is graded S/U.

270.03 Seminars: Study Skills Related to Career UGRD 3
Goals
Designed to assist underachieving students with their efforts to ascertain and resolve the causes of low academic productivity; attitudinal and behavioral skills emphasized. Repeatable hrs, including cr hrs in Ed-P&L 270.04; with a maximum of 3 cr hrs in any decimal subdivision. This course is graded S/U.

271 Seminar in Exploring Helping UGRD 3
Relationships: Teaching/Learning
Focus on self development, decision making, world of work for students exploring careers through placement in educational, and community agency settings. Repeatable to a maximum with special written permission, when unusual circumstances warrant. Repeatable to a maximum of 6 cr hrs. To be taken concurrently with field experience 289.01.

289.01 Field Experience: Intro Experience in a UGRD 2-5
School System
Professional service in school or community settings. Preregistration with school required. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

289.02 Field Experience: Experience in a UGRD 2-5
Community Agency
Professional service in school or community settings. Preregistration with school required. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

289.03 Field Experience: Sport and Leisure UGRD 2-3
Studies I
Professional service in school or community settings. Preregistration with school required. Open only to students admitted to a major in PAES or permission of instructor. Repeatable to a maximum of 20 cr hrs.

289.04 Sport and Leisure Studies II UGRD 3
Professional service in school or community settings. Sport and Leisure Studies II. Preregistration with school required. Open only to students admitted to a major in PAES or permission of instructor. Repeatable to a maximum of 20 cr hrs.

289.10 Field Experience: General Special UGRD 2-5
Education
Professional service in school or community settings. Preregistration with school required. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

293.20 Sport and Exercise Education UGRD 1-4
For individuals who wish to pursue special studies in work not normally offered in courses. Sport and Exercise Education. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

293.21 Individual Studies: Sport and Exercise UGRD 1-4
Humanities
For individuals who wish to pursue special studies in work not normally offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

293.22 Individual Studies: Sport and Exercise UGRD 1-4
Management
For individuals who wish to pursue special studies in work not normally offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

293.23 Individual Studies: Sport and Exercise UGRD 1-4
Science
For individuals who wish to pursue special studies in work not normally offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

294.21 Group Study: Sport and Exercise UGRD 1-5
Humanities
For groups of students who wish to pursue special studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

294.22 Group Study: Sport and Exercise UGRD 1-5
For individuals who wish to pursue special studies. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

294.23 Group Study: Sport and Exercise UGRD 1-5
Science
For individuals who wish to pursue special studies in work not normally offered in courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

300 Health Education for Elementary Teachers UGRD 3
The teacher's responsibility for health of school child; screening, referral, vision and hearing, nutritional problems, instructional programs, emergency care, and teacher's health. Prereq: 103 and; admission to EDU.

301 Field Sports UGRD 3
Acquisition of performance skills in a variety of field sports, including rules, traditions, and values of the sports and their roles in various sport cultures. Open only to students admitted to a major in PAES or permission of the instructor.

302 Racquet Sports UGRD 3
Acquisition of performance skills in a variety of racquet sports, including rules, traditions, and values of the sports and their roles in various sport cultures. Open only to students admitted to a major in PAES or permission of the instructor.

303 Individual Sports UGRD 3
Acquisition of performance skills in a variety of individual sports, including rules, traditions, and values of the sports and their roles in various sport cultures. Open only to students admitted to a major in PAES or permission of the instructor.

305 Court Games UGRD 3
Acquisition of performance skills in a variety of court games, including rules, traditions, and values of the games and their role in various sport cultures. Open only to students admitted to a major in PAES or permission of the instructor.

307 Adventure/Experiential-Based Activities UGRD 3
Acquisition of performance skills including philosophy, facilitation techniques, and safety of adventure/experiential-based activities and their roles in various sport cultures. Open only to students admitted to a major in PAES or permission of the instructor.

311 Interpersonal and Coping Skills For UGRD 3
College and the Workplace
Student will learn models and skills necessary for effective functioning in college and the workplace. Au, Sp Qtrs.

312 Issues in Alcohol/Drug Use and Abuse UGRD 3
Provides an understanding of the dynamics of substance abuse.

314 AIDS: What Every College Student Should Know UGRD 3
A review of the physiological, psychological, social, legal, and moral issues surrounding the disease AIDS with emphasis placed on responsible decision making about one's lifestyle.

315 Positive Transitions for Intercollegiate UGRD 2
Student-Athletes
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 standing or permission of instructor. This course is graded S/U.

360 Kinesiology UGRD 3
A study of functional anatomy and biomechanics and their application to human movement.
The application of functional anatomy and biomechanics to human movement. Prereq or concur: 360.

Provide students with information and skills that will enhance their understanding of the principles of exercise physiology and athletic fitness, and to improve their ability to prepare athletes for competition. Not open to students with credit for 414 or 514. Open only to students admitted to a PAES major or the coaching education minor.

The laboratory practice of exercise physiology testing methods. Not open to students with credit for 415 or 515.

Introduction to factors affecting the distribution of health problems in populations and to disease causation. Prereq: 201 or permission of instructor.

Examination of the evolution of leisure, recreation, and physical education as persona cultural, and institutional activity. Prereq: 208 or permission of instructor.

Explores historical development of college sport; the influence of race, ethnicity, class and gender.

In-depth examination of the effects of acute and chronic exercise on the human body. Prereq: Physiol 311, or PhysioCB 311; concur: 415.

In-depth examination of the effects of acute and chronic exercise on the human body through a laboratory experience. Prereq: Physiol 311, or PhysioCB 311; concur: 414.

Directed coaching experience. SLS coaching strand prerequisites are 643, 657, 661. Open only to students admitted to a major in PAES or coaching education minor or permission of the instructor. Repeatable to a maximum of 20 cr hrs.

Directed teaching experience for advanced undergrad students in Sport and Leisure Studies. Prereq: Cum GPA 2.75. Open only to students admitted in a major in PAES. Repeatable to a maximum of 20 cr hrs. Taken concurrently with 601. This course is graded S/U.

Directed coaching experience. SLS coaching strand prerequisites are 643, 657, 661. Open only to students admitted to a major in PAES or coaching education minor or permission of the instructor. Repeatable to a maximum of 20 cr hrs.

Directed teaching experience for advanced undergrad students in Sport and Leisure Studies. Prereq: Cum GPA 2.75. Open only to students admitted in a major in PAES. Repeatable to a maximum of 20 cr hrs. Taken concurrently with 601. This course is graded S/U.

6 hours of arranged practical experience/conducted practice. Prereq: Current First Aid/CPR certification, 685 and 660.01. Only one course in the series may be taken per quarter.

Practical experience in the assessment of body composition using anthropometers and hydrostatic weighing procedures. 4 hours of arranged practical experience/conducted practice. Prereq: Current First Aid/CPR certification. Only one course in the series may be taken per quarter.

Practical experience in assessing anaerobic power and strength using isokinetic and isotonic methods. 4 hours of arranged practical experience/conducted practice. Prereq: Current First Aid/CPR certification. Only one course in the series may be taken per quarter.

Practical experience conducting fitness/wellness screening for campus community (students, faculty and staff). 4 hours of arranged practical experience/conducted practice. Prereq: Current First Aid/CPR certification. Only one course in the series may be taken per quarter.
575.04 Career and Technical Education Teacher Licensure Clinics: Inservice III
Development of basic cognitive and performance skills required to earn a two-year teaching license by new career and technical education teachers. Prereq: Current employment as a career and technical education teacher. Repeatable to a maximum of 24 cr hrs.

575.05 Career and Technical Education Teacher Licensure Clinics: Two Week Followup Program
The refinement of curriculum development leadership and human relations skills required by employed, two-year licensed career and technical education teachers. 8 hrs/day for 10 days. Prereq: Current employment as a career and technical education teacher. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

575.06 Career and Technical Education Teaching: UGRD 1 In-Service IV
The development and refinement of basic design and development skills required of a second year career and technical education teacher to earn a two-year teaching license. Prereq: Current employment as a career and technical education teacher.

575.07 Career and Technical Education Teaching: UGRD 1 In-Service V
Development of basic cognitive and performance skills required to earn a two-year teaching license by new career and technical education teachers. Continuation of 575.06. Prereq: Current employment as a career and technical education teacher. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

575.08 Career and Technical Education Teaching: UGRD 1 In-Service VI
Development of basic cognitive and performance skills required to earn a two-year teaching license by new career and technical education teachers. Continuation of 575.07. Prereq: Current employment as a career and technical education teacher. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

589.01 Internship: Exercise Science UGRD 6-15
Directed and supervised experience in a professional setting. Preregistration with the school required. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

589.02 Internship: Health Promotion UGRD 6-15
Directed and supervised experience in a professional setting. Preregistration with the school required. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

589.03 Internship: Sport and Leisure Studies UGRD 6-15
Directed and supervised experience in a professional setting. Preregistration with the school required. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

601 Teaching Sport, Leisure, and Exercise UGRD 3
To introduce teaching and management skills associated with student learning, design of instructional materials and techniques for implementation, and strategies to teach diverse learners in various sport, leisure, and exercise settings. BCII and FBI background checks required. Open only to students admitted to a PAES major, the coaching education minor, or permission of instructor. Taken concurrently with 489.09. Student must receive a B- or higher to be prepared for subsequent courses.

605 Health Counseling UGRD 3
To provide educators and counselors opportunity to develop skills and knowledge to advise students and clients confronted with personal health concerns. Prereq: 5 hrs of psych; admission to EDU.

607 Legal Aspects of Sport and Physical Activity UGRD 4
Development of a responsible and safe attitude toward sport programming; identification of procedures to reduce the probability of injuries/lawsuits resulting from sport and physical activity. Prereq: Jr standing. Open only to students admitted to a PAES major, the coaching education minor, or permission of instructor.

610 Women's Sport History UGRD 4
Examines women's sporting experiences from primitive cultures to contemporary societies; investigates influence of class, economics, power relationships, education, and views of the body. * Not open to students with credit for Edu P&L 610.

611 History of Physical Education and Sports UGRD 3
from Ancient Times to 19th-Century Europe
A history of physical education and sports which includes primitive societies, Greek and Roman civilizations, the medieval period, and European countries in the 18th and 19th centuries. Not open to students with credit for Edu P&L 622.

612 Alcohol and Drug Education UGRD 3
The study and development of techniques and programs to prevent or reduce psycho-social problems associated with drug misuse.

614 Sexuality and Sport UGRD 5
Course uses an interdisciplinary lens to examine how conceptions of sexuality shape and are shaped by US sport.

615 Sport and Social Values UGRD 3
Explores the role social values play in sport, examines (1) sport and civic virtue; (2) relationship between sports and fair play/social justice; (3) violence/abuses in sport.

620.01 Coaching: Baseball UGRD 3
Study in the theory, strategy, and mechanics of coaching various interscholastic; intercollegiate athletic sports. Prereq: Advanced skill level in the elected sport, jr standing and permission of instructor.

620.02 Coaching: Basketball UGRD 3
Study in the theory, strategy, and mechanics of coaching various interscholastic; intercollegiate athletic sports. Prereq: Advanced skill level in the elected sport, jr standing and permission of instructor.

620.04 Coaching: Football UGRD 3
Study in the theory, strategy, and mechanics of coaching various interscholastic; intercollegiate athletic sports. Prereq: Advanced skill level in the elected sport, jr standing and permission of instructor.

620.08 Coaching: Soccer UGRD 3
Study in the theory, strategy, and mechanics of coaching various interscholastic; intercollegiate athletic sports. Prereq: Advanced skill level in the elected sport, jr standing and permission of instructor.

620.12 Coaching: Wrestling UGRD 3
Study in the theory, strategy, and mechanics of coaching various interscholastic; intercollegiate athletic sports. Prereq: Advanced skill level in the elected sport, jr standing and permission of instructor.

620.14 Coaching: Volleyball UGRD 3
Study in the theory, strategy, and mechanics of coaching various interscholastic; intercollegiate athletic sports. Prereq: Advanced skill level in the elected sport, jr standing and permission of instructor.

622 Business Technology Education I UGRD 3
The relationship of business technology to business education subjects is discussed; foundational understanding and skill/application development in business education subjects.

623 Business Technology Education II UGRD 3
Advanced applications of business technology to business education subjects.

624 Foundations of Workforce Development and Education UGRD 4
Study of an integrated approach to workforce development and education programs and issues.

625 History of Physical Education and Sports in the United States UGRD 3
The development of physical education and sports in the United States from colonial times to the present and the factors which have affected their growth.

626.01 Sport and Popular Culture Overview UGRD 3
A variety of themes present in selected popular cultural forms dealing with a variety of sports such as football, basketball, baseball, and track and field.

626.02 Sport and Popular Culture - Race and Gender UGRD 3
A variety of themes present in selected popular cultural forms dealing with a variety of sports such as football, basketball, baseball, and track and field.

626.03 Sport and Popular Culture - Baseball UGRD 3
Focus on baseball as it has appeared in film and literature of and about the early 1900's to the present day.

628.01 Clinical Internship: Classroom Observations UGRD 3-15
Observation of career and technical education classroom instruction in field-based educational setting. 20 hrs minimum equal 1 cr hr. Prereq: EDG students with a CPRH of 2.50 or above, or grad students in good standing. Repeatable to a maximum of 15 cr hrs.
628.02 Clinical Internship: Experience in Business UGRD 3-6
Practical vestibule experience in a private sector setting to gain knowledge of an industry and to develop new skills and knowledge. 20 hrs minimum equal 1 cr hr. Prereq: EDP students with a CPHR of 2.50 or above, or grad students in good standing. Repeatable to a maximum of 9 cr hrs.

628.03 Clinical Internship: Teacher Aide GRAD 4-8
Practical experience as a professor's aide in a summer teacher licensure training clinic or workshop. 20 hrs minimum equal 1 cr hr. Prereq: EDP students with a CPHR of 2.50 or above, or grad students in good standing. Repeatable to a maximum of 8 cr hrs.

630 Problems in Intramural Sports UGRD 2
A critical analysis of intramural sports programs; problems of policy and administration of programs on the elementary, secondary, and college levels will be studied.

631.02 Advanced Skill Techniques: Basketball UGRD 2
Advanced techniques of performance and a specialized and intense study of appropriate technical literature. This course will assist students in acquiring advanced performance skills and strategies in basketball. Prereq: Advanced skill level, jr standing and permission of instructor. Prereq: 144.

631.04 Advanced Skill Techniques: Football UGRD 2
Advanced techniques of performance and a specialized and intense study of appropriate technical literature. This course will assist students in acquiring advanced performance skills and strategies in flag/touch football. Prereq: Advanced skill level, jr standing and permission of instructor. Prereq: 156.03 or equiv.

631.05 Advanced Skill Techniques: Gymnastics UGRD 2
Advanced techniques of performance and a specialized and intense study of appropriate technical literature. Prereq: Advanced skill level, jr standing and permission of instructor.

631.06 Advanced Skill Techniques: Golf UGRD 2
Advanced techniques of performance and a specialized and intense study of appropriate technical literature. Prereq: Advanced skill level, jr standing and permission of instructor.

631.08 Advanced Skill Techniques: Soccer UGRD 2
Advanced techniques of performance and a specialized and intense study of appropriate technical literature. This course will assist students in acquiring advanced performance skills and strategies in soccer. Prereq: Advanced skill level, jr standing and permission of instructor. Prereq: 174.

631.10 Advanced Skill Techniques: Tennis UGRD 2
Advanced techniques of performance and a specialized and intense study of appropriate technical literature. Prereq: Advanced skill level, jr standing and permission of instructor.

631.14 Advanced Skill Techniques: Volleyball UGRD 2
Advanced techniques of performance and a specialized and intense study of appropriate technical literature. Prereq: Advanced skill level, jr standing and permission of instructor.

631.15 Advanced Skill Techniques: Softball UGRD 2
Advanced techniques of performance and a specialized and intense study of appropriate technical literature. Prereq: Advanced skill level, jr standing and permission of instructor.

631.20 Advanced Skill Techniques: Special Offerings UGRD 2
Advanced techniques of performance and a specialized and intense study of appropriate technical literature. Prereq: Advanced skill level, jr standing and permission of instructor. Repeatable to a maximum of 10 cr hrs.

632 Software Applications for Business/Industry Teachers and Trainers UGRD 3
Business/industry-oriented foundation to microcomputer applications frequently used by trainers and career and technical education teachers. 1.2-5 hr cl.

633 Instructional Strategies for Career Based Intervention Programs UGRD 3

634 Health and Physical Education for the Young Child UGRD 4
Methods and materials dealing with instruction and evaluation of health and physical education for the young child. This is a service course for the proposed Early Childhood Program in the School of Teaching and Learning, College of Education.

635 School Health Services UGRD 3
Consideration of healthful school living and health services, including health appraisal counseling, educational adjustments, communicable diseases, and emergency programs. Prereq: 200 or equiv. For majors and minors in health sciences and health education.

636 Teaching of Health UGRD 3
Principles, methods, materials, and resources involved in teaching health; direct, correlated, and integrated curriculum patterns; individual teaching experience.

637 Health Agencies UGRD 3
Health agencies: purposes, location, affiliations, sources of funding, staff responsibilities, volunteer opportunities, services, educational materials, and media, with emphasis on writing materials. Additives concerns affecting Allied Med professions. GEC course.

643 Coaching Effectiveness UGRD 4
Introduction to the teaching/learning process with emphasis on pedagogical skills necessary for coaching effectiveness. Prereq: Major in Edu PAES, coaching education minor or permission of instructor.

646 Coordination of Cooperative Career and Technical Education Programs UGRD 3
Designed to develop the knowledge, attitudes, and competencies to effectively operate a cooperative career-technical education program.

648 Adult Literacy Education UGRD 3
Historical/social context of current adult basic education issues and practices related to participation, instructional processes, program planning, evaluation, and research needs.

649 Theory and Practice of Teaching Adult Learners UGRD 3
Selection, integration, and evaluation of methods, techniques, and devices to facilitate the learning of adults. Au Qtr. 1-hr cl, 1 1.5-hr community teaching experience.

650 Introduction to Exceptional Children UGRD 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. Not open to students with credit for Psych 570.

651 Health Program Planning UGRD 3
Competency development in formulating and implementing health programs; includes understanding community organization and the health care system, administration, and sustaining programs.

652 Health Promotion in the Workplace UGRD 3
Theoretical and pragmatic aspects of conducting health promotion programs in the workplace; discussion of rationale and relative effectiveness of various health components. Prereq: Sr standing or above.

655 Class and Laboratory Organization and Management in Career and Technical Education UGRD 3
Designed to help career and technical education teachers to plan, organize, and manage career and technical education classrooms and laboratories used in various educational settings.

657 Sport and Disability UGRD 3
Overview of sport for individuals with disabilities with special emphasis given to physiological, psychological, and socio-cultural perspectives. Prereq: Acceptance into the Sport and Exercise Studies graduate program or undergrad major in Edu PAES or coaching education minor or permission of instructor.

660.01 Laboratories in Exercise Physiology: Introductory UGRD 1
Selected laboratory experiences to include cardiovascular and muscle function testing. To be taken concurrently with 685. Subdivisions are not repeatable.

660.02 Laboratories in Exercise Physiology: Intermediate UGRD 1
Selected laboratory experiences to include cardiovascular and muscle function testing. Prereq: 660.01 or equiv. Subdivisions are not repeatable.

660.03 Laboratories in Exercise Physiology: Advanced UGRD 1
Selected laboratory experiences to include cardiovascular and muscle function testing. Prereq: 660.02 or equiv. Subdivisions are not repeatable.

662 Determining Instructional Content of Technical-Skill Training Programs UGRD 3
Systematic investigation of data collection and analysis procedures used to determine the content of technical skill jobs.
663 Organizing Technical-Skill Training Programs UGRD 3
Investigation of processes used to prepare objectives, evaluate items and budgets, and select and sequence appropriate strategies.

665 Making Effective Technical-Skill Presentations UGRD 4
Delivery strategies used to present technical and skill information to groups of learners.

667 Essentials of Career and Technical Education Curriculum and Instruction UGRD 3
Study of literature on curriculum and instruction used to prepare future employees, upgrade current employees, and prepare for changes in technology.

668.01 Career and Technical Education Teacher Licensure Clinic: Clinic 1 UGRD 6
Development of basic cognitive and performance skills required to earn a two-year career and technical education teachers. 5-6 hr cl for 3 weeks. Prereq: Employment as a career and technical education teacher. This course is graded S/U.

668.02 Career and Technical Education Teacher Licensure Clinic: Clinic 2 GRAD 2
Supervised clinical work while teaching in a career and technical education program. Prereq: Employment as a career and technical education teacher.

668.03 Career and Technical Education Teacher Licensure Clinic: Clinic 3 GRAD 2
Continuation of 668.02. Prereq: Employment as a career and technical education teacher. Prereq: 668.02.

668.04 Career and Technical Education Teacher Licensure Clinic: Clinic 4 GRAD 2
Continuation of 668.03. Prereq: Employment as a career and technical education teacher. Prereq: 668.03.

668.05 Career and Technical Education Teacher Licensure Clinic: Clinic 5 GRAD 4
Refinement of curriculum development skills and the development of leadership and human relations skills required by employed, two-year licensed career and technical education teachers. 5-8 hr cl for two wks. Prereq: Employment as a career and technical education teacher.

668.06 Career and Technical Education Teacher Licensure Clinic: Clinic 6 GRAD 1
Development and refinement of basic curriculum design and development skills required of a second-year career and technical education teacher. Prereq: Employment as a career and technical education teacher.

669 Teaching Students with Disabilities in Inclusive Settings GRAD 3
Emphasizes practical, low-cost, empirically supported, and classroom-tested approaches to teach students with disabilities effectively in general education classrooms. Prereq: Permission of instructor.

672 Adult Learning in Society UGRD 3

675 Measuring Student Outcomes in Career and Technical Education UGRD 3
Provides career/technical education teachers and training/development professionals with information relative to testing and assessment of students/trainees and the education/training programs in which they are enrolled.

676 Programming for Severe Physical Impairments UGRD 3
Background information and survey of programmatic considerations related to physical, motor, and fitness training of the severely handicapped.

677 The Parent/Professional Partnership GRAD 3
Knowledge and skills necessary for educators to assist parents in facilitating the development, education, and socialization of children and youth and handicaps. Prereq: Permission of instructor. Open only to special education majors; others by permission of instructor.

678 Career Based Intervention Clinic UGRD 3
The initial course for adding the Career Based Intervention Endorsement to an existing teaching license. Su Qtr. 5-6 hr cl (1 week). Open only to students pursuing a teaching endorsement in Career Based Intervention.

685 Adult Exercise Program - Implementation UGRD 3
Introduction to adult exercise training and evaluation methods; emphasis on the implementation of programs for the normal healthy adult. Prereq: 380 or 414/415. To be taken concurrently with 660.01.

686 Exercise Training for Fitness and Cardiac Rehabilitation UGRD 3
Continuation of 685; exercise testing for special populations; cardiac rehabilitation procedures; preventive exercise training programs. Prereq: 685.

689.01 Field Experience in Elementary Physical Education GRAD 3
Observation, participation and teaching to small groups and classes in elementary physical education. Prereq: Admission into SLS undergraduate teacher education program or permission of instructor. Prereq: Cumulative GPA 2.75; 520; taken concurrently with 740.

689.02 Field Experience in Secondary Physical Education GRAD 3
Observation, participation and teaching to small groups and classes in secondary physical education. Prereq: Admission into SLS undergraduate teacher education program or permission of instructor. Prereq: Cumulative GPA 2.75; 740; taken concurrently with 709 and 741.

690 Cultural Theories of Sport UGRD 3
This course will focus on the cultural significance of sport, and examine theories of culture in terms of their implications for the study of sport.

692.10 Workshops: Special Education UGRD 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 written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.20 Workshops: Sport and Exercise Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.21 Workshops: Sport and Exercise Humanities UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.22 Workshops: Sport and Exercise Management UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.23 Workshops: Sport and Exercise Science UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.25 Workshops: Rehabilitation Services UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.34 Workshops: Counselor Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.40 Workshops: Workforce Development and Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

693.10 Individual Studies: Special Education UGRD 1-15
Special Education. Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.
693.20 Individual Studies: Sport and Exercise Education
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.21 Individual Studies: Sport and Exercise Humanities
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.22 Individual Studies: Sport and Exercise Management
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.23 Individual Studies: Sport and Exercise Science
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.24 Individual Studies: Workforce Development and Education
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.25 Individual Studies: Rehabilitation Services
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.26 Individual Studies: Counseling Education
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.27 Individual Studies: School Psychology
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.28 Individual Studies: Workforce Development and Education
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.29 Individual Studies: School Psychology
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.30 Group Studies: Sport and Exercise Education
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.31 Group Studies: Sport and Exercise Humanities
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.32 Group Studies: Sport and Exercise Science
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.33 Group Studies: Rehabilitation Services
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.34 Group Studies: Counseling Education
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.35 Group Studies: School Psychology
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.36 Group Studies: Workforce Development and Education
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.37 Group Studies: School Psychology
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.38 Group Studies: Workforce Development and Education
Prereq: Permission of instructor. A total of not more than 30 cr hrs of any 693 will apply toward graduation for undergrad students. For plan A, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; for Plan B, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.
700.03 Interprofessional Education: Seminar on Ethical Issues Common to the Helping Professions
Ethical issues of concern to the professions and arising out of advanced technology, euthanasia, enforced treatment, privacy and confidentiality, malpractice, and the social responsibility of the professions. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work and theology. Cross-listed in Ed Policy & Leadership, Ed-Teaching & Learning.

700.04 Interprofessional Practicum in Clinical Settings

700.05 Interprofessional Seminar in Policy Analysis
Explores interprofessionally to history, formation, and implementation of public policy issues of significance to seven helping professions. Prereq: Permission of instructor. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work and theology. Cross-listed in Ed Policy & Leadership, Ed-Teaching & Learning.

700.06 Interprofessional Education: Care of Chemically Dependent Families
Interprofessionally explores issues in the identification and treatment of chemical dependency within the family context. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work and theology. Cross-listed in Ed Policy & Leadership, Ed-Teaching & Learning.

700.07 Interprofessional Education: Interprofessional Approaches to Child Abuse and Neglect
Interprofessionally explores issues in the identification, treatment, and prevention of child abuse and neglect. Prereq: Permission of instructor. Limited to students enrolled in allied medical professions, education, law, medicine, nursing, social work and theology. Limited to 12 students each in allied medicine, education, law, medicine, nursing, psychology, social work, and theology through Columbus Cluster. Cross-listed in Ed Policy & Leadership, Ed-Teaching & Learning.

701 Interprofessional Seminar in Policy Analysis
The course focuses on developing, delivering, and facilitating online learning experiences to adults in formal and non-formal learning environments. Su Qtr. Distance Learning Course (Web taught).

702 Health After 60
Designed to develop an awareness of the health concerns of the elderly and a willingness to help improve their quality of life. Prereq: 4th yr standing in a health science or behavioral science area or permission of instructor.

703 Health Behavior Change in Adulthood
Review of research on changing health behavior; includes smoking cessation, weight control, hypertension, stress, health promotion programs, and changing health behavior after 65.

704 Evaluation in Health Education
Identification and application of various techniques for evaluating learning processes and programs in health education.

705 Introduction to Gifted Education
An examination of historical trends, educational, psychological, and philosophical factors in the education of gifted persons.

708 Analysis of Teaching and Learning Processes
Techniques for defining, observing, and assessing teaching/learning processes with emphasis on verifying relationships between teaching strategies and student outcomes. Prereq: Admission to M.Ed. program. Not open to students with credit for 871.

709 Curriculum and Instructional Design
Systematic planning and design of the curriculum and its implementation using principles of instructional design and evaluation. Prereq: Admission to SLS teacher certification program strand or permission of instructor; taken concurrently with 689.02 and 741. Student must receive a B- or higher to be prepared for subsequent courses.

711 American Sport History
Examines intersection of sport and society in America. Investigates influence of city, modernization, race, class, gender, consumer society, media on sporting structures, attitudes, and meaning. 2-2.5-hr cl, 1 hr arr. Not open to students with credit for Edu P&L 704.

713 Foundations of Physical Activity Behavior
Introduction to physical activity behavior: population distributions and relationship to health. E-mail; internet access.

714 Responses and Adaptations to Exercise
Study of responses and adaptations to the stress of exercise in humans and animals. Prereq: 10 cr hrs physiol or 10 cr hrs chem or 10 cr hrs biology, or equiv.

716 Assistive Technologies for Individuals with Disabilities
The purpose of this course is to prepare students to assist persons with disabilities in the selection and use of adaptive and assistive technology. Prereq: Admission to the special education teacher preparation program or graduate student status. Not open to students with credit for Alli Med 802. Cross-listed with Alli Med 802.

717.01 Nisonger Center Course: An Interdisciplinary Approach to Families of Handicapped Children
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Qualitative and quantitative approaches for resource and problem identification with families of handicapped children, effective parenting skills, strategies to follow at-risk families, and family intervention models. Prereq: Permission of instructor. Not open to students with credit in 717.01 in any cross-listed areas. Cross-listed in Allied Medicine, Human Development and Family Science, Human Nutrition, Nursing, Psychology, Social Work, and Speech and Hearing Science.

717.02 Nisonger Center Course: The Interdisciplinary Team: Clinical and Administrative Issues
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Investigation and critical examination of function of interdisciplinary clinical and administrative teams in mental retardation and developmental disabilities. Prereq: Permission of instructor. Not open to students with credit in 717.02 in any cross-listed areas. Cross-listed in Allied Medicine, Human Development and Family Science, Human Nutrition, Nursing, Psychology, Social Work, and Speech and Hearing Science.

717.03 Nisonger Center Course: Developmental Disabilities
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Focus on the most pertinent scientific and societal issues of developmental disabilities student status. Not open to students with credit for 717.03 in any cross-listed areas. Cross-listed in Allied Medicine, Human Development and Family Science, Human Nutrition, Nursing, Psychology, Social Work, and Speech and Hearing Science.

719 Early Intervention Interdisciplinary Team Dynamics
Interdisciplinary team-taught course with a focus on early intervention/early education services for children birth to three and their families. Prereq: Permission of instructor. Not open to students with credit for Alli Med 719, HDFS 719, Nursing 719, or Sph/Hrng 719. Cross-listed in Human Development and Family Science, Nursing, and Speech and Hearing Science.

720 Measurement of Physical Activity
Examination of the theory and application of techniques used to assess physical activity behavior and its mediators. 2.5-hr cl. Prereq: 713. Email; internet access.

721 Classroom Management for Children with Special Needs
Principles and application of classroom management techniques appropriate for exceptional children and youth. Methods for positive behavior supports with an emphasis on developing class-wide management systems. Prereq: Admission to the Special Education Teacher Preparation Program or graduate student status; 742. To be taken concurrently with 289.10.

722 Communication Skills for Children with Moderate/Intensive Needs
Examines current principles in the development of alternative communication programs for individuals with moderate/intensive disabilities who do not spontaneously use speech. Prereq: Admission to the Special Education Teacher Preparation Program or graduate student status.

723 Physical Education for Young Children
Methods and materials of school physical education dealing with the selection, instruction, and evaluation of activities for young children. Prereq: Admission into the Early-middle Childhood Education M.Ed. program.
724 Elementary School Health Education  GRAD  3
Health appraisal of the school aged child and teaching methods dealing with instruction and evaluation of Health Education.
Prereq: Grad standing or permission of instructor. Acceptance to the Early-middle Childhood Education M. Ed. program.

726 Changing Physical Activity Behavior  GRAD  3
Introduction to the theoretical foundations, research base, and intervention strategies for enhancing exercise participation in fitness and recreational settings.

727.10 Special Topics: Special Education  GRAD  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 20 cr hrs. This course is graded S/U.

727.20 Special Topics: Sport and Exercise  GRAD  1-5
Education
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. This course is graded S/U.

727.21 Special Topics: Sport and Exercise  GRAD  1-5
Humanities
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. This course is graded S/U.

727.22 Special Topics: Sport and Exercise  GRAD  1-5
Management
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. This course is graded S/U.

727.23 Special Topics: Sport and Exercise Science  GRAD  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 20 cr hrs. This course is graded S/U.

727.25 Special Topics: Rehabilitation Services  GRAD  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 20 cr hrs. This course is graded S/U.

727.30 Special Topics: Wellness and Human Services  GRAD  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 20 cr hrs. This course is graded S/U.

727.34 Special Topics: Counselor Education  GRAD  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 20 cr hrs. This course is graded S/U.

727.40 Special Topics: Workforce Development and Education  GRAD  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 20 cr hrs. This course is graded S/U.

727.63 Special Topics: School Psychology  GRAD  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 20 cr hrs. This course is graded S/U.

728 Cultural Diversity: Developing a Multicultural Perspective  GRAD  3
Students will have the opportunity to develop a multicultural awareness as they explore the impact of an increasingly diverse society in the United States.
Prereq: Grad level status and permission of instructor.

729 Urban Issues in Education  GRAD  3
Focus is on gaining a better understanding of the dynamics of urban schools and the relationship between minority status, poverty, academic achievement and resiliency.

730 Philosophical Perspectives of Sport and Leisure  UGRD  5
Examination of philosophical sport and leisure scholarship with emphasis on contemporary theoretical literature and issues.
Not open to students with credit for Edu P&L 730.

732 Current Topics in Sport and Exercise Management  GRAD  2
Examines the areas of specialization within sport management and current issues relative to the field.
Prereq: Permission of instructor or enrollment in sport and exercise sciences.

733 Financing Sport Operations  GRAD  3
This course examines the application of basic concepts of public and private sector financing to collegiate and professional sport organizations.
Prereq: Sport Management major or permission of instructor.

734 Methods of Instruction I for Students with Mild/Moderate Disabilities  UGRD  3
Designed to teach pre-service teachers effective instructional strategies for elementary learners with mild disabilities.
Prereq: Admission to the Special Education Teacher Preparation Program or graduate student status. To be taken concurrently with 289.10.

735 Methods of Instruction II for Students with Mild/Moderate Disabilities: Middle and Upper Grades  GRAD  3
Designed to provide advanced training in methods for middle and secondary students with mild disabilities.
Prereq: Admission to the Special Education Teacher Preparation Program or graduate student status; 734. To be taken concurrently with 289.10.

736 Methods of Instruction I for Students with Moderate/Intensive Disabilities: Planning for and Develop  UGRD  3
Provides an introduction to designing and developing instructional programs for individuals with moderate/intensive disabilities.
Prereq: Admission to the Special Education Teacher Preparation Program or graduate student status; 722; 743. To be taken concurrently with 289.10.

737 Methods of Instruction II for Students with Moderate/Intensive Disabilities: Implementing and Evalua  UGRD  3
Provides students with an introduction to implementing and evaluating instructional programs for students with moderate to intensive disabilities.
Prereq: Admission to the Special Education Teacher Preparation Program or graduate student status; 736. To be taken concurrently with 289.10.

738 Reading Instruction for Children with Disabilities and Severe Reading Deficits  UGRD  5
Prepares special educators to use empirically validated reading pedagogy when teaching children with disabilities who have severe reading problems. Au, Wi Qtrs. 2.5-hr cr, 1.5-hr lab. Prereq: 742 and 650, 251 or equiv. Open only to special education majors. Repeatable to a maximum of 10 cr hrs. Format of the course is an on-campus lecture with an off-campus tutoring experience. Course will count toward special education licensure.

740 Teaching Physical Education in the Elementary School  GRAD  3
Effective strategies for teaching physical education in the elementary school. 3 hrs daily for first 10 days of the qtr. Prereq: 520; taken concurrently with 689.01. Student must receive a B- or higher to be prepared for subsequent courses.

741 Teaching Physical Education in Middle and High School  UGRD  3
Teaching and curricular issues as they relate to middle and high school physical education programming. 3 hrs daily for first 10 days of qtr. Prereq: 740; taken concurrently with 689.02 and 709. Student must receive a B- or higher to be prepared for subsequent courses.

742 Applied Behavior Analysis for Teachers  UGRD  3
Study of principles of behavior for the development and maintenance of academic and social behaviors.
Analysis of how applications for external funding in the School of PAES are
processed and submitted.

765 Grant Writing GRAD 3
Analysis of how applications for external funding in the School of PAES are
developed and submitted.
Prereq: Permission of instructor.

767 Assessment in Counseling: Instrumentation UGRD 3
An introduction to the concepts and techniques in the appraisal of the individual
with an emphasis on basic statistical concepts, and an overview of the instrumentation;
designed for counselors who will be working in school, mental health, and
rehabilitation settings.
Prereq: 773 or permission of instructor.

768 Assessment in Counseling: Interpretation UGRD 3
A continuation of 767 involving a more advanced study of concepts and techniques in
the appraisal of the individual with an emphasis on the development of case studies,
and interpretation of standardized and non-standardized assessment instruments;
designed for counselors who will be working in school, mental health, and
rehabilitation settings.
Prereq: 767.

769 Delivering Effective Services to Enhance UGRD 3
the Inclusion of Students with Special Needs
Designed to prepare special education teachers to work with administrators, general
education teachers, parents and paraprofessionals to deliver instruction in inclusive
settings.
Prereq: Admission to the Special Education Teacher Preparation Program or graduate
student status.

770 Introduction to Helping Skills: Theory and Practice GRAD 3
Examination of theories of counseling and helping and application to a variety of
professional settings: examination of techniques and professional issues in counseling
and other helping professions.
Au, Sp Qtr.

771 Individual Helping Skills Development GRAD 3
Laboratory for the development of helping skills for beginning and advanced students
who are not in the clinical counseling program.
Wi Qtr.

772 Exploring Careers in Counseling GRAD 3
Introduction to careers in counseling, settings in which it is practiced and professional
issues as well as introduction to techniques.
Wi Qtr.

773 Counseling Services and Techniques UGRD 3
Counseling services and techniques used to help individuals live and work effectively
in a complex society.

774 Introduction to Counseling UGRD 3
Introduction to counseling theories with emphasis on theoretical bases and
applications in selected school and community settings.
Prereq: 773.

775 Group Counseling UGRD 3
An overview of theories, issues, and trends of group counseling.
Prereq: Permission of instructor.

776 Counseling Children UGRD 3
An overview of child behavior and concerns with emphasis on counseling theory as
applied to children and general treatment modalities.

779 Educational and Career Counseling UGRD 5
Theories, instruments, and resources for educational and career counseling of
individuals and groups.
Prereq: 768 and written permission of instructor.

780 Seminar for Student Teaching UGRD 3
Seminar designed to connect students' school-based internship experiences with
pedagogical content knowledge through discussions and reflections about teaching
physical education.
Prereq: Cumulative GPA 2.75; 741; taken concurrently with 784. Designed to
facilitate growth as a prospective teacher, facilitate understanding of roles and
responsibilities of teachers, and provide opportunities to discuss and reflect on
pedagogy in schools.

784 Student Teaching in Technical Education and Training UGRD 12
designing curriculum.
Provides career/technical education teachers with a culminating field experience with
the guidance of a cooperating teacher and a university supervisor in a school setting.
Prereq: 628, 655, 667.

785 Management in Leisure Programs UGRD 3
An analysis of contemporary approaches to management in the leisure field.
Prereq: 245, 545; Edu PAES major or permission of instructor. Jr standing or above.

786 Internship in Physical Education at the UGRD 8
Elementary School
Observation, participation, and responsible teaching in an elementary school setting.
3-6 hrs daily over 40 days. Prereq: Cumulative GPA 2.75; 741; taken concurrently with 780 and 787.
787 Internship in Secondary Physical Education UGRD 7
Observation, analysis, and teaching in a public secondary school; dual and three-way conferences with supervisor and cooperating teacher. 3-6 hrs daily over 40 days. Prereq: Cumulative GPA 2.75; 741; taken concurrently with 780 and 786.

788 Practicum for School Nurses UGRD 3-15
A supervised opportunity is provided to practice the school nursing specialty in a public school health services setting.
1 conf per wk; hrs of field exp varies with cr hrs. Prereq: Written permission of area advisor. Limited to student nurses and RN's with courses required for school nurse certification. Repeatable to a maximum of 15 credits. This course is graded S/U.

789 Practicum in Health Education UGRD 2-15
Opportunity is provided for putting educational research and theory into practice by teaching, administration, and agency experience under supervision in university, school, and agency situations.
1 arr conf and arr field exp. Prereq: Written permission of instructor and departmental adviser based upon submitted evidence of appropriate knowledge and skill in the selected course. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

790 Principles and Practices of Rehabilitation UGRD 3 Counseling
Orientation to the vocational rehabilitation process; a survey of principles, history, philosophies, legislation, and techniques.
Prereq: Permission of instructor.

791 Orientation to Disabling Conditions UGRD 3
An overview of major disabling conditions focusing on: etiology, treatment, and prognosis; physical restoration; the vocational and functional limitations created by the conditions.
Prereq: Permission of instructor.

792 Job Placement and Job Development for Persons with Disabilities
An analysis of the theories and techniques involved in vocational counseling, job restructuring, and job development with the disabled worker; an introduction to models of interagency linkage and cooperation.
Prereq: 790 or permission of instructor.

795 Socio-Cultural Issues in Physical Education UGRD 3
Designed for students to develop a multicultural perspective in understanding the teaching-learning process; especially in sport and physical activity classes.
Prereq: 520. Recommended for all new GTA's in Sport and Exercise Sciences.

796 Designing Accessible Internet Content for Persons with Disabilities
Teaches the design of World Wide Web content that is accessible to persons with disabilities and complies with applicable accessibility standards. General computer knowledge required and some knowledge of HTML is highly desirable.

798.11 Supervised Teaching in Special Education: Mild Moderate Intervention Specialist UGRD 12
Student teaching for qualified students in the area of special education. Arr. Prereq: Written permission of instructor. This course is graded S/U.

798.12 Supervised Teaching in Special Education: Moderate Intensive Intervention Specialist UGRD 12
Student teaching for qualified students in the area of special education.
Arr. Prereq: Written permission of instructor. This course is graded S/U.

800.01 Counseling: Practica in Basic Helping GRAD 2
Steps: Individual Counseling
Provides the experiential component of 774: Introduction to Counseling and 775: Group Process.
Intensive training in basic interviewing and counseling skills with a focus on self-assessment, and on increasing one's understanding of the complexities of interpersonal processes.
Prereq: 774 or equiv and/or permission of instructor. This course is graded S/U.

800.02 Counseling: Practica in Basic Helping GRAD 2
Steps: Group Counseling
Provides the experiential component of 774: Introduction to Counseling and 775: Group Process.
An opportunity to experience the group process from a member's perspective, and to observe the role and function of a group facilitator.
Prereq: 775 or equiv and/or permission of instructor. This course is graded S/U.

801.01 Multicultural Issues in Counseling GRAD 3
An exploration of multicultural concerns related to the knowledge, belief/attitudes, an skills of counselors.
Prereq: 774 or permission of instructor.

801.02 Multicultural Research in Counseling GRAD 3
An examination of multicultural research design and methodology, and the impact these findings have on counseling.
Prereq: ED P&L 785 and/or ED P&L 786 or their equivalents and 801.01 or equiv.

802.01 Introduction to Exercise Physiology GRAD 4
Introduction to the field of exercise physiology with emphasis on energy liberation factors affecting performance, health, and fitness and physical training.
* Prereq: PhysioCB 602 or equiv.

802.02 Exercise Physiology: Metabolism, Temperature, Water, and Electrolyte Balances
Continuation of 802.01; discussion of metabolism, temperature, water, and electrolyte balances during exercise and of the effects of physical training.
Prereq: 802.01 and permission of instructor.

802.03 Exercise Physiology: Cardio-respiratory System, Physical Training, and Muscular Strength Training
Continuation of 802.02; discussion of cardio-respiratory system during exercise and effects of physical training.
* Prereq: 802.02 and permission of instructor.

802.04 Muscle Structure and Function: Overload and Disuse
Muscle structure and function as related to normal physiology, overload, disuse, and exercise.
* Prereq: 802.01; PhysioCB 602 or permission of instructor. Limited to 10 students.

803 Improvement of Instruction in Basic Business Subjects
A study of objectives, methods, materials, and methods of evaluation for courses such as general business, consumer education, and business law.

805 Teaching the Gifted: Instructional and Curricular Adaptations
Information and skills for modifying curriculum for gifted presented in a workshop format.
Prereq: 705. Open only to special education majors; others by permission of instructor.

806 Sport Management and Administration GRAD 3
The various aspects of athletic, intramural, and recreation administration.
Prereq: At least 2 qtrs in sports administration program or phys ed PhD candidate will minor area of athletic administration.

807 Legal Issues Affecting Sport GRAD 5
A study of legal issues affecting the delivery of sport services; focus on liability in sport activities.

808 Effective Management of Sport Delivery Systems
Application of contemporary management techniques used in the design and operation of sport delivery systems. Prereq: 3 hrs of management sci, 806, or permission of instructor.

809 Sport Marketing GRAD 3
Examination and utilization of basic marketing principles in the areas of sport (collegiate and professional) recreation.
Prereq: Bus-Mktg 650.

811 Occupational Analysis GRAD 3
Development and utilization of procedures used in analyzing a technical occupation for teaching content. 3 cl.arr field experience.

817 Developing Instruction for Business and Industry
The systematic development of instructional programs for business and industry; role of the instructional developer in business and industry will also be examined.
Prereq: permission of instructor.

818 Designing Individualized Training Systems GRAD 3
The design of individualized training and performance systems for business and industry.

824 Underachieving Gifted Students GRAD 3
Focuses on characteristics and needs of gifted students who underachieve.
Credit counts toward Gifted Education licensure and MA.

825 Principles and Programming for Persons Who are Severely or Multiply Disabled
Includes interdisciplinary focus, community-based curriculum, integration with nondisabled peers, and nonvocal communication.
Prereq: A course in educational programming for children with low-incidence disabilities, and a course in language development and permission of instructor. Open only to special education majors; others by permission of instructor.
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>827</td>
<td>Structured Learning in the Work Setting</td>
<td>GRAD 3</td>
<td>Examines and applies theories and practices related to structured learning in the work setting; will be an elective in the Workforce Development and Education section.</td>
</tr>
<tr>
<td>828</td>
<td>Administrative Practices in Career and Technical Education</td>
<td>GRAD 3</td>
<td>A study of the concepts of career and technical education program administration, including management skills, policy development, staff management, finance, and program evaluation. No open to students with credit for Agr Educ 811 or 821. Cross-listed in Agr Educ 821.</td>
</tr>
<tr>
<td>829</td>
<td>Advanced Educational Procedures for Students with Mild/Moderate Disabilities</td>
<td>GRAD 3</td>
<td>Advanced study of individualized methods of instruction for students with mild/mild/moderate disabilities; emphasis on assessment and design of appropriate instructional programs. To be taken concurrently with 3 cr hrs of 884.10. Open only to special education majors; others by permission of instructor.</td>
</tr>
<tr>
<td>830</td>
<td>Strategies for Effective Individual Instruction</td>
<td>GRAD 3</td>
<td>Advanced study of precision teaching as a methodology for the systematic evaluation of learning and use in all instructional tactics and curricula. Prereq: Permission of instructor. Open only to special education majors; others by permission of instructor.</td>
</tr>
<tr>
<td>831</td>
<td>Strategies for Effective Group Instruction</td>
<td>GRAD 3</td>
<td>Study of theory, research, and literature on strategies and tactics of group instruction. Prereq: 742. Open only to special education majors; others by permission of instructor.</td>
</tr>
<tr>
<td>832</td>
<td>Planning and Implementing Instruction for Generalized Outcomes</td>
<td>GRAD 3</td>
<td>Guiding principles, general strategies, and specific tactics for designing instruction that promotes the generality of newly learned skills over time, settings, and response classes. Prereq: 831. Open only to special education majors; others by permission of instructor.</td>
</tr>
<tr>
<td>833</td>
<td>Advanced Studies in the Education and Management of Students with Severe Behavior Disorders</td>
<td>GRAD 3</td>
<td>Study of most recent research and literature on the education, management, and programming of students with severe behavior disorders. Prereq: Permission of instructor. Open only to special education majors; others by permission of instructor.</td>
</tr>
<tr>
<td>835</td>
<td>Problems in Interscholastic and Intercollegiate (duplicate) Athletics</td>
<td>GRAD 3</td>
<td>The relation of athletics to education; problems of athletic organization; eligibility; finance, current trends, and developments in management and purpose; public relations.</td>
</tr>
<tr>
<td>836</td>
<td>Structures and Processes of Sport Organizations/Associations</td>
<td>GRAD 3</td>
<td>Examines the organizational structures and processes of amateur, intercollegiate, and professional sport organizations/associations.</td>
</tr>
<tr>
<td>837</td>
<td>Event and Facility Management for Sport Managers</td>
<td>GRAD 3</td>
<td>Examines the principles and practices of planning and managing sport events and facilities.</td>
</tr>
<tr>
<td>839</td>
<td>Professional Sport in 20th-Century America</td>
<td>GRAD 3</td>
<td>Examination of the development of professional sport; its economic structure and relationship to mass media; the nature and problems of professional athletes. Not open to students with credit for Edu P&amp;L 819.</td>
</tr>
<tr>
<td>840</td>
<td>Instructional Design for Teacher Educators in Physical Education</td>
<td>GRAD 3</td>
<td>Classification and analysis of learner outcomes in activity settings; emphasis on empirical methods for analyzing outcomes and alternatives for achieving outcomes in teacher education programs in physical education.</td>
</tr>
<tr>
<td>842</td>
<td>The Business of College Sports</td>
<td>GRAD 4</td>
<td>Course provides business analysis of intercollegiate athletics, including an in depth look at OSU athletic program; develop understanding of college sports administration educational, business missions. Au Qtr. Prereq: Graduating standing and Sport Management major or permission of instructor. Cross-listed in Business Admin: Management and HR 870.</td>
</tr>
<tr>
<td>844</td>
<td>Vocational Evaluation and Development</td>
<td>GRAD 3</td>
<td>A study of vocational evaluation, development, and work adjustment materials and practices utilized in educational and rehabilitation settings. Prereq: 790 or permission of instructor.</td>
</tr>
<tr>
<td>848</td>
<td>Management and Administration of Programs for Exceptional Children</td>
<td>GRAD 4</td>
<td>A review of technology, trends, and issues basic to the management and operation of special education programs with the intention of preparing leadership personnel. Prereq: 850 and grad standing in special education; or written permission of instructor.</td>
</tr>
<tr>
<td>850</td>
<td>The Role of Sports in Society</td>
<td>GRAD 5</td>
<td>Significance of sport to individuals and groups in society. Not open to students with credit for Edu P&amp;L 855.</td>
</tr>
<tr>
<td>851</td>
<td>Motor Learning</td>
<td>GRAD 3</td>
<td>Critical consideration of research and theory in the acquisition of skill; special attention is given to major trends in the field. Prereq: Psych 600, or permission of instructor.</td>
</tr>
<tr>
<td>852</td>
<td>Sport Ethics</td>
<td>GRAD 3</td>
<td>Examination of ethical issues central to contemporary sport that address how we ought to treat human beings and other sentient beings in sport settings.</td>
</tr>
<tr>
<td>855</td>
<td>Contemporary Issues in Recreational Sports Administration</td>
<td>GRAD 3</td>
<td>A study of current issues, management techniques, and programming concepts associated with the administration of campus recreation programs. Prereq: 630 or equiv.</td>
</tr>
<tr>
<td>856</td>
<td>Roles and Functions of School Psychologists</td>
<td>GRAD 3</td>
<td>Provides an overview of the legal, ethical, and current issues in school psychology, as well as the history of the profession.</td>
</tr>
<tr>
<td>857</td>
<td>Assessment of Cognitive Ability I</td>
<td>GRAD 3</td>
<td>Designed to teach students about various methods for assessing cognitive ability.</td>
</tr>
<tr>
<td>858</td>
<td>Assessment of Cognitive Ability II</td>
<td>GRAD 3</td>
<td>An advanced course in the assessment of cognitive functioning. Advanced methods of assessment are taught and applied. Prereq: 857.</td>
</tr>
<tr>
<td>859</td>
<td>Assessment of Academic Achievement in the Schools</td>
<td>GRAD 3</td>
<td>Designed to teach students about various methods for assessing academic achievements in the schools.</td>
</tr>
<tr>
<td>860</td>
<td>Linking Assessment to Intervention</td>
<td>GRAD 3</td>
<td>Students will gain skills in assessing academic skills, targeting interventions, and conducting continuous progress monitoring.</td>
</tr>
<tr>
<td>861</td>
<td>Focus on Behavior Analysis in Education</td>
<td>GRAD 3</td>
<td>Theory and practice of applied behavior analysis as it applies to educational issues. Prereq: MA or PhD; permission of instructor. Open only to special education majors; others by permission of instructor.</td>
</tr>
<tr>
<td>862</td>
<td>Rehabilitation Case Management</td>
<td>GRAD 3</td>
<td>An in-depth analysis of the vocational rehabilitation topics of case management, agency functioning, and the adaptation of counseling models and techniques for use with persons with disabilities. Prereq: 774 and 790.</td>
</tr>
<tr>
<td>863</td>
<td>Teaching Health and Fitness Courses at the College Level</td>
<td>GRAD 3</td>
<td>Covers teaching methods, learning theories, course development and student evaluations in sport, fitness, and health courses. Au Qtr. Required for new teaching assistants in the sports, fitness and health program.</td>
</tr>
<tr>
<td>864</td>
<td>Reactions and Adjustment to Disability</td>
<td>GRAD 3</td>
<td>A study of individual reactions to various disabling conditions, the adjustment process cultural norms and expectations, and responses to the rehabilitation process.</td>
</tr>
<tr>
<td>865</td>
<td>Naturalistic Inquiry in Physical Education</td>
<td>GRAD 4</td>
<td>Consideration of design and methods of inquiry for naturalistic field studies in physical education, sport, play, health, and dance; review of research results. Prereq: A grad course in research methods.</td>
</tr>
<tr>
<td>867</td>
<td>Biochemical Methods for the Assessment of Human Performance</td>
<td>GRAD 4</td>
<td>Development of laboratory procedures used to evaluate physiological responses and adaptations of blood and muscle to exercise.</td>
</tr>
<tr>
<td>868</td>
<td>Research on Teaching in Physical Education</td>
<td>GRAD 3</td>
<td>Focuses on major issues, methodologies, and significant findings of research on teaching in physical education for the past two decades.</td>
</tr>
<tr>
<td>869</td>
<td>Research on Teacher Education in Physical Education</td>
<td>GRAD 3</td>
<td>A study of the literature on teacher education research and physical education literature in particular. Prereq: 868 or permission of instructor.</td>
</tr>
</tbody>
</table>
870 Research on Effective Teaching and Schooling
Review of research on effective teaching and schooling with emphasis on using knowledge to reflect on one's own teaching.

871 Behavioral Research Methods in Applied Settings
Methods of single subject research in educational, clinical, homes, and other applied settings; focus on developing observational design, analysis and interpretation skills. 2.5-hr cl, 1.5-hr lab. Prereq: 10 hrs of applied behavior analysis, behavior modification or equivs with written permission of instructor. Open only to special education majors others by permission of instructor.

872 Advanced Studies in Adapted Physical Education
Examination and assessment of developmental aspects as they relate to physical and motor performance behavior of children with developmental disabilities, mental retardation, and learning disabilities.

873 Behavioral Research in Education: Strategies and Tactics
This course presents advanced graduate students with knowledge of strategies and tactics for scientific and technological experimentation with human behavior.
Prereq: 871. Open only to special education majors; others by permission of instructor

874 Behavioral Research in Education: Critical Analysis and Thematic Extensions
Completes the 3-course series on behavioral research in education. Recent methodological advances, development of thematic lines of research, and research ethics are key topics.
Prereq: 871 and 873. Open only to special education majors; others by permission of instructor.

876 Organization and Administration of Guidance Services
The selection, organization, and presentation of guidance materials, including analysis of types of organization, methods of initiating a guidance program, and types of in-service programs.
Prereq: 773 or equiv.

877 Mental Health Issues in the Schools
Overview of the current mental health issues evident in the school setting with a focus on prevention and intervention.

878 Social-Emotional Assessment of Children and Adolescents
Focuses on assessing mental health factors for children and adolescents for use in school settings.

879 Biological Basis of Behavior: Neuropsychology in the Schools
Introduction of neuropsychology as it relates to mental health issues. Students learn how to incorporate this knowledge into their assessment and treatment of youth.
Sp Qtr.

880 Supervision for Teacher Education in Physical Education
Examines clinical models for supervision in physical education with emphasis on data collection techniques to provide feedback to teaching interns.
Prereq: 870.

882 School-Based Consultation I: Theories and Process
The consultation process, models, roles, skills, and outcomes for school based personnel will be addressed; emphasis is placed on extending theoretical and practical knowledge.

883 School-Based Consultation II: Implementing Behavioral Interventions
Focuses on using the consultation model as the foundation for the implementation of behavioral interventions both individual and group.
Prereq: 882.

884.02 Planned Field Experience: Foreign
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

884.10 Planned Field Experience: Special Education
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs.

884.20 Planned Field Experience: Sport and Exercise Education
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs.

884.21 Planned Field Experience: Sport and Exercise Humanities
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs.

884.22 Planned Field Experience: Sport and Exercise Management
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs.

884.23 Planned Field Experience: Sport and Exercise Science
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs.

884.25 Planned Field Experience: Rehabilitation Services
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs.

884.34 Planned Field Experience: Counselor Education
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs.

884.40 Planned Field Experience: Workforce Development and Education
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs.

884.63 Planned Field Experience: School Psychology
Planned counseling, supervisory, assessment, or teaching experience in a public school or other human service setting under supervision.
Repeatable to a maximum of 15 cr hrs.

885.66 Supervised Teaching in Special Education: Gifted
Student teaching for qualified students in the area of special education.
Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs.

886 Colloquium in Exercise Science
Discussion of current research in exercise science.
1 cl. Prereq: Grad standing in HPER or permission of instructor. Required every qtr for registered grad students in exercise science. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

888 Professional Writing/Publishing in Special Education
Focus on procedures for conceptualizing, preparing, and submitting manuscripts to educational journals and textbook publishers.
1 3-hr cl. Prereq: Full-time PhD students; permission of instructor. Open only to special education majors; others by permission of instructor.

889 Practicum
Opportunity to put professional theory and research into practice under supervision in University, school and agency settings.

890 Contemporary Issues in Special Education
Weekly teleconference seminars discussing current issues and research in special education with prominent scholars from other universities and research centers.
Prereq: PhD student in special education or permission of instructor.

893.10 Advanced Individual Studies: Special Education
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree.
Open only to special education majors; others by permission of instructor. Repeatable.
This course is graded S/U.
893.20 Advanced Individual Studies: Sport and Exercise Education
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.21 Advanced Individual Studies: Sport and Exercise Humanities
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.22 Advanced Individual Studies: Sport and Exercise Management
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.23 Advanced Individual Studies: Sport and Exercise Science
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.25 Advanced Individual Studies: Rehabilitation Services
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.34 Advanced Individual Studies: Counselor Education
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.40 Advanced Individual Studies: Workforce Development and Education
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.63 Advanced Individual Studies: School Exercise Education
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

894.20 Advanced Group Studies: Sport and Exercise Education
Advanced group studies on special problems in education.
Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.21 Advanced Group Studies: Sport and Exercise Humanities
Advanced group studies on special problems in education.
Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.22 Advanced Group Studies: Sport and Exercise Management
Advanced group studies on special problems in education.
Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.23 Advanced Group Studies: Sport and Exercise Science
Advanced group studies on special problems in education.
Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.25 Advanced Group Studies: Rehabilitation Services
Advanced group studies on special problems in education.
Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.34 Advanced Group Studies: Counselor Education
Advanced group studies on special problems in education.
Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.40 Advanced Group Studies: Workforce Development and Education
Advanced group studies on special problems in education.
Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.63 Advanced Group Studies: School Psychology
Advanced group studies on special problems in education.
Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

895 Urban Gifted Education
Plan A: not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree; Plan B: not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

897 Psychological Services for Early Childhood Populations
Focus is on the provision of comprehensive services to infants, toddlers, and preschool children and their families.

906 Understanding Sport Consumers: Theoretical Perspectives
The purpose of this class is to acquaint students with issues related to sport consumers' behaviors by discussing pertinent theories and implications to sport consumer behavior. The course is targeted toward doctoral students in sport management.
Prereq: PAES student or permission of instructor.

911 Theories of Workforce Development and Education
A study of the theories and perspectives that support workforce development and education.
Prereq: Enrollment as a doctoral student. Part of the required core for the PhD program in Workforce Development and Education.

912 Scholarly Perspectives of Workforce Development and Education
Introduces doctoral students to the scholarly process and helps them develop their own area of scholarly focus in workforce development and education.
Prereq: Admission to WDE PhD program or permission of instructor.

913 Knowledge Generation in Workforce Development and Education
Explores knowledge generation and dissemination within the field of Workforce Development and Education.

914.01 WDE Seminars: Data Analysis and Evaluation of Workforce Development Policy
Offers advanced research seminars for doctoral level training in Workforce Policy. Repeatable to a maximum of 18 cr hrs.

914.02 WDE Seminars: Issues in Adult Distance Education and Learning
Offers advanced research seminars for doctoral level training in Adult Distance Education Teaching and Learning. Repeatable to a maximum of 18 cr hrs.

914.03 WDE Seminars: Community of Practice in Workforce Development and Education
Offers advanced research seminars for doctoral level training in a specific WDE area. Au, Wi, Sp Qtr's. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

915 Behaviorism I: Contingencies of Reinforcement
Examines the philosophy of behaviorism and its implications for theory, research, and practice in special education.
Au Qtr. 3-hr cl. Prereq: PhD student in special education, MA student in ABA program, or permission of instructor.

916 Behaviorism II: Applications to Special Education
Continued study of behaviorism and its applicability to social problems, particularly the design of effective education for students with disabilities.
Wi Qtr. 3-hr cl. Prereq: PhD student in special education, MA student in ABA program, or permission of instructor.
917 Behaviorism III - Analysis of Verbal Behavior: Implications for Children with Disabilities

Examines the analysis of verbal behavior from a Skinnerian perspective and its implications for theory, research, and teaching functional communication skills to children with developmental disabilities.
Sp Qtr. 3-hr cl. Prereq: PhD student in special education, MA student in ABA program, or permission of instructor.

925.10 Seminar: Special Education Research problems in: Special Education.
Prereq: Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Open only to special education majors; others by permission of instructor. Repeatable.

925.20 Seminar: Sport and Exercise Education Research problems in: Sport and Exercise Education.
Prereq: Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.

925.21 Seminar: Sport and Exercise Humanities Research problems in: Sport and Exercise Humanities.
Prereq: Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.

925.22 Seminar: Sport and Exercise Management Research problems in: Sport and Exercise Management.
Prereq: Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.

925.23 Seminar: Sport and Exercise Science Research problems in: Sport and Exercise Science.
Prereq: Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.

925.25 Seminar: Rehabilitation Services Research problems in: Rehabilitation Services.
Prereq: Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.

925.34 Seminar: Counselor Education Research problems in: Counselor Education.
Prereq: Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.

925.40 Seminar: Workforce Development and Education Research problems in: Workforce Development and Education.
Prereq: Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.

Prereq: Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.

926.01 Doctoral seminars: Advanced Interventions: Diagnosis and Intervention in Counseling

An in-depth exploration of analytical, cognitive, behavioral, and humanistic approaches to the diagnosis and treatment of five major mental and emotional disorders: organic, psychotic, affective, dissociative, and somatoform.

926.02 Doctoral seminars: Advanced Interventions: Brief Approaches to Counseling

An exploration of brief psychodynamic approaches to the diagnosis and treatment of five major mental and emotional disorders: personality, impulse control, anxiety, substance induced and substance use, and psychosexual.
Prereq: 926.01, Psych 860 or equiv.

926.03 Doctoral seminars: Advanced Interventions: Contemporary Systems of Counseling

An extensive exploration of the theories and applications of classical and contemporary approaches to counseling; emphasis is placed on the use of hypnosis and sensory imagery approaches to behavioral change.
Prereq: 926.02, Psych 860 or equiv.

926.04 Doctoral seminars: Critical Research Issues in Counselor Education, Supervision, and Practice

An exploration of critical issues in the principles of research as they apply to school, mental health, and rehabilitation counseling.

926.05 Doctoral seminars: Helping Strategies in Career Counseling

An examination of the skills necessary for individual and group career counseling.
Prereq: Psych 884.01, PhD standing or permission of instructor.

926.06 Doctoral seminars: Legal, Professional, and Ethical Issues in Counseling

An examination of current legal, professional, and ethical issues in counseling.
Prereq: PhD standing or permission of instructor.

926.07 Doctoral seminars: Theories of Counselor Supervision

Knowledge and skills required for counselor supervision with emphasis on generic models, the supervisory relationship, and major theories.
Prereq: PhD standing or permission of instructor.

926.08 Doctoral seminars: Leadership Roles in Professional Counseling

An exploration of leadership strategies as applied to human service delivery systems in which counselors function.
Prereq: PhD standing or permission of instructor.

926.09 Doctoral seminars: Advanced Theory and Intervention of Group Counseling

Major group counseling theories, the group counseling relationship, and therapeutic factors; professional and ethical issues as well as current research will be covered.
Prereq: 774, 775, 800.01, 800.02, 974, 975, or equivs, and permission of instructor.

927 Family Counseling

Introduction to basic approaches, concepts, and techniques of family counseling; the relationship between individual group, and family counseling will be considered.
Prereq: Permission of instructor.

928 Substance Use and Abuse Counseling

Techniques of substance use and abuse counseling emphasizing strengthening of individual and group counseling skills; drugs and their effects on individuals and families will also be covered.
Prereq: Permission of instructor.

931 Theory and Practice of Discussion in Adult Education

Perspectives of adult learning via discussion; analysis of research on group discussion principles of discussion oriented adult learning; application of group discussion to problem solving.

932 Adult Characteristics and Learning Theory

Examination of significant learning theories and their applicability to adult learning experiences.
Prereq: 672 or permission of instructor.

934 Organization and Administration of Adult Education Programs

The administrative functions within adult education agencies: decision making, staff development, financing, evaluating, and improving adult education programs.
Prereq: 672 and written permission of instructor.

935 Program Planning in Adult Education

Prepares educators to implement components in planning educational programs for adults: assessing needs, setting objectives, selecting and training staff, choosing instructional strategies, promotion, and evaluation.
Prereq: 672 or equiv.

951 Organization and Management Theory in Sport and Exercise Management

Organization and management theory applied to sport organizations.
Prereq: Grad standing. Only open to students enrolled in sport and exercise management program.

952 Selected Topics in Organizational Behavior

Organizational behavior in sport organizations.
Prereq: Grad standing. Only open to students enrolled in sport management program.

953 Current Research in Sport and Exercise Management

Current research in sport and exercise management.
Prereq: Grad standing. Repeatable to a maximum of 6 cr hrs.

961 Comparative Workforce Development and Education Policies

Provides detailed overview of national WFD policies across the world.

974 Supervised Practice in Individual Counseling: Children

Counseling techniques unique to elementary age children including play media and conceptualizing the environmental press on the child. Minimum 30 contact hrs. Prereq: 773 and written permission of instructor. Repeatable to a maximum of 9 cr hrs.
975 Supervised Practicum in Individual Counseling: CHILDREN
Supervised practice in counseling individual clients of adolescent to adult age; emphasis on developing counseling skills, including: counseling relationship; conceptualizing clients; self-understanding. Minimum 30 contact hrs. Prereq: 773 and written permission of instructor. Repeatable to a maximum of 9 cr hrs.

976 Supervised Practicum in Individual Counseling: Adolescents, Youth, and Adult
Supervised practice in counseling individual clients of adolescent to adult age; emphasis on developing counseling skills, including: counseling relationship; conceptualizing clients; self-understanding. Minimum 30 contact hrs. Prereq: 773 and written permission of instructor. Repeatable to a maximum of 9 cr hrs.

977 Supervised Practicum in Group Counseling: Adolescents, Youth, and Adult
Supervised practice in counseling individual clients of adolescent to adult age; emphasis on developing counseling skills, including: counseling relationship; conceptualizing clients; self-understanding. Minimum 30 contact hrs. Prereq: 773 and written permission of instructor. Repeatable to a maximum of 9 cr hrs.

978 Supervised Field Experience
Supervised practice in guidance and counseling activities in the work setting; emphasis on the range of activities performed by guidance workers in school and related setting. Minimum 30 contact hrs. Prereq: 773 and written permission of instructor. Repeatable to a maximum of 9 cr hrs.

995 Doctoral-level Internship in Counseling
Supervised internship in professional counseling for doctoral-level students in educational, mental health, or related settings. Arr. Prereq: PhD standing or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

20 Beginning Intensive English as a Second Language
Intensive instruction in English as a second language for students at a beginning level of proficiency; listening, speaking, structure, reading, and writing. Su, Au, Wi, Sp Qtrs. 5 cr hrs. Prereq: Admission to American Language Program and approval of ALP director. Repeatable for 2 qtrs. Repeatable. This course is Progress (P) graded. This course is graded S/U.

21 Elementary Intensive English as a Second Language
Intensive instruction in English as a second language for students at an elementary level of proficiency; listening, speaking, structure, reading, and writing. Su, Au, Wi, Sp Qtrs. 5 cr hrs. Prereq: Admission to American Language Program and approval of ALP director. Repeatable for 2 qtrs. Repeatable. This course is Progress (P) graded. This course is graded S/U.

22 Intermediate Intensive English as a Second Language
Intensive instruction in English as a second language for students at an intermediate level of proficiency; listening, speaking, structure, reading, and writing. Su, Au, Wi, Sp Qtrs. 5 cr hrs. Prereq: Admission to American Language Program and approval of ALP director and completion of 022 or equiv. Repeatable for 2 qtrs. Repeatable. This course is Progress (P) graded. This course is graded S/U.

23 Advanced Intensive English as a Second Language
Intensive instruction in English as a second language for students with advanced proficiency; listening, speaking, structure, reading, and writing, with emphasis on English for academic purposes. Su, Au, Wi, Sp Qtrs. 5 cr hrs. Prereq: Admission to American Language Program, approval of ALP director and completion of 022 or equiv. Repeatable for 2 qtrs. Repeatable. This course is Progress (P) graded. This course is graded S/U.

101 American Sign Language I
Introduction to American sign language; development of receptive (listening) and expressive (speaking) skills. American deaf culture and history are explored. Instruction primarily in ASL. Not open to native users of the language or students with credit for English 101. This course is available for EM credit. GEC for lang course.

102 American Sign Language II
Further development of expressive and receptive ASL skills in a cultural context. Continued exploration of American deaf culture and history. Instruction primarily in ASL. Prereq: 101 or English 101 or Em or Placement exam equivalence. Not open to native users of the language or students with credit for English 102. This course is available for EM credit. GEC for lang course.

104 Basic Spoken English for International Graduate Teaching Associates
Practice of basic oral and aural English language skills for non-native speakers. Practice of spoken and pedagogical skills for effective classroom teaching by non-native speaking graduate teaching associates. Su, Au, Wi, Sp Qtrs. 3 cr hrs. Prereq: Placement test or recommendation of director. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

105 Classroom English for International Graduate Teaching Associates
Practice of spoken and pedagogical skills for effective classroom teaching by non-native speaking graduate teaching associates. Practice of spoken and pedagogical skills for effective classroom teaching by non-native speaking graduate teaching associates. Su, Au, Wi, Sp Qtrs. 3 cr hrs. Prereq: Successful completion of 024 and/or Sp/Hrg 035; or placement test; or recommendation of director. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

106 General English as a Second Language
Review of English structure for non-native speakers of English; major emphasis is on writing, with attention also to development of oral-aural skills. Su, Au, Wi, Sp Qtrs. 3 cr hrs. Prereq: Placement test or recommendation of director. Not open to students having earned a D or above in 071, 072, or 073. This course is Progress (P) graded.

107 Advanced English as a Second Language
Reviews advanced English patterns with emphasis on their use in writing essays. Prereq: Placement test or grade of D or above in 106. Not open to students having earned a D or above in 072 or 073. This course is Progress (P) graded.

108.01 Academic Writing in English as a Second Language: Undergraduates
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.

5 cr. Prereq: Placement test or grade of D or above in 107. Not open to students having earned D or above in 073. This course is Progress (P) graded.
108.02  Academic Writing in English as a Second Language: Graduates

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. Intended for graduates. 5 cl; tutorial time arranged. Prereq: Placement test or grade of D or above in 107. Not open to students having earned D or above in 073. This course is Progress (P) graded.

260  Work Experience in Industry

Firsthand study of working conditions, methods, and processes of industry, and their implication for the teaching of technology education. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

289.10  Field Experience: Elementary Education

Professional service with children or youth in a school or community agency. Planned elementary education field experience under supervision. Su Qtr. Prereq: Permission of instructor. Repeatable hrs including 289.02. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

289.28  Social Studies

Group studies for students in specialized programs. Social Studies. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

294.10  Elementary Education

Group studies for students in specialized programs. Elementary Education. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

294.55  Hearing Disabilities

Group studies for students in specialized programs. Hearing Disabilities. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

294.52  Visual Disabilities

Group studies for students in specialized programs. Visual Disabilities. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

294.59  Foreign and Second Language Education

Group studies for students in specialized programs. Foreign and Second Language Education. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

294.70  Early Childhood Education

Group studies for students in specialized programs. Early Childhood Education. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

323  Discourse Techniques in Narratives in American Sign Language

To assist students in establishing the basic building blocks of a successful signed narrative with various elements including mapping a mental model. Prereq: English 101, 102; Edu T&L 113, 114; or SpHr/Hrg 105, 104 (ASL 1-4). Taught in American Sign Language.

460  Elementary Education: Child Guidance

Designed to develop an understanding of child growth and development principles in relation to instruction.

467  Introduction to Children's Literature

Study of literature for children with emphasis on standards for selecting materials with reference to the interests, needs, and abilities at different age levels.
488.01 Introductory Methods: Mathematics UGRD 3
Methods for Middle Childhood Teachers
Introduction to pedagogical principles for prospective middle childhood teachers. Prereq: Admission to appropriate pre-education program.

488.04 Introductory Methods: Science Methods for Middle Childhood Teachers
Introduction to pedagogical principles for prospective middle childhood teachers. Prereq: Admission to appropriate pre-education program.

488.06 Introductory Methods: Social Studies UGRD 3
Methods for Middle Childhood Teachers
Introduction to pedagogical principles for prospective middle childhood teachers. Prereq: Admission to appropriate pre-education program.

488.07 Introductory Methods: Language Arts UGRD 3
Methods for Middle Childhood Teachers
Introduction to pedagogical principles for prospective middle childhood teachers. Prereq: Admission to appropriate pre-education program.

489.01 Advanced Field Experience: Middle Childhood Mathematics Education
Directed field experience emphasizing appropriate teaching strategies for different school age children and school settings. 2.5 hrs arranged/credit. Prereq: Admission to appropriate teacher education program. Repeatable to a maximum of 15 cr hrs. Students will be placed in a middle childhood mathematics classroom.

489.02 Advanced Field Experience: Science Education Elementary School Program
Directed field experience emphasizing appropriate teaching strategies for different school age children and school settings. Prereq: Admission to appropriate teacher education program. Repeatable to a maximum of 15 cr hrs.

489.03 Advanced Field Experience: Secondary School Mathematics Education
Directed field experience emphasizing appropriate teaching strategies for different school age children and school settings. Prereq: Admission to appropriate teacher education program. Repeatable to a maximum of 15 cr hrs.

489.04 Advanced Field Experience: Middle Childhood Science Education
Directed field experience emphasizing appropriate teaching strategies for different school age children and school settings. 2.5 hrs arranged/credit. Prereq: Admission to appropriate teacher education program. Repeatable to a maximum of 15 cr hrs. Students will be placed in a middle childhood science classroom.

489.05 Advanced Field Experience: Science Education Secondary School Science Classes and Laboratories
Directed field experience emphasizing appropriate teaching strategies for different school age children and school settings. Prereq: Admission to appropriate teacher education program. Repeatable to a maximum of 15 cr hrs.

489.06 Advanced Field Experience: Middle Childhood Social Studies Education
Directed field experience emphasizing appropriate teaching strategies for different school age children and school settings. 2.5 hrs arranged/credit. Prereq: Admission to an appropriate pre-education program. Repeatable to a maximum of 15 cr hrs. Students will be placed in a middle childhood social studies classroom.

489.07 Advanced Field Experience: Middle Childhood Reading and Language Arts Education
Directed field experience emphasizing appropriate teaching strategies for different school age children and school settings. 2.5 hrs arranged/credit. Prereq: Admission to an appropriate pre-education program. Repeatable to a maximum of 15 cr hrs. Students will be placed in a middle childhood Reading and Language Arts classroom.

489.10 Advanced Field Experience: Elementary Education UGRD 3
Directed field experience emphasizing appropriate teaching strategies for different school age children and school settings. Prereq: Admission to appropriate teacher education program. Repeatable to a maximum of 15 cr hrs.

489.21 Advanced Field Experience: Technology Education UGRD 3
Experience in technology education classrooms with emphasis on taking on full teacher duties for one class. Includes a seminar to discuss experiences. Prereq: 289.21; admission to appropriate teacher education program. Repeatable to a maximum of 15 cr hrs. 5.3-hr field experiences.

489.70 Advanced Field Experience: Early Childhood Education
Directed field experience emphasizing appropriate teaching strategies for different school age children and school settings. Prereq: Admission to appropriate teacher education program. Repeatable to a maximum of 15 cr hrs.

501 Kindergarten and Preschool Teaching UGRD 3
Recent development in the education of young children and its influence on the selection and guidance of appropriate activities.

504 Basic Spoken English for International Graduate Teaching Associates
Practice of oral and aural English language skills for non-native speakers. Prereq: Placement test score of 100-180 on SPEAK test (intermediate-advanced learner), acceptance into Graduate School or recommendation of director. This course is graded S/U.

505 Classroom English for International Graduate Teaching Associates
Practice of spoken and pedagogical skills for effective classroom teaching by non-native speaking graduate teaching associates. Prereq: Successful completion of 504; or placement test; or recommendation of director. This course is graded S/U.

506 General English as a Second Language UGRD 5
Review of English structure for non-native speakers of English; major emphasis is on writing, with attention also to development of oral-aural skills. Prereq: Placement test or recommendation of director. Not open to students having earned a D or above in 071, 072, or 073.

507 Advanced English as a Second Language UGRD 5
Reviews advanced English patterns with emphasis on their use in writing essays. Prereq: Placement test or grade D or above in 506. Not open to students having earned a D or above in 072, or 073.

508 Academic Writing in English as a Second Language UGRD 5
Attention given to practices involving reading and source-based writing. Rhetorical and linguistic issues addressed. Prereq: Placement test or grade D or above in 507. Not open to students having earned a D or above in 073.

511 Elementary Education: Science UGRD 4
The role of science in childhood education; study of content, methods, materials, and equipment.

520 Educational Studies in Deafness UGRD 5
Introduces students to perspectives, issues, and controversies in the education of deaf or hard of hearing students. Su, Au, Wi, Sp Qtrs.

525 Automation of Production Systems for Technology Educators
An introduction to robotics and automation, their applications to manufacturing, construction, communication, energy-power, systems, and methods of teaching about them; includes laboratory experiences. Prereq: 222 and 227.

559 Urban Teaching and Learning UGRD 5
This course will draw on historical and contemporary research to examine teaching and learning in urban schooling contexts. Su, Au, Wi, Sp Qtrs. GEC soc sci individuals and groups and social diversity in the US.

589 Laboratory Experience for Integrated Language Arts and English UGRD 3
Provides students an opportunity to explore 7-12 English language arts teaching through readings, video cases of teaching, group discussion, and laboratory experience. 20 hours of observation in a local school. This course is a prerequisite for the Integrated Language Arts licensure and Masters of Education (M.Ed.) program.

601.07 Foundations of Education: Theory, Philosophy, and Organization: General Student Body
Examination of the history, rationale, philosophy, organization, and distinctive components fundamental to middle childhood education.
601.20 Foundations of Education: Theory, Philosophy, and Organization: Middle Childhood Education
This course is designed to prepare prospective middle level teachers to make decisions about curriculum, instruction, and assessment based on a sound content knowledge base and an understanding of the unique nature and needs of early adolescents.

603.07 Interdisciplinary Teaching and Learning UGRD 3
for Middle Childhood: General Student Body
Focus on the interrelatedness of the disciplines and the design, implementation, and assessment of curriculum and pedagogy for middle childhood learners.

603.20 Interdisciplinary Teaching and Learning UGRD 3
for Middle Childhood: Middle Childhood Education
Focus on the interrelatedness of the disciplines and the design, implementation, and assessment of curriculum and pedagogy for middle childhood learners.

605.01 Writing for Coursework for International and 2nd Language Graduate Students
Guidance and practice in writing for graduate level coursework for learners of English
Wi Qtr. Prereq: Edu T&L 108.02 or 'qualified' status. Enrollment by permission of instructor. Tutorial time arranged. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

605.02 Writing Up Research for International and 2nd Language Graduate Students
Designed to help international graduate students in preparing a conference paper and in preparing a manuscript for publication.
Su Qtr. Prereq: Edu T&L 108.02 or 'qualified' status. Enrollment by permission of instructor. Tutorial time arranged. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

605.03 Thesis Proposal and Dissertation Writing for International and 2nd Language Graduate Students
Sp Qtr. Prereq: Edu T&L 108.02 or 'qualified' status. Enrollment by permission of instructor. Tutorial time arranged. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

606 Language Arts in the Bilingual/Multicultural Classroom
Research and theories of first and second language acquisition as related to methods of teaching, listening, speaking, reading, and writing in bilingual/multicultural classroom.
Prereq: written permission of instructor.

607 Writing Course in Early and Middle Childhood Education
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.

610 History of Practical Arts and Vocational Education
History of those vocational and non-vocational phases of agriculture, business, industry, and homemaking which concern education.

611 Great Lakes Education Workshop UGRD 1-4
Techniques and curricula for presenting interdisciplinary aspects of the oceans and the Great Lakes in formal and informal education settings.
10 hrs cl pr cr, 15 days pr cr, 10-4 hr cl. Prereq: Teaching certificate or sr standing. Not open to students with credit for Nat Res 691 or 611 or Educ 727-Sea Grant. Repeatable to a maximum of 5 cr hrs.

612 Linguistic Materials for Teachers UGRD 3
Study of linguistic systems, language acquisition, and sociolinguistics as they bear on the work of classroom teachers.

613 Methods for Conservation Education UGRD 3
Experience centered course for conservation/natural resources education including objectives, instructional, and evaluative procedures appropriate to formal and non-formal settings.
Prereq: Sr or grad standing. Not open to students with credit for Nat Res 613.

614 Marine and Aquatic Education UGRD 3
Overview of oceanic and Great Lakes resources, their functions in history, climate, commerce, and culture, and the school curriculum.
Prereq: 20 cr hrs of social, physical, and/or biological sciences or teacher licensure, and permission of instructor. Not open to students with credit for Nat Res 614. Travel and subsistence costs for field trips must be borne by students.

615 Teaching of Modern Foreign Language I UGRD 4
Theory and practice of teaching foreign language in beginning classes; use and preparation of instructional materials based on research studies.
Open only to M Ed students. Course meets concurrently with 616.

616 Teaching of Modern Foreign Language II UGRD 4
Study of the use of new instructional materials for intermediate and advanced foreign language classes; teaching of reading, writing, literature, and culture; evaluation.
Open only to M Ed students. Course meets concurrently with 615.

617 Teaching of Foreign Languages in the Elementary School
Skill development in teaching of spoken and written foreign languages on the elementary level; construction and use of suitable materials; discussion of issues and problems, evaluation.
Prereq: 15 cr hrs of educ and written permission of instructor.

618 Teaching of Latin UGRD 4
Values, teachers' equipment, objectives, and methods; classroom procedures; lectures and assigned readings.
3 cl, lab arr. Prereq or concur: Latin 201 and 202, and an additional 6 cr hrs in Latin.

621 Methods in Teaching Secondary Mathematics I
Designed to increase pre-service teacher pedagogical content knowledge of number concepts and stochastic concepts as appropriate for secondary.
Su Qtr. Prereq: Admission to M.Ed. or permission of instructor.

624 Social Education UGRD 3
Analyses of social structures and processes in classroom grouping arrangements; teacher social roles, school traditions, ceremonies, clubs, and athletics.
Prereq: Permission of instructor or teaching experience.

633 Teaching and Learning with Drama: Introduction
Introduction to the use of drama and imagination in education.
Prereq: Experienced teacher or jr/sr standing with some field experience. Repeatable to a maximum of 6 cr hrs.

636.01 Methods in Teaching Secondary Science I UGRD 3
Designed to increase pre-service teacher pedagogical content knowledge while applying principles of scientific inquiry with topics identified as essential by NSES and other reform documents.
Su Qtr. 2.5-hr cl. Prereq: Admission to MSAT M Ed or permission of instructor.

636.02 Methods in Teaching Secondary Science II UGRD 3
Designed to increase pre-service teacher pedagogical content knowledge while applying principles of scientific inquiry with topics identified as essential by NSES and other reform documents.
Wi Qtr. 2.5-hr cl. Prereq: Admission to MSAT M Ed or permission of instructor.

638 Teaching of Secondary Social Studies I UGRD 4
Designed to help future social studies teachers conceptualize social studies and develop understanding of methods and materials for classroom instruction.

639 Teaching of Secondary Social Studies II UGRD 4
Trends, problems, issues, and instructional strategies in secondary social studies with emphasis on simulations, case studies, the media, role playing, controversial issues, and multicultural education.

640 Methods and Techniques of Teaching English to Speakers of Other Languages UGRD 4
Study of the use of new instructional materials for intermediate and advanced TESOL classes; teaching of reading, writing, literature, and culture; evaluation.
Prereq: Permission of instructor.

641 Journalism in the Secondary School UGRD 3
A course 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).
Prereq: Admission to the masters of education (M.Ed.) program. This course is graded S/U.

642.07 Teaching Reading Across the Curriculum: General Student Body
Provides M Ed students with the knowledge and tools they need to support the developmental reading and literacy skills of middle and secondary students.
Prereq: Admitted into an M Ed program, Human Ecology major, or permission of instructor. Appropriate for students planning to obtain teacher licensure at the secondary level. Does not substitute for reading core in Early Childhood, Middle Childhood, or Intervention Specialist licensure.

642.23 Teaching Reading Across the Curriculum: Math, Science and Technology
Provides M Ed students with the knowledge and tools they need to support the developmental reading and literacy skills of middle and secondary students.
Prereq: Admitted into an M Ed program, Human Ecology major, or permission of instructor. Appropriate for students planning to obtain teacher licensure at the secondary level. Does not substitute for reading core in Early Childhood, Middle Childhood, or Intervention Specialist licensure.
642.99 Teaching Reading Across the Curriculum: Language, Literacy and Culture UGRD 3
Provides M Ed students with the knowledge and tools they need to support the developmental reading and literacy skills of middle and secondary students. Prereq: Admission into an M Ed program, Human Ecology major, or permission of instructor. Appropriate for students planning to obtain teacher licensure at the secondary level. Does not substitute for reading core in Early Childhood; Middle Childhood; or Intervention Specialist licensure.

643.07 Social Education and Language, Literacy, and Culture: General Student Body GRAD 3
The relationship of social structures, schooling, and educational issues examined in relationship to the use of language, civic literacy, and culture. Prereq: Admission to LLC M Ed program.

643.99 Social Education and Language, Literacy, and Culture: Language, Literacy and Culture UGRD 3
The relationship of social structures, schooling, and educational issues examined in relationship to the use of language, civic literacy, and culture. Prereq: Admission to LLC M Ed program.

644 Dramatizing Texts UGRD 3
The use of drama for interpreting all genres of texts. Repeatable to a maximum of 6 cr hrs.

645 Teaching Writing in the Secondary School GRAD 4
Designed to assist students to understand writing development to develop process-oriented approaches to writing instruction. Prereq: Admission to LLC M Ed program. Field experiences required. Requirement for M Ed students in LLC with a specialization in English Education. 646 Teaching Literature in the Secondary School GRAD 4
Focus on leading discussions of literature, teaching literature-writing assignments, and using writing to foster literary understanding. Prereq: Admission to LLC M Ed program. Field experiences required. Required for M Ed students in LLC with a specialization in English Education.

647 The Arts and Early Childhood Education GRAD 3
Students will learn how the arts are integral to early childhood education and how to create integrated contexts for teaching and learning.

656 Literature for Adolescents UGRD 3
Literature for individual, group, and whole-class reading in junior and senior high schools; interest factors, readability, and literary value as criteria for selection; bibliographic aids.

660 Language Competence of Children and Youth with Disabilities UGRD 3
Familiarization of students with the impact of disabling conditions on children and youth's development of language.

665 Applied Linguistics for Teachers of Reading/Language Arts UGRD 3
Structure of language, language acquisition, and language variation applied to language arts/reading principles, methods, and materials.

668.07 Reading Foundations: General Student Body UGRD 4
Introduction to basic concepts about the reading process, learning to read, social/cultural factors affecting literacy development and effective instruction. Prereq: Jr standing or above.

668.20 Reading Foundations: Middle Childhood Education GRAD 4
Introduction to basic concepts about the reading process, learning to read, social/cultural factors affecting literacy development and effective instruction. Prereq: Jr standing or above.

668.70 Reading Foundations: Early Childhood Education GRAD 4
Introduction to basic concepts about the reading process, learning to read, social/cultural factors affecting literacy development and effective instruction. Prereq: Jr standing or above.

669.07 Understanding Phonics and Its Role in Reading Instruction: General Student Body UGRD 5
Detailed examination of how English maps spellings to pronunciations, the role of phonics knowledge in learning to read, and effective assessment and instruction. Prereq: 668 or 668.07 and 467 or 817; jr standing or above.

669.20 Understanding Phonics and Its Role in Reading Instruction: Middle Childhood Education GRAD 5
Detailed examination of how English maps spellings to pronunciations, the role of phonics knowledge in learning to read, and effective assessment and instruction. Prereq: 668 or 668.07 and 467 or 817; jr standing or above.

669.70 Understanding Phonics and Its Role in Reading Instruction: Early Childhood Education GRAD 5
Detailed examination of how English maps spellings to pronunciations, the role of phonics knowledge in learning to read, and effective assessment and instruction. Prereq: 668 or 668.07 and 467 or 817; jr standing or above.

670 Remedial and Clinical Reading Instruction School GRAD 4
An overview of theory and practice, including causes, diagnostic procedures, remediation, and instructional materials. Prereq: 668 and 669 or permission of instructor.

671 Clinical Practice in Treating Reading Disabilities UGRD 5
Use of test materials in the diagnosis of reading disabilities; practice with remedial procedures. Prereq: 670 and permission of instructor. Repeatable to a maximum of 10 cr hrs.

674.07 Family Participation in Early Childhood School Programs: General Student Body GRAD 3
The purposes and importance of family involvement in early childhood school programs, types of programs, resources, methods, and curricula.

674.70 Family Participation in Early Childhood School Programs: Early Childhood Education GRAD 3
The purposes and importance of family involvement in early childhood school programs, types of programs, resources, methods, and curricula.

682 Teaching Mathematics, Science and Culture in 4th and 5th Grades UGRD 3
This course is related to teaching mathematics and science with consideration of pedagogy, content, assessment and equity.

683 Integrating Language Arts and Social Studies in 4th and 5th Grades UGRD 3
This course is related to the integration of LA/SS. The focus is on curriculum, pedagogy, and integration specific to 4th/5th grades.

684.21 Field Experience: Technology Education UGRD 1-15
Experiences in technology education classrooms with emphasis on taking on full teacher duties. Includes a seminar to discuss experiences. 1.5-2 hr seminar plus field supervision. Prereq: 469.21, permission of instructor. Repeatable to a maximum of 27 cr hrs. 5-7 hr field experiences.

684.28 Field Experience: Secondary Social Studies UGRD 1-15
Experiences in appropriate middle and high school social studies classrooms with an emphasis on acquiring skills to work with students and preparing, conducting and evaluating learning activities. Prereq: Permission of instructor. Must have 80 hrs in a combination of history, geography, economics, political science and sociology courses required for secondary social studies licensure. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

685 Orientation and Mobility for Teachers of Students with Visual Disabilities UGRD 3
Readiness activities, assessment procedures, instructional strategies, and direct experience with selected travel techniques for persons with visual disabilities.

692.10 Workshop: Elementary Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs. This course is graded S/U.

692.20 Workshop: Middle Childhood Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.21 Workshop: Technology Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.23 Workshop: Mathematics, Science and Technology Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.
692.25 Workshop: English Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.26 Workshop: Mathematics Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.27 Workshop: Science Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.28 Workshop: Social Studies Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.45 Workshop: Foreign and Second Language Education UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

692.46 Workshop: TESOL UGRD 1-8
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.
Prereq: Teaching experience and written permission of workshop director. Repeatable with not more than 4 workshops to a maximum of 12 cr hrs.

693.20 Individual Studies: Middle Childhood Education UGRD 1-4
Middle Childhood Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.21 Individual Studies: Technology Education UGRD 1-4
Technology Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.22 Individual Studies: Mathematics, Science and Technology Education UGRD 1-4
Mathematics, Science and Technology Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.25 Individual Studies: English Education UGRD 1-4
English Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.26 Individual Studies: Mathematics Education UGRD 1-4
Mathematics Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.27 Individual Studies: Science Education UGRD 1-4
Science Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.28 Individual Studies: Social Studies Education UGRD 1-4
Social Studies Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.29 Individual Studies: Foreign and Second Language Education UGRD 1-4
Foreign and Second Language Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.30 Individual Studies: Integrated Teaching and Learning UGRD 1-4
Integrated Teaching and Learning.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.31 Individual Studies: Elementary Education UGRD 1-4
Elementary Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

169
693.56 Individual Studies: Drama, Language Arts, Literature and Reading Education
Drama, Language Arts, Literature and Reading Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.70 Individual Studies: Early Childhood Education
Early Childhood Education.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

693.99 Individual Studies: Language, Literacy and Culture
Language, Literacy and Culture.
Prereq: Permission of instructor. A total of not more than 30 cr hrs of individual study (any 693) will apply toward graduation for undergrad students, or 15 cr hrs for the master's degree and 30 cr hrs for the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

694.10 Group Studies: Elementary Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.20 Group Studies: Middle Childhood Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.21 Group Studies: Technology Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.23 Group Studies: Mathematics, Science and Technology Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.25 Group Studies: English Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.26 Group Studies: Mathematics Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.27 Group Studies: Science Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.28 Group Studies: Social Studies Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.45 Group Studies: Foreign and Second Language Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.46 Group Studies: TESOL
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.50 Group Studies: Integrated Teaching and Learning
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.52 Group Studies: Visual Disabilities
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.55 Group Studies: Hearing Disabilities
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.56 Group Studies: Language Arts, Literature and Reading Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.70 Group Studies: Early Childhood Education
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

694.99 Group Studies: Language, Literacy and Culture
Group studies on special problems in education.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

697 Study at a Foreign Institution
UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress ("P") graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic
UGRD 1-5
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable to different titled study tours only.

698.02 Study Tour: Foreign
UGRD 1-5
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable to different titled study tours only.

699 Undergraduate Research in Teaching and Learning
Undergraduate research in areas of study related to the unit and the instructor's research agenda. 699FR (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

700.01 Interprofessional Education: Seminar on Interprofessional Care
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Limited to students enrolled in allied medical professions, education, law medicine, nursing, social work, and theology. Treatment of the whole person through the analysis of the interrelated problems of actual cases. Repeatable to a maximum of 9 cr hrs; subdivisions are not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs. Cross-listed in Edu-P&L and Edu-PAES

700.02 Interprofessional Education: Changing Societal Values
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Limited to students enrolled in allied medical professions, education, law medicine, nursing, social work, and theology. Ethical issues of concern to the professions and arising out of advanced technology; euthanasia, enforced treatment, privacy and confidentiality, malpractice, and the social responsibility of the professions. Repeatable to a maximum of 9 cr hrs; subdivisions are not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs. Cross-listed in Edu-P&L and Edu-PAES

700.03 Interprofessional Education: Seminar on Ethical Issues Common to the Helping Professions
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Limited to students enrolled in allied medical professions, education, law medicine, nursing, social work, and theology. Interprofessional teamwork in clinical settings. Ethical issues of concern to the professions and arising out of advanced technology; euthanasia, enforced treatment, privacy and confidentiality, malpractice, and the social responsibility of the professions. Repeatable to a maximum of 9 cr hrs; subdivisions are not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs. Cross-listed in Edu-P&L and Edu-PAES

700.04 Interprofessional Education: Interprofessional Practicum in Clinical Settings
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Limited to students enrolled in allied medical professions, education, law medicine, nursing, social work, and theology. Interprofessional teamwork in clinical settings. Repeatable to a maximum of 9 cr hrs; subdivisions are not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs. Cross-listed in Edu-P&L and Edu-PAES

700.05 Interprofessional Education: Interprofessional Seminar in Policy Analysis
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Limited to students enrolled in allied medical professions, education, law medicine, nursing, social work, and theology. Explores interprofessionally the history, formation, and implementation of public policy issues of significance to seven helping professions. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs; subdivisions are not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs. Cross-listed in Edu-P&L and Edu-PAES
700.06 Interprofessional Education: Care of Chemically Dependent Families
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Limited to students enrolled in allied medical professions, education, law medicine, nursing, social work, and theology. Interprofessionally explores issues in the identification and treatment of chemical dependency within the family context. Repeatable to a maximum of 9 cr hrs; subdivisions are not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs. Cross-listed in Edu-P&L and Edu-PAES.

700.07 Interprofessional Education: Interprofessional Approaches to Child Abuse and Neglect
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Limited to students enrolled in allied medical professions, education, law medicine, nursing, social work, and theology. Interprofessionally explores issues in the identification, treatment, and prevention of child abuse and neglect. Prereq: Permission of instructor. Limited to 12 students each in allied medicine, education, law, medicine, nursing, psychology, social work, and theology through Columbus Cluster. Repeatable to a maximum of 9 cr hrs; subdivisions are not repeatable, except 700.04 which is repeatable to a maximum of 10 cr hrs. Cross-listed in Edu-P&L and Edu-PAES.

701.07 Survey of Current Research and Trends in Education: General Student Body
Designed to emphasize the appraisal of recent research and its application to teaching practice and educational policy in the area of early and middle childhood education.

701.20 Survey of Current Research and Trends in Education: Middle Childhood Education
Designed to emphasize the appraisal of recent research and its application to teaching practice and educational policy in the area of early and middle childhood education.

701.70 Survey of Current Research and Trends in Education: Early Childhood Education
Designed to emphasize the appraisal of recent research and its application to teaching practice and educational policy in the area of early and middle childhood education.

702.07 Language Arts for Children Ages 3 to 9: General Student Body
Examination of children's oral and written language development and related theoretical understandings instrumental for teaching language arts. Prereq: Admission to Early Childhood M Ed program.

702.70 Language Arts for Children Ages 3 to 9: General Student Body
Examination of children's oral and written language development and related theoretical understandings instrumental for teaching language arts. Prereq: Admission to Early Childhood M Ed program.

703.07 Studies in TESOL and Bilingual Education: General Student Body
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: Jr standing.

703.08 Studies in TESOL and Bilingual Education: M. A. Students Only
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: Ph D. Students Only.

703.09 Studies in TESOL and Bilingual Education: Ph D. Students Only
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.

704.07 Integration of Child Development and Learning Theories: General Student Body
Focus on how children's behavior and learning develop in education contexts ranging from early childhood through the adolescent years. Prereq: Admission into approved program in College of Education.

704.20 Integration of Child Development and Learning Theories: Middle Childhood Education
Focus on how children's behavior and learning develop in education contexts ranging from early childhood through the adolescent years. Prereq: Admission into approved program in College of Education.

704.70 Integration of Child Development and Learning Theories: Early Childhood Education
Focus on how children's behavior and learning develop in education contexts ranging from early childhood through the adolescent years. Prereq: Admission into approved program in College of Education.

705.07 Reading Methods for Early Childhood: General Student Body
Focus on the acquisition and development of reading skills in early childhood. (Pre-K 3rd grade). Prereq: New Phonics and Reading Foundations Courses.

705.70 Reading Methods for Early Childhood: Early Childhood Development
Focus on the acquisition and development of reading skills in early childhood. (Pre-K 3rd grade). Prereq: New Phonics and Reading Foundations Courses.

706.07 Teaching and Learning Language Arts for Middle Childhood: General Student Body
Focus on principles and practices for facilitating the effective development and use of oral and written language by children in grades 4-9.

706.20 Teaching and Learning Language Arts for Middle Childhood: Middle Childhood Education
Focus on principles and practices for facilitating the effective development and use of oral and written language by children in grades 4-9.

708.07 Teaching and Learning of Mathematics in Grades Pre K-3: General Student Body
Examination of instructional strategies that facilitate the teaching and learning of mathematics in grades Pre K-3. Prereq: Grad standing.

708.70 Teaching and Learning of Mathematics in Grades Pre K-3: Early Childhood Development
Examination of instructional strategies that facilitate the teaching and learning of mathematics in grades Pre K-3. Prereq: Grad standing.

709.07 Teaching and Learning of Mathematics for Middle Childhood: General Student Body
Examination of instructional strategies that facilitate the teaching and learning of mathematics for middle childhood. Prereq: Grad standing.

709.20 Teaching and Learning of Mathematics for Middle Childhood: Middle Childhood Education
Examination of instructional strategies that facilitate the teaching and learning of mathematics for middle childhood. Prereq: Grad standing.

710 Selecting and Developing Second Language Instructional Materials
Selection and development of second language instructional materials including theoretical considerations and practical applications; evaluation of instructional materials, creating materials, and adapting materials to student needs. Prereq: 615 or permission of instructor.

711.01 Concepts of School Mathematics: Functions
Organizing concepts of school mathematics, their development through the mathematics curriculum, and their role on the learning of mathematics. Prereq: A course in foundations of math or concur Math 645, grad standing in math educ or math or permission of instructor. Subdivisions intended to be taken in sequence. Subdivisions not repeatable.

711.02 Concepts of School Mathematics: Equivalence
Organizing concepts of school mathematics, their development through the mathematics curriculum, and their role on the learning of mathematics. Prereq: 711.01, a course in foundations of math or concur Math 645, grad standing in math educ or math or permission of instructor. Subdivisions intended to be taken in sequence. Subdivisions not repeatable.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>711.03</td>
<td>Concepts of School Mathematics: Measurement, Geometry and Probability</td>
<td>3</td>
<td>Organizing concepts of school mathematics, their development through the mathematics curriculum, and their role on the learning of mathematics. Examination of instructional strategies and connected mathematical processes of measurement, geometry and probability. 1 2.5 hr cl. Prereq: A course in foundations of math or concur Math 645, grad standing in math educ or math, admission to PreK-6 math endorsement program, or permission of instructor. Subdivisions intended to be taken in sequence. Subdivisions not repeatable.</td>
</tr>
<tr>
<td>711.04</td>
<td>Concepts of School Mathematics: Number, Algebra and Data Analysis</td>
<td>3</td>
<td>Organizing concepts of school mathematics, their development through the mathematics curriculum, and their role on the learning of mathematics. Examination of instructional strategies and connected mathematical process of number, algebra and data analysis. 1 2.5 hr cl. Prereq: A course in foundations of math or concur Math 645, grad standing in math educ or math, admission to PreK-6 math endorsement program, or permission of instructor. Subdivisions intended to be taken in sequence. Subdivisions not repeatable.</td>
</tr>
<tr>
<td>712.01</td>
<td>Methods of School Mathematics: Introduction to Teaching of Secondary School Mathematics</td>
<td>3</td>
<td>Examination of curriculum, instruction, and forces that influence curriculum and instruction in school mathematics, grades 7 through 12. Prereq: Grad standing in math educ or permission of instructor.</td>
</tr>
<tr>
<td>712.02</td>
<td>Methods of School Mathematics: Classroom Procedures</td>
<td>3</td>
<td>Examination of curriculum, instruction, and forces that influence curriculum and instruction in school mathematics, grades 7 through 12. Prereq: Grad standing in math educ or permission of instructor.</td>
</tr>
<tr>
<td>712.03</td>
<td>Methods of School Mathematics: Providing Effective Instruction in Mathematics</td>
<td>3</td>
<td>Examination of curriculum, instruction, and forces that influence curriculum and instruction in school mathematics, grades 7 through 12. Prereq: Grad standing in math educ or permission of instructor.</td>
</tr>
<tr>
<td>713.07</td>
<td>Teaching and Learning of Mathematics in Grades PreK-3, Part II: General Student Body</td>
<td>3</td>
<td>This course is designed to improve pre-service teachers' understanding and capacity to use national and state standards, learning theories, research based instructional methods, formative and summative assessment. Prereq: 708.07 or 708.70 and admission to ITL Early Childhood MEd or permission of instructor.</td>
</tr>
<tr>
<td>713.70</td>
<td>Teaching and Learning of Mathematics in Grades PreK-3, Part II: Early Childhood Development</td>
<td>3</td>
<td>This course is designed to improve pre-service teachers' understanding and capacity to use national and state standards, learning theories, research based instructional methods, formative and summative assessment. Prereq: 708.07 or 708.70 and admission to ITL Early Childhood MEd or permission of instructor.</td>
</tr>
<tr>
<td>714</td>
<td>Providing Professional Development in Mathematics Education</td>
<td>3</td>
<td>Provides participating students with guidance and opportunity to create and implement quality mathematics professional development with a focus on reflection and application. 2 1.5-hr cl. Prereq: Admission to the PreK-6 math specialist endorsement.</td>
</tr>
<tr>
<td>715</td>
<td>Integration of Science and Mathematics Learning Using Real Data Sets</td>
<td>3</td>
<td>Project-based learning that integrates science concepts, technology skills, and web-based resources to build mathematical models. Not open to students with credit for C&amp;R Plan 715. Cross-listed in City and Regional Planning.</td>
</tr>
<tr>
<td>718</td>
<td>Teaching and Learning Mathematics in the Middle Grades, Part II</td>
<td>3</td>
<td>Examination of instructional strategies and issues related to teaching and learning mathematics in the Middle Childhood classroom. Prereq: Admission to the MCE MEd. program or permission of instructor.</td>
</tr>
<tr>
<td>719</td>
<td>Teaching and Learning Science in the Middle Grades, Part II</td>
<td>3</td>
<td>Examination of instructional strategies and issues related to teaching and learning science in the Middle Childhood classroom. Prereq: Admission to the MCE MEd. program or permission of instructor.</td>
</tr>
<tr>
<td>721.01</td>
<td>Logic and Psychology in School Mathematics</td>
<td>3</td>
<td>A study of the nature of psychological growth and the development of logical ability in children and the implications for teaching mathematics. Prereq: Teaching experience or written permission of instructor.</td>
</tr>
<tr>
<td>721.02</td>
<td>Logic and Psychology in School Science</td>
<td>3</td>
<td>A study of the nature of psychological growth and the development of logical ability in children and the implications for teaching science. Prereq: Teaching experience or written permission of instructor.</td>
</tr>
<tr>
<td>721.03</td>
<td>Learning and Cognition in Mathematics, Science, and Technology Education</td>
<td>3</td>
<td>The learning of mathematics, science, and technology education as influenced by cognitive development and the implications of teaching in the middle grades and high school.</td>
</tr>
<tr>
<td>722</td>
<td>Literature Across the Curriculum</td>
<td>3</td>
<td>Non-fiction for ages 4-12 as it contributes to social studies, the sciences, language arts, and the creative arts; emphasis on identifying quality selections and planning related to learning experiences.</td>
</tr>
<tr>
<td>723.07</td>
<td>Early Childhood Pedagogy I: General Student Body</td>
<td>3</td>
<td>Examines teaching and learning in pre-K through grade 3 with a focus on inclusive and diverse pre-K and kindergarten settings. Open to Early Childhood MEd students and others by permission. Pedagogy I and II are sequenced and required in the Early Childhood Teacher Education Program.</td>
</tr>
<tr>
<td>724.07</td>
<td>Early Childhood Pedagogy II: General Student Body</td>
<td>3</td>
<td>Examines teaching and learning in pre-K through grade 3 with a focus on inclusive and diverse first through third grade settings. Prereq: 723 or 723.07 or 723.70. Open to Early Childhood MEd students and others by permission. Pedagogy I and II are sequenced and required in the Early Childhood Teacher Education Program.</td>
</tr>
<tr>
<td>725</td>
<td>Teaching Advanced Foreign Language Courses</td>
<td>3</td>
<td>The teaching of language skills and aesthetic appreciation in advanced foreign language classes; emphasis on teaching interdisciplinary studies: literature, history, fine arts, music, and architecture. Prereq: At least one French or Spanish course at the 600 level.</td>
</tr>
<tr>
<td>727.10</td>
<td>Special Topics in Education: Elementary Education</td>
<td>1-5</td>
<td>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. This course is graded S/U.</td>
</tr>
<tr>
<td>727.20</td>
<td>Special Topics in Education: Middle Childhood Education</td>
<td>1-5</td>
<td>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. This course is graded S/U.</td>
</tr>
<tr>
<td>727.21</td>
<td>Special Topics in Education: Technology Education</td>
<td>1-5</td>
<td>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. This course is graded S/U.</td>
</tr>
</tbody>
</table>
727.23 Special Topics in Education: Mathematics, Science and Technology Education
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. This course is graded S/U.

727.25 Special Topics in Education: English Education
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. This course is graded S/U.

727.26 Special Topics in Education: Mathematics Education
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. This course is graded S/U.

727.27 Special Topics in Education: Science Education
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. This course is graded S/U.

727.28 Special Topics in Education: Social Studies Education
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. This course is graded S/U.

727.45 Special Topics in Education: Foreign and Second Language Education
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. This course is graded S/U.

727.46 Special Topics in Education: TESOL Education
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. This course is graded S/U.

727.50 Special Topics in Education: Integrated Teaching and Learning
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. This course is graded S/U.

727.52 Special Topics in Education: Visual Disabilities
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. This course is graded S/U.

727.55 Special Topics in Education: Hearing Disabilities
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. This course is graded S/U.

727.56 Special Topics in Education: Drama, Language Arts, Literature and Reading Education
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. This course is graded S/U.

727.70 Special Topics in Education: Early Childhood Education
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. This course is graded S/U.

727.99 Special Topics in Education: Language, Literacy and Culture
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. This course is graded S/U.

729.07 Teaching and Learning of Science in Grades Pre K-3 Part I: General Student Body
Exploration of contemporary alternatives in elementary science education and the development of knowledge and skills for teaching and learning in grades Pre K-3.
Prereq: Grad standing.

729.70 Teaching and Learning of Science in Grades Pre K-3 Part I: Early Childhood Education
Exploration of contemporary alternatives in elementary science education and the development of knowledge and skills for teaching and learning in grades Pre K-3.
Prereq: Grad standing.

730 Technological Activities for Teachers of Exceptional Children
The application of technological practices in developing instructional materials and activities useful in diagnostic and remediation procedures for exceptional learners.
Prereq: ED PAES 650 or 718 or equiv with written permission of instructor.
Repeatable to a maximum of 8 cr hrs.

731.07 Teaching and Learning of Science for Middle School: General Student Body
Science methods course required for preservice teachers seeking certification to teach at the middle childhood level.
Prereq: Admission to Middle Childhood M Ed program.

731.20 Teaching and Learning of Science for Middle School: Middle Childhood Education
Science methods course required for preservice teachers seeking certification to teach at the middle childhood level.
Prereq: Admission to Middle Childhood M Ed program.

732 Teaching Technology Education I
Development of units of study for technology education programs and a review of exemplars in curriculum, instruction, and evaluation.

733 Teaching of Technology Education II
Study of learning theory and research as applied to effective teaching of technology education.

734 Teaching of Technology Education III
Study of how to serve special needs and culturally diverse populations in technology education.

735 Organization and Administration
International and historic background curriculum resources and development, physics organization, administrative organization, supervisory operation, and professional policies.

737.07 Teaching and Learning of Social Studies in Grades Pre K-3: General Student Body
Exploration of current theories in the teaching and learning of social studies in grades Pre K-3.
Prereq: Grad standing.
737.70  Teaching and Learning of Social Studies in Grades Pre K-3: Early Childhood Education  
Exploration of current theories in the teaching and learning of social studies in grades Pre K-3. 
Prereq: Grad standing.

738.07  Teaching and Learning of Social Studies in Middle Childhood: General Student Body  
Study of current theories in the teaching and learning of the historical, ethical, cultural geographic, economic, and socio-political aspects of social studies in Middle Childhood. 
Prereq: Grad standing.

738.20  Teaching and Learning of Social Studies in Middle Childhood: Middle Childhood Education  
Study of current theories in the teaching and learning of the historical, ethical, cultural geographic, economic, and socio-political aspects of social studies in Middle Childhood. 
Prereq: Grad standing.

739.07  Evaluation and Instructional Decision-Making in Literacy: General Student Body  
Evaluation processes and instructional materials useful to elementary and secondary teachers are explored as individual and small group needs. 
Prereq: 665. Not open to students with credit for ED-T&P 732.

739.20  Evaluation and Instructional Decision-Making in Literacy: Middle Childhood Education  
Evaluation processes and instructional materials useful to elementary and secondary teachers are explored as individual and small group needs. 
Prereq: 665. Not open to students with credit for ED-T&P 732.

739.70  Evaluation and Instructional Decision-Making in Literacy: Early Childhood Education  
Evaluation processes and instructional materials useful to elementary and secondary teachers are explored as individual and small group needs. 
Prereq: 665. Not open to students with credit for ED-T&P 732.

740  Evaluation Processes and Literacy Learning  UGRD  3  
Designed to examine formal and informal measures, theoretical assumptions, and test construction practices. Course will explore impact of language and cultural diversity on student performance. 
Not open to students with credit for ED-T&P 734.

741  Teacher Decision-Making in Language, Literacy, and Culture: Issues Related to Diversity  
Examines the analysis of literacy learning with culturally and linguistically diverse populations.

742  Supervision of School Science Programs  UGRD  4  
For those concerned with supervision of teacher education programs in science; objectives, curricula, recent trends, classroom management, evaluation of teaching, and professional literature. 
Prereq: Teaching experience or permission of instructor.

743.07  Teaching and Learning of Science in Grades PreK-3, Part II: General Student Body  
This course will facilitate an understanding of pedagogies, research, and inquiry approaches to further meet state and national standards. 
Prereq: 729.07 or 729.70 and admission to ITL Early Childhood MEd or permission of instructor.

743.70  Teaching and Learning of Science in Grades PreK-3, Part II: Early Childhood Education  
This course will facilitate an understanding of pedagogies, research, and inquiry approaches to further meet state and national standards. 
Prereq: 729.07 or 729.70 and admission to ITL Early Childhood MEd or permission of instructor.

744  Sexuality and Education  GRAD  4  
Explores rights and duties of educators with respect to sexuality and considers how to make classrooms inductive to educational experience for all students. 
Prereq: Grad standing. Not open to students with credit for Edu PAES 744. Cross-listed in Education: Physical Activity and Educational Services.

747  Curriculum and Instructional Strategies for Students with Physical, Sensory, and Multiple Disabilities  
Development and adaptation of curriculum, materials, and instructional procedures for teaching students with physical, sensory, and multiple disabilities. 
Prereq: Permission of instructor.

748.01  Introduction to Teaching Mathematics, Science, and Technology  
Study of educational theory and its relationship to practice with a focus on the philosophy, history, and issues in mathematics, science, and technology education. 
Prereq: Admission to the M Ed program or permission of instructor.

748.02  Methods of Integrating Mathematics, Science, and Technology  
Designed for middle and secondary school teachers to increase understanding of issues and trends related to middle and secondary school mathematics, science, and technology education. 
Prereq: Admission to the M Ed program or permission of instructor.

748.03  Reaching All Students in Mathematics, Science, and Technology  
Investigates issues of diversity, equity, management, and assessment in the teaching of integrated Mathematics, Science, and Technology Education.

749.01  Fundamental Ideas of School Mathematics I  GRAD  3  
Development and significance of concepts and processes in school mathematics and their relationship to ideas in other disciplines. Designed to increase intern pedagogical content knowledge of patterns, functions and algebra as appropriate for grades 7-12. 
Au Qtr. 1 3-hr cl. Prereq: Admission to M Ed or permission of instructor.

749.02  Fundamental Ideas of School Mathematics II  GRAD  3  
Development and significance of concepts and processes in school mathematics and their relationship to ideas in other disciplines. Designed to increase intern pedagogical content knowledge of geometry and measurement as appropriate for grades 7-12. 
Wi Qtr. 1 3-hr cl. Prereq: Admission to M Ed or permission of instructor.

750  Instructional Technologies Used in STEM Education  GRAD  3  
Development and significance of concepts and processes in school technology and their relationship to ideas in other disciplines. 
Prereq: Admission to MSAT M Ed or permission of instructor.

751  Nature of Scientific Knowledge  GRAD  3  
Student will address the nature of science from a variety of vantage points-scientific, philosophical, sociological, and historical. They will consider ideas fundamental to science. 
Prereq: Admission to MSAT M Ed or permission of instructor.

752  Science in the School Curriculum  UGRD  4  
Foundations for science curriculum; current development, planning, and evaluation procedures, research. 
Prereq: Teaching experience or permission of instructor.

754  Introduction to American Sign Language  UGRD  3  
Introduction to the use of signs and finger spelling in American Sign Language. 
Prereq: Written permission of instructor. Not open to students with credit for Ed-S&R 738.

760  Educators and the Arts: The Visual Arts  UGRD  3  
Experiencing the visual arts through encounters with a variety of it's art forms and through dialogue with visual artists, readings, lectures and discussions. 
Open to jr and sr undergrad students by permission of instructor. Does not substitute for Art Educ 600. Not open to students with credit for Edu P&L 750.01. Repeatable to a maximum of 15 cr hrs, each subdivision repeatable to 9 cr hrs. Classes meet at various schools and educational sites with arranged visits to art galleries, museums, and artists studios, except for 760.04 (Summer Qtr) which meets at the Wexner Center. This course is graded S/U.

760.02  Educators and the Arts: The Literary Arts  UGRD  3  
Experiencing the literary arts through encounters with a variety of it's art forms and through dialogue with literary artists, readings, lectures and discussions. 
Open to jr and sr undergrad students by permission of instructor. Does not substitute for Art Educ 600. Not open to students with credit for Edu P&L 750.02. Repeatable to a maximum of 15 cr hrs, each subdivision repeatable to 9 cr hrs. Classes meet at various schools and educational sites with arranged visits to art galleries, museums, and artists studios, except for 760.04 (Summer Qtr) which meets at the Wexner Center. This course is graded S/U.
760.03 Educators and the Arts: The Performing Arts UGRD 3
Experiencing performances in dance, music, theatre, and encounters and dialogue will performing artists, composers, choreographers, and directors. Open to jr and sr undergrad students by permission of instructor. Does not substitute for Art Educ 600. Not open to students with credit for Edu P&L 750.03. Repeatable to a maximum of 15 cr hrs, each subdivision repeatable to 9 cr hrs. Classes meet at various schools and educational sites with arranged visits to art galleries, museums, and art studios, except for 760.04 (Summer Qtr) which meets at the Wexner Center. This course is graded S/U.

760.04 Educators and the Arts: Professional Development and the Arts UGRD 3
Exploration of a selected theme linking teaching, learning, and the arts. * 1 week intensive 8-hr cl each day. Open to jr and sr undergrad students by permission of instructor. Does not substitute for Art Educ 600. Not open to students with credit for Edu P&L 750.04. Repeatable to a maximum of 15 cr hrs, each subdivision repeatable to 9 cr hrs. Classes meet at various schools and educational sites with arranged visits to art galleries, museums, and art studios, except for 760.04 (Summer Qtr) which meets at the Wexner Center. Five-day intensive class (between Spring and Summer Qtrs) meeting at the Wexner Center. This course is graded S/U.

761.01 Somatic Studies: Experiencing the Somatic through Movement Theory and Practice UGRD 3
A series of courses focusing on mind/body integration issues and the meaning of the movement experience in education and the culture at large. Considerations of the moving person through elementary description, analysis, posture, style, and technique Not open to students with credit for Edu P&L 706.01.

761.02 Somatic Studies: Movement, Observation, Description and Somatic Awareness UGRD 3
A series of courses focusing on mind/body integration issues and the meaning of the movement experience in education and the culture at large. The use of the effort/space vocabulary and its relationship to movement observation, description and somatic awareness. * Prereq: 230 or equiv. Not open to students with credit for Edu P&L 706.02.

761.03 Somatic Studies: Conceptions of the Body in Western Culture UGRD 5
A series of courses focusing on mind/body integration issues and the meaning of the movement experience in education and the culture at large. Traditional concepts of the body, which have influenced contemporary educational theory and practice. Not open to students with credit for Edu P&L 706.03.

761.04 Somatic Studies: Human Movement Theory and Practice GRAD 3
A series of courses focusing on mind/body integration issues and the meaning of the movement experience in education and the culture at large. Study of several theoretical considerations of human movement and their implications for eastern and western cultural movement forms. Not open to students with credit for Edu P&L 706.04.

761.05 Somatic Studies: Eastern Movement Forms: Cross Cultural Implications UGRD 3
A series of courses focusing on mind/body integration issues and the meaning of the movement experience in education and the culture at large. Exploration of the theoretical foundations upon which Eastern movement and martial art forms are based. Practice opportunities in one or more of these forms are scheduled. * Not open to students with credit for Edu P&L 706.05.

766 Trends, Issues, and Technological Developments in Teaching Visually Handicapped Students UGRD 3
Study of technological research and vocational implications for visually handicapped students; development of basic skills for teaching use of audio, visual, and tactile aids.

772 Teaching Science in College UGRD 4
An examination of college Bachelor's degree, teacher's certificate, and teaching science curricula; teaching methods; student and course evaluation techniques; objectives and rationale for teaching science in general education and teacher education programs. Prereq: Teaching experience or permission of instructor.

777 Teaching and Learning Social Studies with Imagination GRAD 3
Using social imagination in social studies education. Repeatable to a maximum of 6 cr hrs.

800.07 Issues in Language, Literacy and Culture: General Student Body GRAD 3
Introduces M Ed students in Language, Literacy, and Culture to key issues underlying their fields of study. Prereq: Admission to LLC M Ed program.
809.70 Inclusion: Philosophical, Social, and Practice Issues: Early Childhood Education
Philosophical, social, and practice issues related to the inclusion of students with special needs in the P-12 general education classroom.
Prereq: Grad standing.
809.99 Inclusion: Philosophical, Social, and Practice Issues: Language, Literacy and Culture
Philosophical, social, and practice issues related to the inclusion of students with special needs in the P-12 general education classroom.
Prereq: Grad standing.
810.07 Classroom Communities and Issues of Guidance: General Student Body
A classroom as communities framework to support teaching and learning and issues of guidance. Required in Early Childhood MEd and open by permission to other students.
810.70 Classroom Communities and Issues of Guidance: Early Childhood Education
A classroom as communities framework to support teaching and learning and issues of guidance. Required in Early Childhood MEd and open by permission to other students.
811 Science in Elementary Education
Prereq: Grad standing.
812 Mathematics in Elementary Schools
814 Social Studies in the Elementary School
The educational values of social studies, reasons for and ways and means of integrating the social sciences with emphasis upon program innovations and research.
815.07 The Changing Context in Equity, Diversity, and Exceptionality: General Student Body
Examination of how attitudes, assumptions, and expectations within socially diverse classrooms influence the behaviors of educators, parents, and pupils. Case method: Analyzing experiences of teachers.
Prereq: Permission of instructor.
815.20 The Changing Context in Equity, Diversity, and Exceptionality: Middle Childhood Education
Examination of how attitudes, assumptions, and expectations within socially diverse classrooms influence the behaviors of educators, parents, and pupils. Case method: Analyzing experiences of teachers.
Prereq: Permission of instructor.
815.70 The Changing Context in Equity, Diversity, and Exceptionality: Early Childhood Education
Examination of how attitudes, assumptions, and expectations within socially diverse classrooms influence the behaviors of educators, parents, and pupils. Case method: Analyzing experiences of teachers.
Prereq: Permission of instructor.
815.99 The Changing Context in Equity, Diversity, and Exceptionality: Language, Literacy and Culture
Examination of how attitudes, assumptions, and expectations within socially diverse classrooms influence the behaviors of educators, parents, and pupils. Case method: Analyzing experiences of teachers.
Prereq: Permission of instructor.
816 Language Arts in the Elementary School
817 Advanced Course in Children's Literature
An evaluation of the changing role and increased importance of literature in the education of children and youth.
818.07 Foundations of Education: General Student Body
Study of phenomena that undergird or bear on practice in education; topics include the family, learners, teachers and teaching, and schooling.
818.20 Foundations of Education: Middle Childhood Education
Study of phenomena that undergird or bear on practice in education; topics include the family, learners, teachers and teaching, and schooling.
818.70 Foundations of Education: Early Childhood Education
Study of phenomena that undergird or bear on practice in education; topics include the family, learners, teachers and teaching, and schooling.
820 Developing Early Communication of Children with Physical, Sensory, and Multiple Disabilities
Knowledge and techniques about functional communication and language acquisition for young children and youth with severe language problems.
Prereq: Permission of instructor. Not open to students with credit for ED S&R 821.
821.07 School Issues Related to Growth, Development, and Learning: General Student Body
Advanced study based upon research in education and related fields that aid the teacher in guiding developmental activities in P-12 classrooms.
821.45 School Issues Related to Growth, Development, and Learning: Foreign Language Education
Advanced study based upon research in education and related fields that aid the teacher in guiding developmental activities in P-12 classrooms.
821.99 School Issues Related to Growth, Development, and Learning: Language, Literacy and Culture
Advanced study based upon research in education and related fields that aid the teacher in guiding developmental activities in P-12 classrooms.
822 Developing Language Competence of Students with Hearing Disabilities
Study of language competence of children with hearing disabilities.
Prereq: 660 or equiv or permission of instructor.
823 Creative Experiences in the Elementary School Curriculum
Study of the nature of creativity and aesthetics as related to the elementary school curriculum.
824 Designing School Programs for Children Age Two to Six
A study of the characteristics and needs of children two to six years of age as they relate to the development of educational programs.
825 Methods of Developing Language and Cognition in Early Childhood
Curriculum methods and materials in developing language and cognition in school programs for children ages three to eight, based upon research findings.
826 Visual Process and Educational Implications of Visual Disabilities
Components of vision, anatomy, and physiology of the eye; causes of impaired vision, educational implications of eye disorders, and interpretation of eye specialists' reports.
827 Advanced Study in the Teaching of Developmental Reading
Designed to provide experienced teachers the opportunity to extend and update their knowledge of the reading process and the principles underlying effective reading instruction.
Prereq: 665.
828 Trends and Issues in Teaching Reading in the Elementary School
Designed for experienced teachers and curriculum workers; current developments, trends, and issues critically analyzed according to available research evidence.
829 Problems in Elementary School Curriculum and Supervision
An analysis of the programs and practices involved in facing major curriculum problems in the elementary schools; synthesis of supervision and curriculum.
830 Early Childhood Education: Multi-Cultural Influences
A study of early childhood curriculum content and teaching methods as influenced by multi-cultural factors.
831 Reading for Students with Hearing Disabilities
Examination of reading theories, research, and implications for students with hearing disabilities.
1 3-hr cl. Prereq: 822, or its equiv, or permission of instructor.
832 Advanced Studies in Deafness GRAD 3
Cognitive and psychosocial theories, research, and implications for students with hearing disabilities.
Prereq: 754 or equiv, or written permission of instructor. Not open to students with credit for ED S&R 824.

833 Reading and Writing Skills for Teachers of Low Vision and Blind Children GRAD 3
Modes of written communication for low vision and blind children, focusing on mastery of Grade 2 literary braille for initial reading instruction.
Prereq: 670 or equiv, and permission of instructor. Not open to students with credit for ED S&R 827.

835 Modes of Communication and Instructional Materials for Students with Visual Disabilities GRAD 3
Continuation of modes of communication with focus on mastery of Nemeth Code for science and math notation.
Prereq: 833. Not open to students with credit for ED S&R 828.

837 Research in Technology Education GRAD 3
Identification of research problems and needs; review of research exemplars with critical analysis of research design and procedures.
Prereq: Educ P&L 785 or 786, or permission of instructor.

838 Learning Styles GRAD 3
Education dimensions of learning styles in children and adults related to developmental, neurological, social, and environmental substrates of learning.
Prereq: Previous teaching experience or permission of instructor. Open to grad students in any field of specialization in education.

839 Evaluation in Elementary Schools GRAD 3
Appraisal of materials and methods in terms of educational aims and research findings consideration of instruments and procedures for comparing achievements with established objectives.

840 Writing in the Elementary School GRAD 3
Study of the implications from recent research and theory in language learning and use in respect to writing, spelling, handwriting, and grammar.

841 Poetry for Children GRAD 3
An in-depth study of poetry for children including children's interest in poetry, forms of poetry, and representative poets, classroom approaches for encouraging children's involvement and appreciation of poetry.

842 Diverse Approaches to Educational Research on Teaching and Learning GRAD 3
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.
Not open to students with credit for ED T&P 826.

843 Literature for Middle Childhood GRAD 3
Analysis and study of fiction for children ages 8-12; emphasis on literary quality, strategies for classroom use, and relevant issues.

844 Bilingualism and Biliteracy GRAD 3
Explores sociolinguistic and ethnolinguistic research in multilingual settings with an emphasis on bilingualism and bilingual communities.
Sp Qtr.

845 Educating English Learners in K-12 Contexts GRAD 3
This course is intended to help both practicing and prospective teachers to provide appropriate learning opportunities for English Language Learners (ELLs) in grades K-12.
Su Qtr.

846 Development of Technology Education Vocational Education Programs for Special Needs and Culturally D GRAD 3
Analysis of educational needs of special needs and culturally diverse learners with emphasis on designing, conducting, and evaluating technology education, vocational, and prevocational programs.

847 Linguistic Structure of ASL and Its Application to ASL Instruction I GRAD 3
To develop a basic understanding of the linguistic structure of ASL and how this understanding can be applied to ASL teaching.
Au Qtr. 1 2.5-hr cl. Taught in American Sign Language.

848 Understanding Preschool Play GRAD 3
A study of relevant theories, developmental stages, and research as they relate to developing programs for young children.
Prereq: Fm&Hu Dv 332 or 662, or permission of instructor.

849 Observing and Facilitating Preschool Play GRAD 3
Continuation of 848; extensive analysis of experiences in facilitating preschool play and clinical experience regarding the play of young children.
1.3-hr cl or field experience. Prereq: 848 or equiv with written permission of instructor.

850 STEM Education through Context Community and Culture GRAD 3
Designed for middle and secondary school STEM Education teachers to acquire knowledge, skills, and dispositions to integrate these disciplines through contextual, community, and cultured factors.
Wi Qtr. Repeatable to a maximum of 6 cr hrs.

851 Language Use in the Deaf Community GRAD 3
To understand how the language is used in the deaf community. To understand bilingualism, language variation and attitude.
Au Qtr. 1 2.5-hr cl. Taught in American Sign Language.

852 Science and Early Childhood Education GRAD 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.

853.07 Critical Reading in the Content Fields: General Student Body GRAD 3
Exploration of the problems of developing critical reading ability in a variety of curricular fields.

853.20 Critical Reading in the Content Fields: Middle Childhood Education GRAD 3
Exploration of the problems of developing critical reading ability in a variety of curricular fields.

853.70 Critical Reading in the Content Fields: Early Childhood Education GRAD 3
Exploration of the problems of developing critical reading ability in a variety of curricular fields.

854.07 Reading in Its Social Setting: General Student Body GRAD 3
The influence of culture on the nature, quality, and quantity of reading development; the relationship of reading to language development and mass media.

854.20 Reading in Its Social Setting: Middle Childhood Education GRAD 3
The influence of culture on the nature, quality, and quantity of reading development; the relationship of reading to language development and mass media.

854.70 Reading in Its Social Setting: Early Childhood Education GRAD 3
The influence of culture on the nature, quality, and quantity of reading development; the relationship of reading to language development and mass media.

856 Advanced Literature for Adolescents GRAD 3
An evaluation of literature for adolescents and the role it plays in the education of youth.
Prereq: Teaching experience.

857 Inclusive Education Research GRAD 3
Examination of current research and theory on inclusive education efforts to effectively educate students with and without disabilities in general education settings.
Su, Au, Wi, Sp Qtr. 3 cl. Prereq: Admission to graduate school.

858 Technology Education in the Elementary School GRAD 3
Selection, development, and evaluation of typical experience units in both classrooms and practical arts laboratory situations at all levels of the elementary schools.
Prereq: 243 or equiv.

859 Technology Education Curriculum Planning GRAD 3
Analysis of curriculum research, analysis of instructional materials, application of technology education principles to general education.

860 Language Arts in the Early Childhood Program GRAD 3
The process of children's language acquisition leading towards development of reading skills; practical applications from theory and research on language processing.
Prereq: Experience in working with young children or introductory level child development course.

861 Literature in Early Childhood Education GRAD 3
Study of literature for children ages two through seven; emphasis on the importance of early exposure to literature for language acquisition and for cognitive and affective development.
Prereq: 817.
862 Roots of Fantasy for Children GRAD 3
A study of selected works of fantasy for children (grades 4-9) along with their sources in traditional literature; works based on Arthurian legends, the Welsh Mabinogion, and other folklore from the British Isles. 1.25-hr cl. Prereq: 817.

863 Sociolinguistics and Language Education GRAD 3
This course reviews foundational issues and theories in sociolinguistics that are relevant to language education and second language acquisition.

864 Multicultural Literature for Children GRAD 3
Values and uses of literature by and about Blacks, Asians, Hispanics, Native Americans, and other U.S. ethnic groups: theoretical perspectives, trends, issues, and controversies. Prereq: 817 or equiv.

865.07 Reflective Inquiry on Pedagogy with Prospective Teachers: General Student Body GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.20 Reflective Inquiry on Pedagogy with Prospective Teachers: Middle Childhood Education GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.21 Reflective Inquiry on Pedagogy with Prospective Teachers: Technology Education GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.23 Reflective Inquiry on Pedagogy with Prospective Teachers: Math, Science and Technology Education GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.25 Reflective Inquiry on Pedagogy with Prospective Teachers: English Education GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.26 Reflective Inquiry on Pedagogy with Prospective Teachers: Mathematics Education GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.27 Reflective Inquiry on Pedagogy with Prospective Teachers: Science Education GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.28 Reflective Inquiry on Pedagogy with Prospective Teachers: Social Studies and Global Education GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.45 Reflective Inquiry on Pedagogy with Prospective Teachers: Foreign Language Education GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.52 Reflective Inquiry on Pedagogy with Prospective Teachers: Visual Disabilities GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.55 Reflective Inquiry on Pedagogy with Prospective Teachers: Hearing Disabilities GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

865.56 Reflective Inquiry on Pedagogy with Prospective Teachers: Drama, Language Arts, Lit and Reading GRAD 3
Prepares prospective teachers to bring an inquiry orientation to their practice and to see reflective inquiry as part of teaching. Limited to students enrolled in LLC M Ed program. Enables preservice teachers to engage in discipline-specific teacher research as a means for reflecting on practice.

867 Reading Gender in Education GRAD 3
Course explores the ways in which gender impacts reading in an effort to better serve students through research and teaching. Su Qtr.

868 Developing Syllabi for Second-Language Programs GRAD 3
Focus on various models currently available to second language teachers for syllabus design, development, and evaluation.

869 Children's Social Development and the Social World of the Classroom GRAD 3
Exploration of social growth and social experiences of children, with educational emphasis on the social dimensions of learning and classroom practice. Prereq: Grad standing.

870 Graduate Studies in Integrated Teaching and Learning GRAD 3
Designed to introduce the study of integrated teaching and learning, familiarize students with scholars in this field and assist students in planning their masters program. Prereq: Admission into MA program in ITL.

871 Diverse Theories of Teaching and Learning GRAD 3
Emphasis on intellectual development, preschool through adolescence, focusing on educational implications and classroom practice. Wi, Sp Qtr. Prereq: Grad standing.

872 Approaches to Integrated Curriculum in Pre K-12 Classrooms GRAD 3
Critical review and application of theories, research, and practices related to integrated curriculum approaches in early childhood, elementary and middle school classrooms. Prereq: 870.

873 Popular Culture and the Teaching of English GRAD 3
Analysis of the role of mass media/popular culture in our society; values and themes in popular culture; development of critical skills to analyze popular culture.

874 Classroom Based Inquiry in Integrated Teaching and Learning GRAD 3
Classroom based inquiry strategies considering the literature on classroom based research, models, historical perspectives, ethical questions, and implications for teaching practice.

875 Teaching Evolution in Schools GRAD 3
Evolution education, issues, court decisions, instructional guidelines and responding to public assistance.

876 Science, Mathematics, Technology and the Educated Mind GRAD 3
Scientific literacy, numeracy, technological literacy, societal issues and implications for education.

877 The Nature of Science and Implications for Teaching GRAD 3
History, sociology and epistemology of science and implications for teaching science.
878 Infusing Global Perspectives in Education GRAD 3
Rationales, conceptualizations, and strategies for infusing global perspectives in education.

879 Teaching for Diversity and Social Justice GRAD 3
An exploration into economic, political, technological and ecological components of multicultural education as it relates to diversity and social justice.

880 A Proficiency Experience at the Zoo GRAD 3
Utilizes a wealth of resources at the zoo to increase content teaching strategies for teachings in the area of science education. Includes inquiry and hands-on activities.

881 Multicultural and Global Perspectives in Science and Technology Education

882 Materials and Methods in the Social Studies GRAD 3
Study of recent innovations in teaching methodology in the social studies; review and evaluation of recently published teaching materials.

883 Teaching World Cultures and Global Issues GRAD 3
in P-12 Classrooms
Prepares teachers to use online and other resources to teach world cultures and global issues from multiple perspectives. Taught online. This online course requires access to the Internet, an e-mail program and skills in using e-mail and the WWW. This is a distance learning course.

884.02 Planned Field Experience: Foreign GRAD 1-20
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.10 Planned Field Experience: Elementary Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.20 Planned Field Experience: Middle Childhood Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.21 Planned Field Experience: Technology Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.23 Planned Field Experience: Mathematics, Science and Technology Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.24 Planned Field Experience: English Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Not open to non-MA Ed students. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.26 Planned Field Experience: Mathematics Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.27 Planned Field Experience: Science Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.28 Planned Field Experience: Social Studies and Global Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.44 Planned Field Experience: Elementary Foreign Language Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.45 Planned Field Experience: Secondary Foreign Language Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.46 Planned Field Experience: TESOL GRAD 1-20
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.52 Planned Field Experience: Visual Disabilities
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.55 Planned Field Experience: Hearing Disabilities
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.56 Planned Field Experience: Drama, Language Arts, Literature and Reading Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.70 Planned Field Experience: Early Childhood Education
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

884.99 Planned Field Experience: Language, Literacy & Culture
Planned field experience under supervision in a P-12 classroom. Prereq: Written permission of area adviser. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

885.20 Supervised Student Teaching Internship: Middle Childhood Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.21 Supervised Student Teaching Internship: Technology Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.23 Supervised Student Teaching Internship: Mathematics, Science and Technology Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.25 Supervised Student Teaching Internship: English Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.26 Supervised Student Teaching Internship: Mathematics Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.27 Supervised Student Teaching Internship: Science Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.28 Supervised Student Teaching Internship: Social Studies and Global Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.45 Supervised Student Teaching Internship: Foreign and Second Language Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.
885.52 Supervised Student Teaching Internship:  GRAD 5-15 Visual Disabilities
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.55 Supervised Student Teaching Internship:  GRAD 5-15 Hearing Disabilities
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.56 Supervised Student Teaching Internship:  GRAD 5-15 Drama Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

885.70 Supervised Student Teaching Internship:  GRAD 5-15 Early Childhood Education
Student teaching internship in a P-12 classroom where students assume major teaching responsibilities under the guidance of a cooperating teacher and university supervisor. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

886.20 Reflective Seminar: Middle Childhood Education  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

886.21 Reflective Seminar: Technology Education  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs.

886.23 Reflective Seminar: Mathematics, Science and Technology Education  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs.

886.26 Reflective Seminar: Mathematics Education  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs.

886.27 Reflective Seminar: Science Education  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs.

886.28 Reflective Seminar: Social Studies and Global Education  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs.

886.45 Reflective Seminar: Secondary Foreign Language Education  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs.

886.52 Reflective Seminar: Visual Disabilities  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

886.55 Reflective Seminar: Hearing Disabilities  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

886.56 Reflective Seminar: Drama, Language Arts, Literature and Reading  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

886.70 Reflective Seminar: Early Childhood Education  GRAD 1-5
Seminar held in conjunction with field experience or student teaching internship. The goals are to process, reflect upon and enhance benefits of the school experiences. Prereq: Open to M. Ed Students only. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

887.10 Advanced Field Experience: Elementary Education  GRAD 1-15
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 25 cr hrs. This course is graded S/U.

887.20 Advanced Field Experience: Middle Childhood Education  GRAD 1-15
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 25 cr hrs.

887.21 Advanced Field Experience: Technology Education  GRAD 1-15
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 25 cr hrs.

887.23 Advanced Field Experience: Mathematics, Science and Technology Education  GRAD 1-15
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 25 cr hrs.

887.25 Advanced Field Experience: English Education  GRAD 1-15
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 25 cr hrs. This course is graded S/U.

887.26 Advanced Field Experience: Mathematics Education  GRAD 1-15
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 25 cr hrs.

887.27 Advanced Field Experience: Science Education  GRAD 1-15
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 25 cr hrs.

887.44 Advanced Field Experience: Elementary Foreign Language Education  GRAD 1-15
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 25 cr hrs.

887.45 Advanced Field Experience: Foreign and Second Language Education  GRAD 1-15
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 25 cr hrs.

887.46 Advanced Field Experience: TESOL  GRAD 1-15
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 25 cr hrs.

887.50 Advanced Field Experience: Integrated Teaching and Learning  GRAD 1-15
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 25 cr hrs. This course is graded S/U.
887.52 Advanced Field Experience: Visual Disabilities
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 25 cr hrs. This course is graded S/U.

887.55 Advanced Field Experience: Hearing Disabilities
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 25 cr hrs. This course is graded S/U.

887.56 Advanced Field Experience: Drama, Language Arts, Literature and Reading
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 25 cr hrs. This course is graded S/U.

887.70 Advanced Field Experience: Early Childhood Education
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 25 cr hrs. This course is graded S/U.

888 Advanced Studies in Teaching and Learning with Drama
Advanced drama education theoretical principles, activities, and strategies. Prereq: 777. Repeatable to a maximum of 6 cr hrs.

892 Teaching Multimodal Composition: Advanced Summer Institute
Students learn how to compose & explore ideas and experiences in a range of modalities using photo editing software and hardware. Su Qtr.

893.10 Advanced Individual Studies: Elementary Education
Elementary Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

893.20 Advanced Individual Studies: Middle Childhood Education
Middle Childhood Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. This course is graded S/U. Repeatable.

893.21 Advanced Individual Studies: Technology Education
Technology Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. This course is graded S/U. Repeatable.

893.23 Advanced Individual Studies: Mathematics, Science and Technology Education
Mathematics, Science and Technology Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. This course is graded S/U. Repeatable.

893.25 Advanced Individual Studies: English Education
English Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. This course is graded S/U. Repeatable.

893.26 Advanced Individual Studies: Mathematics Education
Mathematics Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. This course is graded S/U. Repeatable to a maximum of 30 cr hrs.

893.27 Advanced Individual Studies: Science Education
Science Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. This course is graded S/U. Repeatable.

893.28 Advanced Individual Studies: Social Studies Education
Social Studies Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.45 Advanced Individual Studies: Foreign and Second Language Education
Foreign and Second Language Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.46 Advanced Individual Studies: TESOL
TESOL. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.50 Advanced Individual Studies: Integrated Teaching and Learning
Integrated Teaching and Learning. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.52 Advanced Individual Studies: Visual disabilities
Visual disabilities. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.55 Advanced Individual Studies: Hearing disabilities
Hearing disabilities. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable. This course is graded S/U.

893.56 Advanced Individual Studies: Drama, Language Arts, Literature and Reading Education
Drama, Language Arts, Literature and Reading Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

893.70 Advanced Individual Studies: Early Childhood Education
Early Childhood Education. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

893.99 Advanced Individual Studies: Language, Literacy and Culture
Language, Literacy and Culture. Prereq: Permission of instructor. For thesis option, not more than 15 cr hrs of any 693 and/or 893 will apply toward the master's degree. For non-thesis option, not more than 20 cr hrs will apply. Not more than 30 cr hrs will apply toward the doctoral degree. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

894.10 Advanced Group Studies: Elementary Education
Advanced group studies on special problems in education. Elementary Education. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.
894.20 Advanced Group Studies: Middle Childhood Education
   Advanced group studies on special problems in education: Middle Childhood Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.21 Advanced Group Studies: Technology Education
   Advanced group studies on special problems in education: Technology Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.23 Advanced Group Studies: Mathematics, Science and Technology Education
   Advanced group studies on special problems in education: Mathematics, Science and Technology Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.25 Advanced Group Studies: English Education
   Advanced group studies on special problems in education: English Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.26 Advanced Group Studies: Mathematics Education
   Advanced group studies on special problems in education: Mathematics Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.27 Advanced Group Studies: Science Education
   Advanced group studies on special problems in education: Science Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.28 Advanced Group Studies: Social Studies Education
   Advanced group studies on special problems in education: Social Studies Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.45 Advanced Group Studies: Foreign Language Education
   Advanced group studies on special problems in education: Foreign and Second Language Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.46 Advanced Group Studies: TESOL
   Advanced group studies on special problems in education: TESOL.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.50 Advanced Group Studies: Integrated Teaching and Learning
   Advanced group studies on special problems in education: Integrated Teaching and Learning.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.52 Advanced Group Studies: Visual Disabilities
   Advanced group studies on special problems in education: Visual disabilities.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.55 Advanced Group Studies: Hearing Disabilities
   Advanced group studies on special problems in education: Hearing disabilities.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.56 Advanced Group Studies: Drama, Language Arts, Literature and Reading Education
   Advanced group studies on special problems in education: Drama, Language Arts, Literature and Reading Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.70 Advanced Group Studies: Early Childhood Education
   Advanced group studies on special problems in education: Early Childhood Education.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.99 Advanced Group Studies: Language, Literacy and Culture
   Advanced group studies on special problems in education: Language, Literacy and Culture.
   Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

896 Self-Regulation of Academic Learning: Implications for Content Areas
   Explores theoretical perspectives and research in the field of self-regulated learning.
   Issues of developing self-regulation in the content areas will be highlighted.
   Limited to advanced MA or PhD students.

897 Cross-Cultural Experiential Learning
   Examines the theory and practice of using cross-cultural experiential methods in teaching intercultural competence, social studies and global education.
   Wi, Su Qtrs.

898 Teaching Writing
   The course serves as the Summer Institute of the Columbus Area Writing Project. Su Qtr.

899 Interdepartmental Seminar in Teaching College Mathematics
   Discussion of problems raised by courses for liberal or general education, service courses, or special education courses commonly offered in college mathematics; given cooperatively by Math and Ed-T&L.
   Prereq: Permission of instructor.

901 Changing Perspectives in Language, Literacy, and Culture
   Introductory seminar highlights interdisciplinary nature of studies in language, literacy, and culture and provides historical perspective for theoretical shifts that influence research and teaching.
   Prereq: Admission to LLC PhD program.

902 Multiple Literacies, Technology, and Communities of Learning
   Applies various theoretical perspectives and research tools to explore multiple literacy and technology uses in relationship to community development in different settings.
   Prereq: 901. Limited to doctoral students. Active e-mail account required.

903 Teaching/Learning in Language, Literacy, and Culture
   Examines constructivist and sociocultural theories and approaches to teaching and learning. Epistemological roots, historical perspectives and approaches underlying these theories will be examined.
   Prereq: 901.

904 Alternative Paradigms for Global Education
   Analysis of the educational implications of basic concepts and propositions about the world derived from alternative approaches to the study of international relations.
   Prereq: Grad standing.

905 Research Methodologies in Language, Literacy, and Culture
   Examines recent research in the areas of language, literacy, and culture through a variety of lenses—epistemological, cultural, conceptual and ethical.
   Prereq: Edu P&L 785 and 800, and admission to LLC PhD program.

906 Language Learning Across Cultures
   Sociocultural research and theories of first and second language learners, learning of language and literacy across cultures.
   Prereq: 901, 902, 903. One in a number of general section courses in LLC PhD that provides generic frameworks for courses within the PhD program.

907 History of Children's and Adolescent Literature
   A seminar focusing on the history of English and American children's and young adult's literature from earliest times to the present century.
   Prereq: 817; grad standing.

908 The Development of Literary Understanding
   Provides background knowledge of the seminal research on children's literary understanding and the theories and perspectives that inform that research.
   Prereq: Admission to LLC PhD program or by permission.

909 History of Theory and Practice in Literacy
   Explores the historical bases of current literacy practices and theoretical perspectives. Examines cultural and political ideologies that have influenced theory, research and instructional practice.

910 Creating Effective Contexts for Literacy Learning and Teaching
   Designed to examine the role of social context in cognitive development and theories of learning/teaching and relate them to literacy development in preschool-grade 12.

911 Research in Emergent Literacy
   Focus on interpreting new research studies in emergent literacy in light of current research.
   Limited to Advanced MA or PhD students in LLC.

912 Research in Writing Development and Instruction for Children
   Examination and critical analysis of research on children's writing development and writing instruction in schools.
   Limited to Advanced MA or PhD students in LLC.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Department</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>913</td>
<td>Research and Theory in Written Composition</td>
<td>GRAD 3</td>
<td>Composition</td>
<td></td>
</tr>
<tr>
<td>914</td>
<td>Writing and Learning Across the Curriculum</td>
<td>GRAD 3</td>
<td>Elementary School Science Programs and on Evaluation</td>
<td>more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>915</td>
<td>Drama in Language, Literacy, and Culture</td>
<td>GRAD 3</td>
<td>Current educational assumptions about language, literacy, and culture are examined and critiqued through the lens of drama education pedagogy.</td>
<td></td>
</tr>
<tr>
<td>916</td>
<td>Classroom-Oriented Second Language Research</td>
<td>GRAD 3</td>
<td>Classroom research investigates the processes of teaching and learning as they occur in language classrooms.</td>
<td>703.</td>
</tr>
<tr>
<td>917</td>
<td>Issues in Communicative Language Teaching</td>
<td>GRAD 3</td>
<td>Lecture and discussion course focused on current issues related to second language acquisition research.</td>
<td>703, 868.</td>
</tr>
<tr>
<td>918</td>
<td>Synthesizing Research in Reading &amp; Literacy</td>
<td>GRAD 3</td>
<td>Students will be able to critically evaluate research studies in reading and literacy on the grounds of logic, method, and significance and quality of argument.</td>
<td>Sp Qtr.</td>
</tr>
<tr>
<td>920</td>
<td>Advanced Concepts in Elementary School Science Education</td>
<td>GRAD 3</td>
<td>Emphasis on functions of leadership personnel in developing and improving elementary school science programs and on evaluation of current developments and research.</td>
<td>811 or permission of instructor.</td>
</tr>
<tr>
<td>921</td>
<td>A Guided Survey of Research in Reading</td>
<td>GRAD 3</td>
<td>Designed to provide acquaintance with scientific studies relating to reading, methods used, results attained, including implications and limitations, and the problems meriting further investigation.</td>
<td>6 cr hrs in grad reading courses. Repeatable to a maximum of 6 cr hrs.</td>
</tr>
<tr>
<td>922</td>
<td>Writing Research Proposals in Language, Literacy, and Culture</td>
<td>GRAD 3</td>
<td>Designed to acquaint PhD students with the practical and conceptual skills needed to design and write research proposals.</td>
<td>Edu P&amp;L 785 or 786. Repeatable to a maximum of 6 cr hrs.</td>
</tr>
<tr>
<td>923</td>
<td>Literary Theory and Adolescent Literature</td>
<td>GRAD 3</td>
<td>Explores the use of young adult literature for in-depth literary study in secondary classrooms.</td>
<td>Admission to LLC PhD program. Designed for students in Language, Literacy, and Culture, particularly those with a focus on English Education or children's literature.</td>
</tr>
<tr>
<td>924</td>
<td>Foreign and Second Language Teacher</td>
<td>GRAD 3</td>
<td>Foreign and second language teachers will develop a theoretical framework and study critical issues that impact the life-long development of pre- and in-service teachers.</td>
<td></td>
</tr>
<tr>
<td>925.10</td>
<td>Advanced Seminar: Language Education and Society</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Language, education and society.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.20</td>
<td>Advanced Seminar: Multicultural and Equity Studies in Education</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Multicultural and equity studies in education.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.21</td>
<td>Advanced Seminar: Technology Education</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Technology education.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.23</td>
<td>Advanced Seminar: Science, Technology, Engineering and Mathematics Education</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Science, technology, engineering and mathematics education.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.25</td>
<td>Advanced Seminar: Adolescent, Post-Secondary and Community Literacies</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Adolescent, post-secondary and community literacies.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.26</td>
<td>Advanced Seminar: Mathematics Education</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Mathematics education.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.27</td>
<td>Advanced Seminar: Science Education</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Science education.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.28</td>
<td>Advanced Seminar: Social Studies and Global Education</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Social studies and global education.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.45</td>
<td>Advanced Seminar: Foreign and Second Language Education</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Foreign and second language education.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.46</td>
<td>Advanced Seminar: TESOL</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Teaching second languages.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.50</td>
<td>Advanced Seminar: Literature for Children and Young Adults</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Literature for children and young adults.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable to a maximum of 20 cr hrs.</td>
</tr>
<tr>
<td>925.52</td>
<td>Advanced Seminar: Visual Disabilities</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Visual disabilities education.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.55</td>
<td>Advanced Seminar: Hearing Disabilities</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Hearing disabilities education.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>925.56</td>
<td>Advanced Seminar: Reading and Literacy in Early and Middle Childhood</td>
<td>GRAD 2-5</td>
<td>Advanced graduate seminars focusing on educational scholarship related to each subject. Research problems: Reading and literacy in early and middle childhood.</td>
<td>Permission of instructor. Students with permission of advisers may register for more than one section of 925 or for the same section two or more times. Repeatable.</td>
</tr>
<tr>
<td>926.20</td>
<td>M.Ed Capstone Seminar: Middle Childhood Education</td>
<td>GRAD 3</td>
<td>Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Middle Childhood Education.</td>
<td>Open to M.Ed. students only.</td>
</tr>
</tbody>
</table>
926.21 M.Ed Capstone Seminar: Technology Education
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Technology Education.
Prereq: Open to M.Ed. students only.

926.23 M.Ed Capstone Seminar: Mathematics, Science and Technology Education
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Mathematics, Science and Technology Education.
Prereq: Open to M.Ed. students only.

926.25 M.Ed Capstone Seminar: English Education
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: English Education.
Prereq: Open to M.Ed. students only. This course is graded S/U.

926.26 M.Ed Capstone Seminar: Mathematics Education
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Mathematics Education.
Prereq: Open to M.Ed. students only.

926.27 M.Ed Capstone Seminar: Science Education
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Science Education.
Prereq: Open to M.Ed. students only.

926.28 M.Ed Capstone Seminar: Social Studies and Global Education
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Social Studies and Global Education.
Prereq: Open to M.Ed. students only.

926.29 M.Ed Capstone Seminar: Foreign and Second Language Education
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Foreign and Second Language Education.
Prereq: Open to M.Ed. students only.

926.32 M.Ed Capstone Seminar: Visual Disabilities
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Visual Disabilities.
Prereq: Open to M.Ed. students only.

926.35 M.Ed Capstone Seminar: Hearing Disabilities
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Hearing Disabilities.
Prereq: Open to M.Ed. students only.

926.36 M.Ed Capstone Seminar: Drama, Language Arts, Literature and Reading
Seminar to prepare M.Ed. students for the comprehensive written examination or approved alternative: Drama, Language Arts, Literature and Reading.
Prereq: Open to M.Ed. students only.

926.37 M.Ed Capstone Seminar: Early Childhood Education
Provides guidance for grad students working on their final M.Ed project based on the two remaining themes.
Su, Au, Wi, Sp Qtrs. Prereq: Open to M.Ed. students only. This course is graded S/U.

927.21 First Year M.A. Seminar: Technology Education
Seminars examine programmatic themes and research approaches: Technology Education.
Repeateable to a maximum of 15 cr hrs.

927.23 First Year M.A. Seminar: Mathematics, Science and Technology Education
Seminars examine programmatic themes and research approaches: Mathematics, Science and Technology Education.
Repeateable to a maximum of 15 cr hrs.

927.25 First Year M.A. Seminar: English Education
Seminars examine programmatic themes and research approaches: English Education.
Repeateable to a maximum of 15 cr hrs. This course is graded S/U.

927.26 First Year M.A. Seminar: Mathematics Education
Seminars examine programmatic themes and research approaches: Mathematics Education.
Repeateable to a maximum of 15 cr hrs.

927.27 First Year M.A. Seminar: Science Education
Seminars examine programmatic themes and research approaches: Science Education.
Repeateable to a maximum of 15 cr hrs.

927.28 First Year M.A. Seminar: Social Studies and Global Education
Seminars examine programmatic themes and research approaches: Social Studies and Global Education.
Repeateable to a maximum of 15 cr hrs.

927.29 First Year M.A. Seminar: Foreign and Second Language Education
Seminars examine programmatic themes and research approaches: Foreign and Second Language Education.
Repeateable to a maximum of 15 cr hrs.

927.30 First Year M.A. Seminar: Intergrated Teaching and Learning
Seminars examine programmatic themes and research approaches: Intergrated Teaching and Learning.
Repeateable to a maximum of 15 cr hrs.

927.31 First Year M.A. Seminar: Visual Disabilities
Seminars examine programmatic themes and research approaches: Visual Disabilities.
Repeateable to a maximum of 15 cr hrs.

927.32 First Year M.A. Seminar: Foreign and Second Language Education
Seminars examine programmatic themes and research approaches: Foreign and Second Language Education.
This course is graded S/U.

927.33 First Year M.A. Seminar: Drama, Language Arts, Literature and Reading
Seminars examine programmatic themes and research approaches: Drama, Language Arts, Literature and Reading.
Repeateable to a maximum of 15 cr hrs.

927.34 M.A. Capstone Seminar: Mathematics, Science and Technology Education
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: Mathematics, Science and Technology Education.

927.35 M.A. Capstone Seminar: Foreign and Second Language Education
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: Foreign and Second Language Education.

927.36 M.A. Capstone Seminar: Integrated Teaching and Learning
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: Integrated Teaching and Learning.

927.37 M.A. Capstone Seminar: Visual Disabilities
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: Visual Disabilities.

927.38 M.A. Capstone Seminar: Social Studies and Global Education
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: Social Studies and Global Education.

927.39 M.A. Capstone Seminar: Foreign and Second Language Education
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: Foreign and Second Language Education.

927.40 M.A. Capstone Seminar: Integrated Teaching and Learning
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: Integrated Teaching and Learning.

927.41 M.A. Capstone Seminar: Drama, Language Arts, Literature and Reading
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: Drama, Language Arts, Literature and Reading.
929 Black Feminist Pedagogical Theories in Teaching and Learning
Students will read and discuss “classic” theorists and texts related to Black feminist theories, the extent to which they inform teaching and learning and manifest as Black feminist pedagogies.
Au Qtr. 1.5-3 cr. Prereq: 976; 3-6 hrs in Women's Studies or African American Studies.

930 Literacy Research and Issues of Diversity in the Classroom
Examines literacy research and diversity issues (language and cultural factors) that influence classroom and school evaluations, instruments and instructional practices.

933 Discourse Analysis in Educational Research I
Introduction to discourse analysis, background theories, getting a discourse analytic study started, data collection, and initial analysis.
Au Qtr.

934 Discourse Analysis in Educational Research II
Acquire additional theoretical understanding of discourse analysis, data analysis, and relating discourse analysis to other approaches of educational research.
Wi Qtrs. Prereq: 933.

937.21 First Year Doctoral Seminar: Technology Education
Students will focus on scholarly discourse communities, contemporary research priorities, programmatic themes and research approaches: Technology Education. Repeatable to a maximum of 15 cr hrs.

937.23 First Year Doctoral Seminar: Mathematics, Science and Technology Education
Students will focus on scholarly discourse communities, contemporary research priorities, programmatic themes and research approaches: Mathematics, Science and Technology Education. Repeatable to a maximum of 15 cr hrs.

937.25 First Year Doctoral Seminar: English Education
Students will focus on scholarly discourse communities, contemporary research priorities, programmatic themes and research approaches: English Education. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

937.26 First Year Doctoral Seminar: Mathematics Education
Students will focus on scholarly discourse communities, contemporary research priorities, programmatic themes and research approaches: Mathematics Education. Repeatable to a maximum of 15 cr hrs.

937.27 First Year Doctoral Seminar: Science Education
Students will focus on scholarly discourse communities, contemporary research priorities, programmatic themes and research approaches: Science Education. Repeatable to a maximum of 15 cr hrs.

938.23 Advanced Doctoral Seminar: Mathematics, Science and Technology Education
Designed to meet the needs of students focusing on dissertation research design and writing: Mathematics, Science and Technology Education. Repeatable to a maximum of 15 cr hrs.

938.25 Advanced Doctoral Seminar: English Education
Designed to meet the needs of students focusing on dissertation research design and writing: English Education. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

938.26 Advanced Doctoral Seminar: Mathematics Education
Designed to meet the needs of students focusing on dissertation research design and writing: Mathematics Education. Repeatable to a maximum of 15 cr hrs.

938.27 Advanced Doctoral Seminar: Science Education
Designed to meet the needs of students focusing on dissertation research design and writing: Science Education. Repeatable to a maximum of 15 cr hrs.

938.28 Advanced Doctoral Seminar: Social Studies and Global Education
Designed to meet the needs of students focusing on dissertation research design and writing: Social Studies and Global Education.

938.45 Advanced Doctoral Seminar: Foreign and Second Language Education
Designed to meet the needs of students focusing on dissertation research design and writing: Foreign and Second Language Education. Repeatable to a maximum of 15 cr hrs.

938.50 Advanced Doctoral Seminar: Integrated Teaching and Learning
Designed to meet the needs of students focusing on dissertation research design and writing: Integrated Teaching and Learning. Repeatable to a maximum of 15 cr hrs.

938.52 Advanced Doctoral Seminar: Visual Disabilities
Designed to meet the needs of students focusing on dissertation research design and writing: Visual Disabilities. Repeatable to a maximum of 15 cr hrs.

938.55 First Year Doctoral Seminar: Hearing Disabilities
Students will focus on scholarly discourse communities, contemporary research priorities, programmatic themes and research approaches: Hearing Disabilities. Repeatable to a maximum of 15 cr hrs.

938.56 First Year Doctoral Seminar: Drama, Language Arts, Literature and Reading
Students will focus on scholarly discourse communities, contemporary research priorities, programmatic themes and research approaches: Drama, Language Arts, Literature and Reading. Repeatable to a maximum of 15 cr hrs.

940 Epistemologies and Theories in Multicultural and Equity Studies in Education
Students will examine and focus, in depth, on various critical epistemology/theoretic perspectives.
Au Qtr.

185
942 Analyzing Intersections of Power, Place and Resistance in Education  
Focuses on an in-depth look at understanding power, location, and resistance in education in the past, present and future.  
Sp Qtr.  
943 Critical Race Theory in Education  
Examines the ways in which race has been conceptualized, theorized & researched within the broader fields that compromise social science and education.  
960 Analysis of the Reading Process in a Second Language  
Focuses on the theoretical and data-based processes of comprehending natural written second language discourse.  
2 2-hr cl, 1 hr lab.  
962 Seminar in Foreign Language Education  
Analysis of major research studies and projects; evaluation and implications of findings; research considerations unique to foreign language education.  
Prereq: Written permission of instructor. Not open to students with credit for Ed-T&P 962.  
963.07 Foreign Language Testing: General Student Body  
Theory and practice of foreign language test construction including item writing, item analysis, reliability, validity, scoring, and interpretation: General Student Body.  
Prereq: Permission of instructor.  
963.08 Foreign Language Testing: M.A. Students Only  
Theory and practice of foreign language test construction including item writing, item analysis, reliability, validity, scoring, and interpretation: M.A. Students Only.  
Prereq: Permission of instructor.  
963.09 Foreign Language Testing: Ph.D. Students Only  
Theory and practice of foreign language test construction including item writing, item analysis, reliability, validity, scoring, and interpretation: Ph.D. Students Only.  
Prereq: Permission of instructor.  
970 English Curriculum Language and Composition  
An evaluation of current trends and developments in linguistics and composition instruction and their relevance for the English curriculum.  
971 English Curriculum: Literature Education  
Critical examination of trends in the secondary school literature program.  
973 Rethinking Early Childhood & Early Elementary Education: The Politics of Childhood  
The seminar will address important classic and contemporary research concerning young children with a focus on the preschool-early elementary years.  
Prereq: Admission to PhD program.  
974 Sociocultural Aspects of Teaching and Learning in Early and Middle Childhood Education  
Exploration and application of sociocultural perspectives to teaching and learning, curriculum, and classroom life in early and middle childhood education.  
Prereq: Admission to PhD program.  
975 Theoretical Perspectives on Learning, Teaching and Social Contexts  
Examination of current research and theories of learning and teaching across multiple contexts; including the individual, social groups, families and community contexts.  
3 cl, 1 off campus field. Prereq: Admission to PhD program.  
976 Diversity and Equity Issues in Teaching and Learning  
Perspectives on how children develop a sense of identity with groups within school and society. Theories used to define diversity in teaching and learning.  
Prereq: Admission to PhD program.  
977 Theoretical Perspectives on Learning and Teaching as Change Processes  
Examines a variety of theoretical perspectives on how learning and teaching promote change in individuals and in social contexts.  
3 cl, 1 off campus field. Prereq: 975, admission to doctoral program.  
985 Theories of Secondary Social Studies Education  
Basic theories of secondary social studies education; discussion of subject-centered, emergent needs, citizenship, reflective, and discipline-oriented approaches.  
Prereq: Certification in secondary social studies. Admission to doctoral program in secondary social studies.  
989 Research Apprenticeship in Teaching and Learning  
The process of researching teaching and learning are explored through working with a faculty member on an established research project.  
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor, advisor and phd. Coordinator required. Repeatable to a maximum of 40 cr hrs. This course is graded S/U.  
999.10 Research: Elementary Education  
Research for thesis or dissertation purposes only: Elementary Education.  
Repeatable. This course is graded S/U.  
999.21 Research: Technology Education  
Research for thesis or dissertation purposes only: Technology Education.  
Repeatable. This course is graded S/U.  
999.23 Research: Mathematics, Science and Technology Education  
Research for thesis or dissertation purposes only: Mathematics, Science and Technology Education.  
Repeatable. This course is graded S/U.  
999.25 Research: English Education  
Research for thesis or dissertation purposes only: English Education.  
Repeatable. This course is graded S/U.  
999.26 Research: Mathematics Education  
Research for thesis or dissertation purposes only: Mathematics Education.  
Repeatable. This course is graded S/U.  
999.27 Research: Science Education  
Research for thesis or dissertation purposes only: Science Education.  
Repeatable. This course is graded S/U.  
999.28 Research: Social Studies Education  
Research for thesis or dissertation purposes only: Social Studies Education.  
Repeatable. This course is graded S/U.  
999.45 Research: Foreign and Second Language Education  
Research for thesis or dissertation purposes only: Foreign and Second Language Education.  
Repeatable. This course is graded S/U.  
999.50 Research: Integrated Teaching and Learning  
Research for thesis or dissertation purposes only: Integrated Teaching and Learning.  
Repeatable. This course is graded S/U.  
999.52 Research: Visual disabilities  
Research for thesis or dissertation purposes only: Visual disabilities.  
Repeatable. This course is graded S/U.  
999.55 Research: Hearing disabilities  
Research for thesis or dissertation purposes only: Hearing disabilities.  
Repeatable. This course is graded S/U.  
999.56 Research: Drama, Language Arts, Literature and Reading Education  
Research for thesis or dissertation purposes only: Drama, Language Arts, Literature and Reading Education.  
Repeatable. This course is graded S/U.  
999.70 Research: Early Childhood Education  
Research for thesis or dissertation purposes only: Early Childhood Education.  
Repeatable. This course is graded S/U.  
999.99 Research: Language, Literacy and Culture  
Research for thesis or dissertation purposes only: Language, Literacy and Culture.  
Repeatable. This course is graded S/U.  

**Electrical and Computer Engineering**  

**205 Circuit Analysis**  
Applications of electrical and computer engineering; circuit fundamentals and analysis operational amplifiers; phasor analysis; sinusoidal frequency response.  
Au, Wi, Sp Qtrs. 3 cl. Prereq: Physics 133, En Graph 167 or CS&E 221 or CS&E 202, prereq or concur: Math 415; minimum CPHR of 2.00; and acceptance in Elec & Cptr Eng major or Cptr Science & Eng major or Eng Physics major.  

**206 Switching Circuits Laboratory**  
NAND, NOR, XOR gates; combinational circuits; adders; code converters; flip flops; sequential circuits; shift registers; counters.  
Su, Au, Wi, Sp Qtrs. 1 3-hr lab. Prereq: 261, and acceptance in Elec & Cptr Eng major or Cptr Science & Eng major or Eng Physics major.  

**209 Circuits and Electronics Laboratory**  
Circuits and electronics lab covering basic electronics and principles of electrical measurements, signal conditioning, and instrumentation.  
Au, Wi, Sp Qtrs. 1 4-hr lab. Prereq: 205, Math 415, prereq or concur: 301, and acceptance in Elec & Cptr Eng major or Eng Physics major.
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Type</th>
<th>Units</th>
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<tbody>
<tr>
<td>261</td>
<td>Introduction to Logic Design</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>265</td>
<td>Introduction to Microprocessor-Based Systems</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>293</td>
<td>Individual Studies in Electrical and Computer Engineering</td>
<td>UGRD 1-15</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>Electrical Circuits</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>301</td>
<td>Analysis and Design in Circuits and Electronics</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>302</td>
<td>Electronic Devices and Controls</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>309</td>
<td>Electrical Circuits Laboratory</td>
<td>UGRD 1</td>
<td></td>
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<tr>
<td>310</td>
<td>Electromagnetics I</td>
<td>UGRD 3</td>
<td></td>
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<tr>
<td>312</td>
<td>Electromagnetics II</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>320</td>
<td>Electronic Devices and Controls</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>321</td>
<td>Electronic Analysis, Design and Simulation</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>322</td>
<td>Electronic Devices and Circuits Laboratory</td>
<td>UGRD 2</td>
<td></td>
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<tr>
<td>331</td>
<td>Introduction to Materials for Electrical and Computer Engineering</td>
<td>UGRD 3</td>
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</tr>
<tr>
<td>332</td>
<td>Systems I</td>
<td>UGRD 3</td>
<td></td>
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<tr>
<td>333</td>
<td>Introduction to Materials for Electrical and Computer Engineering</td>
<td>UGRD 3</td>
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<tr>
<td>334</td>
<td>Energy Conversion</td>
<td>UGRD 3</td>
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<tr>
<td>335</td>
<td>Antennas and Propagation for Wireless Systems</td>
<td>UGRD 3</td>
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<tr>
<td>336</td>
<td>Systems II</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>337</td>
<td>Microprocessor/Microcontroller Laboratory I</td>
<td>UGRD 2</td>
<td></td>
</tr>
<tr>
<td>338</td>
<td>Professional Practice in Industry</td>
<td>UGRD 2</td>
<td></td>
</tr>
<tr>
<td>339</td>
<td>Communication Theory</td>
<td>UGRD 3</td>
<td></td>
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<tr>
<td>340</td>
<td>Digital Circuit Design</td>
<td>UGRD 3</td>
<td></td>
</tr>
<tr>
<td>341</td>
<td>Electrical Energy Conversion Laboratory</td>
<td>UGRD 2</td>
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<tr>
<td>342</td>
<td>Systems II</td>
<td>UGRD 3</td>
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<tr>
<td>343</td>
<td>Signal Processing Laboratory</td>
<td>UGRD 2</td>
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<tr>
<td>344</td>
<td>Antennas and Propagation for Wireless Systems</td>
<td>UGRD 3</td>
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<tr>
<td>345</td>
<td>Systems II</td>
<td>UGRD 3</td>
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<tr>
<td>346</td>
<td>Individual Studies in Electrical and Computer</td>
<td>UGRD 1-15</td>
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<td>347</td>
<td>Analysis and Design in Circuits and Electronics</td>
<td>UGRD 3</td>
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<td>348</td>
<td>Electromagnetics I</td>
<td>UGRD 3</td>
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<td>349</td>
<td>Electromagnetics II</td>
<td>UGRD 3</td>
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<tr>
<td>350</td>
<td>Electronic Devices and Controls</td>
<td>UGRD 3</td>
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<tr>
<td>351</td>
<td>Systems I</td>
<td>UGRD 3</td>
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**Course Descriptions:**

- **Introduction to Logic Design:** Introduction to combinational switching theory, Boolean algebra, and clocked sequential networks.
- **Introduction to Microprocessor-Based Systems:** Hardware and software organization of a typical microprocessor; machine language programming, interfacing peripheral devices, and input-output programming; real-time computer applications, self-paced laboratory included.
- **Individual Studies in Electrical and Computer Engineering:** Individual Studies in Electrical and Computer Engineering.
- **Electrical Circuits:** Introduction to circuit analysis; circuit analysis concepts and their extension to mechanical and thermal systems by analogy; electrical instruments and measurements.
- **Electromagnetics I:** Waves and pulses on transmission lines including reflections, line impedance, and impedance matching. Static fields including dielectric and ferrite materials, and resistance, inductance and capacitance.
- **Electromagnetics II:** Introduction to time varying fields including Maxwell's Equations and plane wave propagation, reflection and transmission; applications to antennas, guided waves, and radar and communication systems.
- **Electronic Devices and Controls:** Theory and applications of electronic devices; study of control circuits, feedback, operational amplifiers, and instrumentation.
- **Electronic Analysis, Design and Simulation:** Electronic instrumentation; diode and transistor models for amplifiers and switches; electronics of digital circuits; multiple transistor circuit analysis.
- **Electronic Devices and Circuits Laboratory:** Transitron characteristics, large and small signal parameters, transistor bias and amplifier circuits, operational amplifiers, logic circuits, waveform generation.
- **Introduction to Materials for Electrical and Computer Engineering:** Introduction to the interrelation of the structure, properties, and processing of materials, with emphasis on electronic properties.
- **Energy Conversion:** Overview of energy conversion, with emphasis on the operation of AC and DC machines, and various alternative energy conversion processes.
- **Systems I:** Linear systems and models; time responses using convolution; Fourier series and transform; computer-aided analysis.
614 Introduction to Electromagnetic Compatibility UGRD 3
Basic knowledge of electromagnetic compatibility (EMC) fundamentals including government EMC regulations, grounding, shielding, and crosstalk. Sp Qtr. 3 cl. Prereq: 312.

620 Introduction to RF Integrated Circuits UGRD 3
Introduction to design of radio frequency integrated circuits (RFICs). Transceiver architectures, transistor models, passive component models, MOS and bipolar LNA's, Mixers, VCOs, PLLs, baseband circuits. Sp Qtr. 3 cl. Prereq: 323.

624 Power Electronic Devices and Circuits UGRD 3
A study of general laws and constraints in power electronic circuits, switching characteristics, generic converter topologies and their operation principles, desirable switching trajectory, snubber circuits. Au Qtr. 3 cl. Prereq: 323.

628 Electronic Devices and Circuits Laboratory UGRD 2
A laboratory study of converter circuits, switching characteristics of power transistors and thyristors, and effects of circuit elements on the behavior of power converters. Au Qtr. 1 cl, 1 3-hr lab. Prereq: 327; and prereq or concur: 624.

632 Introduction to Nanofabrication and Nanomanufacturing UGRD 3
Novel nanomanufacturing techniques will be introduced with a focus on top down approaches and a brief introduction of bottom up approaches. Au Qtr. 3 cl. Prereq: 331 or MatSc&En 205 or permission of instructor. Not open to students with credit for Biomed E 662 or CHBE 632 or Ind Eng 652.02. Cross-listed with Biomed E 666, CHBE 632, and Ind Eng 652.02.

637 Solid State Microelectronics Laboratory I UGRD 4
Introduction to laboratory techniques including oxidation, chemical processes, photolithography, diffusion, and metallization; fabrication and measurements of planar diodes and transistors. Au Qtr. 2 cl, 1 4-hr lab. Prereq: 432.

640 Industrial/Commercial Power Systems UGRD 3
An introduction to power system design for commercial buildings and industrial plants; legal and economic considerations; equipment specifications and ratings; design practice; fault calculations, protection, and coordination; grounding; and illumination design. Sp Qtr. 3 cl. Prereq: 341.

643 Electric Machines UGRD 3
Magnetic circuits, transformers, electromechanical energy conversion principles, concepts of rotating machines, direct current machines, synchronous machines, and induction machines; steady state and transient analysis. Au Qtr. 3 cl. Prereq: 341.

647 Digital Signal Processing Control of Electric Machines and Drives Laboratory UGRD 2
Students program digital signal processors using assembly language to control electromechanical and power electronic systems. Wi Qtr. 1 4-hr lab. Prereq: 265, 341.

650 Introduction to Estimation UGRD 3
Linear dynamic systems with random inputs, least squares estimation, mean-squared estimation, and Kalman filtering with applications in electrical and computer engineering. Au Qtr. 3 cl. Prereq: 352, and Math 530 or Stat 427.

662 Theory and Design of Digital Computers UGRD 3
Design of general purpose digital computers including arithmetic and control units, input/output, memory subsystems, interrelation of hardware and software systems, and introduction to microprogramming. Au, Sp Qtrs. 3 cl. Prereq: 265 or CS&E 360, and 561.

667 Digital Logic Laboratory UGRD 3
A self-paced laboratory involving the design of basic computer components such as registers, arithmetic logic units, counters, and the design of sequential machines. Su, Au, Wi, Sp Qtrs. 2 cl, 1 3-hr lab. Prereq: 561.

668 Applied Component-Based Programming UGRD 3
for Engineers and Scientists
Application of component-based software engineering technology to design and implementation of software systems in engineering and science. Wi Qtr. 3 cl. Prereq: CS&E 502 or 560. Not open to students with credit for 768 or CS&E 768. Cross-listed in Computer Science and Engineering.

675 Instrumentation, Signals, and Control in Transportation Applications UGRD 3
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. Au Qtr. 2 1.5-hr cl. Prereq: 301 and Math 415; or Civil En 570; or grad standing in elec eng or civil en; or permission of instructor. Cross-listed in Civil Engineering.

682 Organized Group Project for Electrical and Computer Engineering Design II UGRD 3
This design course integrates ECE specializations into a real design project with implementation. The department chooses topics and the teams meet during regular class times. Au, Wi, Sp Qtrs. 2 cl, 1 3-hr lab. Prereq: 582 and sr standing. Not open to students with credit for 683 or H683. Students should check departmental listings.

683 Special Group Project for Electrical and Computer Engineering Design II UGRD 3
This design course integrates ECE specializations into a real design project with implementation. Individual faculty choose topics. Teams of 3 or more meet independently. Su, Au, Wi, Sp Qtrs. Arr. Prereq: 582, sr standing, and permission of instructor. Not open to students with credit for 682 or H683. Students must check with individual faculty prior to registering. Offered summer quarter subject to faculty availability.

683H BS Honors Group Project for Electrical and Computer Engineering Design II UGRD 3
Culmination of multi-quarter thesis integrating various areas into a design project with implementation. Students document a written thesis and final oral presentation. Su, Au, Wi, Sp Qtrs. Arr. Prereq: 582, 3 credits of H783, sr standing, and permission of department. Not open to students with credit for 682 or 683. Before registering for the course, students must document design content, previous collaborative work on their project by noting collaborators, their roles, and how this project fits into a larger research effort. Students normally complete an undergraduate honors thesis by taking H783 followed by H683.

693 Individual Studies in Electrical and Computer Engineering UGRD 1-18
Individual Studies in Electrical and Computer Engineering. Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 18 or hrs. This course is graded S/U.

694 Group Studies in Electrical and Computer Engineering UGRD 1-18
Students should check department listings. Au, Wi, Sp Qtrs. Repeatable to a maximum of 18 cr hrs.

699 Undergraduate Research in Electrical and Computer Engineering UGRD 1-3
Supervised undergraduate research in various topics. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

700 Digital Signal Processing UGRD 3
Vector space methods for signals and systems; least squares design methodologies; design optimization; adaptive filtering; time-frequency techniques. Wi Qtr. 3 cl. Prereq: 600 or equiv, or grad standing.

701 Communication Networks UGRD 3
Introduction to modern communication networks; data traffic, queuing models, multiaccess channels, and selected applications. Sp Qtr. 3 cl. Prereq: Math 530 or Stat 427 or equiv or grad standing.

702 Communications Systems UGRD 3
A study of communications systems with emphasis on signal-to-noise characteristics of various modulation and coding techniques. Sp Qtr. 3 cl. Prereq: 501.

706 Medical Imaging UGRD 3
Introduction to medical imaging techniques, including data collection and image processing for projection X-ray, computed tomography, ultrasonic, and magnetic resonance. Au, Sp Qtrs. 3 cl. Prereq: 352, prereq or concurrent: 582; or grad standing in EE/ECE or BME. Not open to students with credit for Biomed E 706. Cross-listed in Biomedical Engineering.

707 Digital Image Processing UGRD 3
Fundamentals and research directions in image processing: Fourier transforms, sampling, filtering and restoration, compression, edge detection and feature extraction. Wi Qtr. 3 cl. Prereq: 600, Math 530 or Stat 427 or equiv or grad standing.

710 Microwave Circuits UGRD 4
Theory of microwave passive devices, transformers, couplers, filters, resonators, and circulators; computer-aided design of microwave circuits; microstrip realization and testing with a network analyzer. Au, Sp Qtrs. 3 cl, 1 3-hr lab. Prereq: 312 or equiv or grad standing.

711 Radiation from Antennas UGRD 3
Dipole, loop, aperture, reflector, lens, surface wave, and other antennas; array theory; radiation resistance, directivity, and input impedance. Wi Qtr. 3 cl. Prereq: 312 or equiv or grad standing.

713 Elements of Radio Wave Propagation UGRD 3
Practical methods for predicting tropospheric, groundwave, and ionospheric propagation, including refraction, reflection, and extinction effects. * Sp Qtr. 3 cl. Prereq: 312 or equiv or grad standing. Even years.
714 Radar Systems UGRD 3
Study of radar systems and their applications; emphasis on measurement of target parameters by means of radar with applications to ranging, tracking, mapping, and navigation.
* Wi Qtr. 3 cl. Prereq: 312 or grad standing. Even years.

715 Introduction to Numerical Methods for Electromagnetics UGRD 3
Provides an introduction to a set of numerical methods (integral equation, finite difference and finite element methods) used to solve electromagnetic-related problems.

716 Optics with Laser Light UGRD 3
Wave equation, ray optics, optical matrices, near and far-field diffraction theory, diffraction integral with lenses, Fourier optics, optical computing, holography, polarization, birefringence, applications.
* Au Qtr. 3 cl. Prereq: 352 and 312, or grad standing in engineering, chemistry or physics. Even years.

717 Integrated Optics UGRD 3
Fundamentals of planar lightwave circuits and guided wave devices; propagation in anisotropic media; electrooptic and nonlinear optical effects; emerging concepts in R wave solutions in planar multilayered media; Doppler shift; vector potentials and

718 Electromagnetic Field Theory I UGRD 3
Maxwell's equations; constitutive relations; boundary conditions; wave equation; plan

720 Low-Power Mixed-Signal VLSI Design UGRD 3
Low voltage low power analog design for mixed analog/digital VLSI systems in CMOS technologies, OpAmps and comparators, sample and hold, switched capacitor filters, Nyquist and oversampling converters, decimation filters, applications in baseband wireless communications, integrated sensors.

721 Digital VLSI Design UGRD 3
Design and circuit analysis of basic VLSI structures such as adders and registers; custom macro-cell, bit slice, and re-use design concepts; physical layout design, layout parasitics extraction, use of VLSI layout design tools.
Sp Qtr. 3 cl. Prereq: 323 or grad standing.

722 Introduction to Analog Integrated Circuits UGRD 3
Introduction to bipolar and MOS analog integrated circuit (IC) analysis and design. DC biasing for ICs, current sources, sinks and active loads, bandgap references, input and output stages, OpAmp architectures, nonlinear analog ICs. Computer simulation of Analog ICs.
Au Qtr. 3 cl. Prereq: 323 or grad standing.

723 Microwave Transistor Amplifiers and Oscillators Laboratory UGRD 4
Design principles of microwave transistor amplifiers and oscillators; low-noise, power, and broadband amplifiers; and computer-aided design, microstrip realizations, and testing in the laboratory.

724 Power Electronic Devices and Circuits II UGRD 3
General model, operational principles, and application of high-frequency switching power converters.

725 Fundamentals of Semiconductors for Microelectronics and Optoelectronics UGRD 3
Crystal structure, semiconductor energy band structure, electron transport and carrier recombination, heterostructures, optical and dielectric properties, optical semiconductor devices.
Au Qtr. 3 cl. Prereq: 432 or equiv.

731 Fiber Optics UGRD 3
Waveguiding in optical fibers, fiber losses, coupling and power launching, detectors, sources, noise, receiver and transmitter design, link analysis, introduction to fiber sensors.
Sp Qtr. 3 cl. Prereq: 312 and 323; or grad standing.

732 Quantum Electron Devices: Lasers UGRD 3
Atomic interaction with radiation, cavities with gain, pumping techniques, semiconductor lasers.
* Au Qtr. 3 cl. Prereq: 432 and 312, or grad standing in engineering, chemistry, or physics. Odd years.

734 Silicon VLSI Process Technology UGRD 3
Discrete and integrated circuit device design and silicon technologies, VLSI processing procedures, and device measurements for process development.
* Sp Qtr. 3 cl. Prereq: 432. Odd years.

735 Compound Semiconductor Process Technology UGRD 3
III-V compound semiconductor device fabrication technology; epitaxy, doping, bandgap engineering; GaAs and InP high speed devices and IC design approaches; testing and failure mechanisms.
* Wi Qtr. 3 cl. Prereq: 432. Even years.

736 Electronic Surfaces and Interfaces UGRD 3
Physical principles governing electronic, chemical, and structural properties of semiconductor interfaces and the techniques available to characterize them.
* Wi Qtr. 3 cl. Prereq: 331 or equiv. Cross-listed in Physics (as special topics course). Odd years.

737 Photonics Laboratory UGRD 4
Experiments in photonics from among: fiber optics, liquid crystals, quantum devices, optical sensing, acousto-optics, lasers, solar cells, holography, and optical computing. Supplemental lecture.
* Wi Qtr. 2 cl, 1 4-hr lab. Prereq: 312, and prereq or concur 432; or grad standing. Odd years.

740 Electric Power System Analysis UGRD 3
A study of major components and steady state operation of electric power systems; network concepts, symmetrical components, asymmetrical systems, power flow, and system stability.
Au Qtr. 3 cl. Prereq: 341.

741 Electric Power System Protection UGRD 3
A study of methods and devices used in system protection; protection systems, relay types, pilot wire and carrier systems, relay response, protection of machines, transformers, buses, and lines; instrument transformers; and modern trends in protection.
Wi Qtr. 3 cl. Prereq: 740.

743 Electromechanical Motion Devices UGRD 3
Electromechanical energy conversion, dynamic models for control of electric machines, design and analysis of electromechanical motion devices.
Sp Qtr. 3 cl. Prereq: 351, and prereq or concur 341; or permission of instructor.

747 High Voltage Engineering and Laboratory I UGRD 4
Dielectric strength and breakdown of gases, liquids, and solids, electric field design problems in power system equipment; laboratory study of high voltage insulation.
Wi Qtr. 3 cl, 1 2-hr lab. Prereq: 341.

750 Linear System Theory UGRD 3
Canonical realization of transfer functions; state observability and controllability; state feedback and asymptotic observers; reduced order observers; direct transfer function design.
Au Qtr. 3 cl. Prereq: 352 and 551; or grad standing.

752 Feedback Control Systems UGRD 3
Principles of feedback control, robustness, sensitivity and performance objectives, classical controller design methods, introduction to loop shaping and parameterization of stabilizing controllers.
Sp Qtr. 3 cl. Prereq: 551 or grad standing.

753.01 Applications of Control: Powertrain Control UGRD 4
Classical and modern control methods applied to automotive powertrain systems; overview of production hardware; sensors and actuators; modeling for control.
* Wi Qtr. 2 2-hr lab. Prereq: 551 or grad standing. Odd years.

753.02 Applications of Control: Autonomy in Vehicles UGRD 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).
* Wi Qtr. 3 cl. Prereq: 551 or grad standing. Even years.

754 Nonlinear Systems UGRD 3
Analysis of nonlinear control systems; Lyapunov stability, numerical methods, phase-plane techniques, describing functions, and linearization via feedback.
Wi Qtr. 3 cl. Prereq: 551 or grad standing.

755 Digital Control Systems UGRD 3
Difference equations, z-transforms, digital filtering, sampling quantization, analog-digital conversion; block diagramming to model digital and hybrid control systems.
Wi Qtr. 3 cl. Prereq: 551 or grad standing.

757 Control Interfacing and Design Laboratory UGRD 3
Laboratory study of feedback control systems with experiments analyzing different types of plants, transducers, and control techniques; emphasis on real-time computer control.
* Sp Qtr. 2 cl, 1 4-hr lab. Prereq: 265, and 755 or 557; or grad standing. Even years.

758 Control System Implementation Laboratory UGRD 3
Laboratory study of advanced feedback control techniques as applied to nonlinear and multi-output systems under computer or microprocessor control.
* Sp Qtr. 1 2-hr cl, 1 4-hr lab. Prereq: 557 or 755 or grad standing. Odd years.
759   Numerical Optimization for Electrical Engineers  
Numerical optimization techniques as applied to selected electrical engineering application areas. 
Wi Qtr. 3 cl. Prereq: 352. Not open to students with credit for 694U.

761   Switching Circuit Theory  
Minimization of multiple output combinational circuits, computer-aided design, state minimization, asynchronous sequential machines, state assignment, transient analysis. 
Au Qtr. 3 cl. Prereq: 662 or CS&E 675.01.

762   Theory and Design of Digital Computers II  
Detailed design of major components of modern computer architecture; design of controllers, ALUs, floating point units, caches, and memory management units using hardware description language. 
Sp Qtr. 3 cl. Prereq: 561 or equiv, and 662 or CS&E 675.01 or equiv.

763   Introduction to Real-Time Robotics Systems  
Components of a Robot System, types, electronic system components, and analog-digital conversion; error analysis; hardware and software. 
* Au Qtr. 3 cl. Prereq: 265, 352, 323; or grad standing. Odd years.

764   Functional Verification of Hardware Designs  
Techniques for verification of hardware designs; writing test benches; verification of increasingly complex computer circuit designs provided by industry using simulation environments used in industry. 
Sp Qtr. 2 cl, 1.5-hr lab. Prereq: 762.

765   Microcomputer Structures  
An investigation of current microcomputer structures with emphasis on hardware implementation of I/O, direct memory access, interrupts, memory, and microprogramming. 
Au Qtr. 3 cl. Prereq: 662.

766   Computer Interfacing and Protocols  
A hardware oriented course dealing with the electrical principles of computer interfaces for digital communication including time domain effects, serial/parallel interfaces, modems, and associated protocols. 
Wi Qtr. 3 cl. Prereq: 561.

767   Applied Use-Case-Driven Object-Oriented Analysis and Design for Engineers and Scientists  
Case study using incremental and iterative use-case-driven process of building object-oriented scientific and engineering software systems; analysis, design, UML modeling design patterns. 
* Sp Qtr. 3 cl. Prereq: 668 or CS&E 668. Not open to students with credit for CS&E 767. Cross-listed in Computer Science and Engineering. Odd years.

769   Applied Enterprise Distributed Computing  
Industry-standard technologies for enterprise distributed computing, especially in engineering and scientific contexts; Java-based technologies, XML, Web Services. 
* Sp Qtr. 2.5-hr cl. Prereq: CS&E 660; and ECE or CS&E 668. Not open to students with credit for ECE 694R or CS&E 794R or CS&E 769. Cross-listed in Computer Science and Engineering.

776.01   Reliability Engineering I  
Engineering system reliability modeling and prediction; reliability of programmable devices and human reliability; reliability and risk management of engineering systems 
Au Qtr. 2.2-hr cl. Prereq: 351 or Ind Eng 509 or Mech Eng 481 or grad standing. Cross-listed in Industrial and Systems Engineering, and Mechanical Engineering.

776.02   Reliability Engineering II  
Reliability of mechanical and electrical devices, systems, and engineering processes. 
Wi Qtr. 2.2-hr cl. Prereq: 776.01 or Ind Eng 776.01 or Mech Eng 776.01 or permission of instructor. Cross-listed in Industrial and Systems Engineering, and Mechanical Engineering.

776.03   Reliability Engineering Applications  
Study and design of a complete reliability program for a selected engineering system. 
Wi Qtr. 1 cl. Prereq or concur: 776.02 or Ind Eng 776.02 or Mech Eng 776.02 or permission of instructor. Cross-listed in Industrial and Systems Engineering, and Mechanical Engineering.

779   Introduction to Neural Networks  
Wi Qtr. 3 cl. Prereq: 600 or 662 or CS&E 630 or permission of instructor. Not open to students with credit for CS&E 779. Cross-listed in Computer Science and Engineering

783H   Honors Program Research  
Honors program students are offered the opportunity to pursue independent distinction project/research. Student presentations and thesis writing included. 
Su, Au, Wi, Sp Qtr. Arr. Prereq: Sr standing in Elec & Cptr Eng, minimum CPHR of 3.4, and permission of instructor. Open only to Elec & Cptr Eng undergraduate students and students in BS/MS program. Repeatable to a maximum of 6 cr hrs.

793   Individual Studies in Electrical and Computer Engineering  
Individual Studies in Electrical and Computer Engineering. 
Su, Au, Wi, Sp Qtr. Repeatable to a maximum of 18 cr hrs. Offered summer quarter subject to faculty availability. This course is graded S/U.

800   Stochastic Digital Signal Processing  
Signal processing techniques for stochastic signals. Vector space methods, optimal filtering and prediction, parametric and nonparametric estimation; harmonic retrieval; applications. 
* Sp Qtr. 3 cl. Prereq: 700 and 805. Odd years.

801.01 Advanced Topics in Signal Processing: Adaptive Filtering  
Theory and application of adaptive filtering algorithms; LMS and RLS and their variants; convergence and tracking properties. 
* Au Qtr. 3 cl. Prereq: 650 or 805; and 750 or Math 601. Not open to students with credit for 894A. Odd years.

801.02 Advanced Topics in Signal Processing: Information Theory  
Mathematical models for channels and sources: entropy, information, data compression, channel capacity, Shannon's theorems, rate distortion theory. 
* Wi Qtr. 3 cl. Prereq: 804. Not open to students with credit for 894I. Odd years.

802   Digital Speech Processing Systems  
The rapid rise of multimedia and cellular communications has led to widespread use of digital voice processing. This course is designed to prepare graduate students for research in this area. 
* Au Qtr. 3 cl. Prereq: 600 and 804. Even years.

803   Coding Theory  
Error detection and correction codes for communications and data storage, finite field and polynomial algebra, linear codes, Hamming and Reed-Mueller codes, cyclic codes, burst error correction codes, interleaving, Fire codes, and Reed-Solomon codes. 
* Wi Qtr. 3 cl. Prereq: 804. Even years.

804   Random Signal Analysis  
Probability, random variables, and random vectors for analysis and research in electrical engineering. Distribution functions and densities, expectation, characteristic functions, functions of random variables, random vectors and sequences, stochastic convergence. 
Au Qtr. 3 cl. Prereq: 352 or equiv; Stat 427 or Math 530 or equiv.

805   Random Processes and Applications  
Random processes; autocorrelation and cross-correlation functions; energy and power spectral densities; mean-square calculus; minimum mean squared error signal estimators; optimal filtering; random processes as inputs to linear systems; applications to communications and signal processing. 
Wi Qtr. 3 cl. Prereq: 804.

806   Signal Detection and Estimation  
Binary and M-ary decision theory; Bayes, minimax, ideal, and Neyman-Pearson detectors; maximum likelihood and maximum a posteriori estimation; and receiver operating characteristics. 
Sp Qtr. 3 cl. Prereq: 805.

807   Advanced Communication Theory I  
Advanced topics in wireless communication systems. Topics are selected to prepare graduate students for research and application to current problems in the field. 
* Sp Qtr. 3 cl. Prereq: 809. Odd years.

808   Advanced Communication Theory II  
Advanced topics in communication theory. Topics are selected to prepare graduate students for research and application to current problems in the field. 
* Au Qtr. 3 cl. Prereq: 806. Even years.

809   Digital Communication Theory  
A study of digital communications theory with emphasis on performance, spectral characteristics, and complexity. Statistical decision theory is applied to digital communications problems. 
Sp Qtr. 3 cl. Prereq or concur: 806.

810   Electromagnetic Field Theory II  
Electromagnetic field theories with applications; separable guided wave and scattering boundary value problems; one-dimensional Green's functions with applications; multi-conductor transmission lines. 
Wi Qtr. 3 cl. Prereq: 719.
<table>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>811</td>
<td>Electromagnetic Field Theory III</td>
<td>GRAD 3</td>
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<tr>
<td>812</td>
<td>Electromagnetic Guided Waves</td>
<td>GRAD 3</td>
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<tr>
<td>813</td>
<td>Finite Elements for Electromagnetics</td>
<td>GRAD 3</td>
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<tr>
<td>815</td>
<td>Advanced Antenna Theory</td>
<td>GRAD 3</td>
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<td>816</td>
<td>Electromagnetic Scattering from Random Media</td>
<td>GRAD 3</td>
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<tr>
<td>817</td>
<td>Discrete Electromagnetics</td>
<td>GRAD 3</td>
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<td>820</td>
<td>Analog VLSI Design</td>
<td>GRAD 3</td>
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<td>822</td>
<td>Hierarchical Design, Capture, and Verification of Mixed Signal Systems</td>
<td>GRAD 3</td>
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<tr>
<td>831</td>
<td>Semiconductor Device Theory</td>
<td>GRAD 3</td>
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<tr>
<td>832</td>
<td>High-Speed Semiconductor Devices</td>
<td>GRAD 3</td>
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<tr>
<td>833</td>
<td>Optical Effects in Materials and Devices</td>
<td>GRAD 3</td>
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<tr>
<td>835.01</td>
<td>Special Topics in Nanostucture Devices: Advanced Photovoltaics</td>
<td>GRAD 3</td>
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<tr>
<td>835.02</td>
<td>Special Topics in Nanostucture Devices: Special Topics on Organic Conducting Devices</td>
<td>GRAD 3</td>
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</tr>
<tr>
<td>842</td>
<td>Power System Stability and Control</td>
<td>GRAD 3</td>
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<tr>
<td>844</td>
<td>Application of Power Electronic Circuits in Electric Power Systems</td>
<td>GRAD 3</td>
<td></td>
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<tr>
<td>845</td>
<td>Electromechanical System Identification</td>
<td>GRAD 3</td>
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<tr>
<td>846</td>
<td>Advanced Feedback Control</td>
<td>GRAD 3</td>
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<tr>
<td>847</td>
<td>Large Scale Systems</td>
<td>GRAD 3</td>
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<td>854</td>
<td>Optimal Control Theory</td>
<td>GRAD 3</td>
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<td>855</td>
<td>Systems Biology of Decision Making</td>
<td>GRAD 3</td>
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<td>856</td>
<td>Control and Transient Stability of Power Systems</td>
<td>GRAD 3</td>
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<td>857</td>
<td>Nonlinear Control Systems</td>
<td>GRAD 3</td>
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<td>858</td>
<td>Systems Biology of Decision Making</td>
<td>GRAD 3</td>
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<td>861</td>
<td>Computer Communication Networks</td>
<td>GRAD 3</td>
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<td>862</td>
<td>Computer Communication Networks</td>
<td>GRAD 3</td>
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* Sp Qtr. 3 cl. Prereq: 719 or equiv. Odd years.
* Wi Qtr. 2 1.5-hr cl. Prereq: 715. Even years.
* Sp Qtr. 3 cl. Prereq: 810. Not open to students with credit for 894J. Odd years.
* Sp Qtr. 3 cl. Prereq: 715. Not open to students with credit for 894K. Odd years.
* Wi Qtr. 3 cl. Prereq: 811. Odd years.
* Wi Qtr. 3 cl. Prereq: 720, and prereq or concur 721; or grad standing.
* Wi Qtr. 3 cl. Prereq: 730 or equiv. Even years.
* Sp Qtr. 3 cl. Prereq: 730 or equiv. Even years.
* Wi Qtr. 3 cl. Prereq: 730. Odd years.
* Wi Qtr. 3 cl. Prereq: 730. Odd years.
* Wi Qtr. 3 cl. Prereq: 740 or permission of instructor. Odd years.
* Sp Qtr. 3 cl. Prereq: 650 and 743. Even years.
**Computer Vision**

Computer vision systems, image models, edge detection, feature extraction, shape representation, morphology, structural descriptions, object modeling, matching, knowledge bases, semantic knowledge, architectures, and depth perception. Sp Qtr. 3 cl. Prereq: 707 or permission of instructor.

**Advanced Computer Design**

Parallel computer architectures, pipeline design, multiprocessor design, interprocessor communication, case studies and application examples. Wi Qtr. 3 cl. Prereq: 662.

**Multisensor Integration for Intelligent Systems**

Physical sensing devices, multisensor interface, sensor data fusion, object recognition by multisensor integration, and system organization for multisensor integration. * Au Qtr. 3 cl. Prereq: 662, 763, Math 530 or Stat 427 or equiv, and CS&E 660. Even years.

**Design of Advanced Data Networks**

Recent advances in design and implementation of advanced data networks; consists of in-depth study on network protocols/algorithms and discussion on protocol implementation with software system building. * Au Qtr. 3 cl. Prereq: 701 or CS&E 677. Odd years.

**Pattern Recognition**

Fundamentals of pattern recognition techniques and their application to electrical and computer engineering problems, cognitive neuroscience and bioinformatics. * Sp Qtr. 3 cl. Prereq: 804 or 707 or CS&E 730. Not open to students with credit for 894T. Odd years.

**Seminar in Electrical Engineering**

Seminar in Electrical Engineering. Su, Au, Wi, Sp Qtrs. 1-3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

**Open Graduate Seminar**

As an introduction to potential research areas, students will attend OSU sponsored talks relevant to topics in Electrical and Computer Engineering and critique them by written reports. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Grad standing in ECE. Repeatable to a maximum of 6 cr hrs. The credit earned for this class will not be counted as part of the hour requirement for the Masters degree, nor can it be used as any part of the three areas of emphasis on the PhD Plan of Study. This course is graded S/U.

**Interdisciplinary Seminar on Biomedical Systems**


**Group Studies in Electrical Engineering**


**Periodic Structures in Electromagnetics**

Development of the Dyadic Green's function for one and two dimensional periodic structures of arbitrarily oriented elements; application to phased arrays with and without scan compensations. * Wi Qtr. 3 cl. Prereq: 711, 810, 815, or permission of instructor. Even years.

**Advanced Optical Concepts**

Fiber and integrated optics and their applications, optical transfer functions, aberrations, optical thick holograms, numerical optical computing, and liquid crystals. * Wi Qtr. Prereq: 716 or permission of instructor. Odd years.

**Research in Electrical Engineering**

Research for thesis or dissertation purposes only. Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

**Individual Studies in Emergency Medicine**

Research on a basic science or clinical issue in Emergency Medicine (under faculty supervision). Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor and grad standing in the M.S. program in Medical Sciences. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

**Research in Emergency Medicine**

Research for thesis or dissertation purposes only. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor and grad standing in the M.S. program in Medical Sciences. Repeatable. This course is graded S/U.
100.12 Mechanical Engineering Survey UGRD 1
Academic requirements; University procedures, grading system, and resources; overview of engineering academic areas of study and services: Mechanical Engineering Survey.
Prereq: Enrollment in ENG. Not open to students with credit for Agr 100, Arts Col 100, Arts&Sciences 100, Home Ec 100, Nat Res 100, and UVC 100.

100.13 Welding Engineering Survey UGRD 1
Academic requirements; University procedures, grading system, and resources; overview of engineering academic areas of study and services: Welding Engineering Survey.
Prereq: Enrollment in ENG. Not open to students with credit for Agr 100, Arts Col 100, Arts&Sciences 100, Home Ec 100, Nat Res 100, and UVC 100.

100.14 Undeclared Engineering Survey UGRD 1
Academic requirements; University procedures, grading system, and resources; overview of engineering academic areas of study and services: Undeclared Engineering Survey.
Prereq: Enrollment in ENG. Not open to students with credit for Agr 100, Arts Col 100, Arts&Sciences 100, Home Ec 100, Nat Res 100, and UVC 100.

100.15 Women in Engineering Survey UGRD 1
Academic requirements; University procedures, grading system, and resources; overview of engineering academic areas of study and services: Women in Engineering Survey.
Prereq: Enrollment in ENG. Not open to students with credit for Agr 100, Arts Col 100, Arts&Sciences 100, Home Ec 100, Nat Res 100, and UVC 100.

100.16 Biomedical Engineering Survey UGRD 1
Academic requirements; University procedures, grading system, and resources; overview of engineering academic areas of study and services: Biomedical Engineering Survey.
Prereq: Enrollment in ENG. Not open to students with credit for Agr 100, Arts Col 100, Arts&Sciences 100, Home Ec 100, Nat Res 100, and UVC 100.

100.17 Environmental Engineering Survey UGRD 1
Academic requirements; University procedures, grading system, and resources; overview of engineering academic areas of study and services: Environmental Engineering Survey.
Prereq: Enrollment in ENG. Not open to students with credit for Agr 100, Arts Col 100, Arts&Sciences 100, Home Ec 100, Nat Res 100, and UVC 100.

180 Freshman Engineering Seminar UGRD 1
Seminar for pre-engineering students to develop their skills and practice these skills in their Pre-Calculus Mathematics courses.
Su, Au, Wi, Sp Qtrs. 2 1-hr rec. Prereq: Enrollment as Pre-Engineering, enrollment in Math 140 or 148 and in Engineer 100 or Univ Col 100 concurrently. This course is graded S/U.

181.01 Introduction to Engineer I UGRD 3
Visualization and sketches, introduction to spreadsheets and CAD, working drawings, experimental design and data analysis, team work, problem solving approaches, hands on lab experience. Standard course.
Su, Au, Wi, Sp Qtrs. 2 3, 1 lab hrs. Prereq or concur: Math 150 or higher. Au qtr only open to students enrolled in the College of Engineering; exception: ENG Minor students by permission of instructor.

181.02 Introduction to Engineer I UGRD 3
Visualization and sketches, introduction to spreadsheets and CAD, working drawings, experimental design and data analysis, team work, problem solving approaches, hands on lab experience. Intro to Green Engineering Principles.
Au Qtr. 2 3, 1 lab hrs. Prereq or concur: Math 150 or higher. Engineering Scholar students only, by permission of advisor. Autumn quarter only open to students enrolled in the College of Engineering.

181.03 Introduction to Engineer II UGRD 3
Team building, design/build project; project management, introduction to MATLAB, written and oral reports, preparation of visual aids, hands-on lab and reporting. Standard course.
Su, Wi, Sp Qtrs. 2 3, 1 lab hrs. Prereq: 181 or 181.01 or 181.02 or 191H or 191.01H or 191.02H. Not open to students with credit for 182.

181.04 Introduction to Engineer II UGRD 3
Team work, design/build project; project management, introduction to MATLAB, written and oral reports, hands-on labs (oral and written). Continued emphasis on Green Engineering Principles.
Wi Qtr. Prereq: 181.02 or 191H or 191.01H or 191.02H or permission of instructor. This course is open to Engineering Scholars students only, by permission of advisor.

181.05 Introduction to Engineer II UGRD 3
Team work, design/build project; project management, introduction to MATLAB, written and oral reports, hands-on labs (oral and written). Emphasis on Nanotechnology.
Wi, Sp Qtrs. Prereq: 181 or 181.01 or 181.02 or 191H or 191.01H or 191.02H. Not open to students with credit for 182.

185 Introduction to Engineering TI - Basic Skills UGRD 2
Introduction to teamwork, oral and written communication, ethics, basic engineering tools, hands-on laboratories, and design.
Au, Wi Qtrs. 2 2-hr cl. Prereq: "K" credit for 186 or 187 or permission of instructor; Math 150 or concur. Not open to students with credit for 181, 182, or 183. Serves as a partial requirement, intended for transfer students, of the required 181-183 course sequence.

186 Introduction to Engineering TII - Graphics Communications UGRD 2
Introduction to three-dimensional visualization and presentation with freehand, manual, and CAD (computer aided drawing and design) methods.
Au, Wi Qtrs. 2 2-hr cl. Prereq: "K" credit for 185 or 187 or permission of instructor; Math 150 or concur. Not open to students with credit for 181, 182, or 183. Serves as a partial requirement, intended for transfer students, of the required 181-183 course sequence.

187 Introduction to Engineering TIII - Computer Aided Problem Solving UGRD 2
Introduction to managing variables, importing and exporting data, performing calculations, generating plots, and developing and managing files using computer applications.
Wi, Sp Qtrs. 2 2-hr cl. Prereq: "K" credit for 185 or 187 or permission of instructor; Math 150 or concur. Not open to students with credit for 181, 182, or 183. Serves as a partial requirement, intended for transfer students, of the required 181-183 course sequence.

191.01H Engineering Fundamentals and Laboratory UGRD 4 I
Introduction to three-dimensional visualization and presentation by sketching and CAD, engineering problem solving, spreadsheet use, experimental design, data analysis, lab experience and reporting. Standard course.
Au Qtr. 4 2-hr cl and lab. Prereq or concur: Math 151 or higher, available to students designated Honors or by permission of instructor. Not open to students with credit for 181. First of a three course sequence.

191.02H Engineering Fundamentals and Laboratory UGRD 4 I
Intro to 3-dimensional visualization and presentation by sketching and CAD, engineering problem solving, spreadsheet use, experimental design, data analysis, lab and reporting (oral and written). Summer Academy. Highschool Honors Designated Students.
Su Qtr. Prereq: Admission by permission of Instructor only. First of a three course sequence.

192.01H Engineering Fundamentals and Laboratory UGRD 4 II
Solving engineering problems using programming, development of algorithms, introduction to C/C++ language, MATLAB, data acquisition and reduction techniques, hands-on lab experience and reporting. Standard course.
Wi Qtr. Prereq: 191H or 191.01H or 191.02H or permission of instructor. Second of a three course sequence.

192.02H Engineering Fundamentals and Laboratory UGRD 4 II
Solving engineering problems using programming, development of algorithms, introduction to C/C++ language, MATLAB, data acquisition and reduction techniques, hands-on lab experience and reporting. Section is for students who are advanced in computer programming skills, permission required.
Wi Qtr. Prereq: 191H or 191.01H or 191.02H or permission of instructor. Second of a three course sequence.

193.01H Engineering Fundamentals and Laboratory UGRD 4 III
Design/build team project with written and oral documentation and project management. Requires integration and application of concepts from previous engineering, math, and physics courses. Standard course.
Sp Qtrs. 3 2-hr lab/lab. Prereq: Eng 192E or Eng 192.01H or Eng 192.02H or permission of instructor. Not open to students with credit for Eng 183. Third of a three course sequence.

193.02H Engineering Fundamentals and Laboratory UGRD 4 III
Design/build team project with written and oral documentation and project management. Requires integration and application of concepts from previous engineering, math, and physics courses. Emphasis on Nanotechnology.
Sp Qtrs. Prereq: Eng 192E or Eng 192.01H or Eng 192.02H or permission of instructor. Not open to students with credit for Eng 183. Third of a three course sequence.
193.03H Engineering Fundamentals and Laboratory UGRD 4 III
Design/build team project with written and oral documentation and project management. Requires integration and application of concepts from previous engineering, math, and physics courses. Infrastructure Systems or other alternative design project option. Sp Qtr. Prereq: Eng 192H or Eng 192.01H or Eng 192.02H or permission of instructor. Not open to students with credit for Eng 183.

194 Group Studies in Engineering UGRD 1-6
Special topics of general interest to engineering students. Su, Au, Wi, Sp Qtrs. 194H (honors) may be available to students enrolled in an honor program or by permission of department or instructor. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs.

195 Women in Engineering UGRD 1
Guest speakers share their knowledge and experience about the areas and career options available in engineering; class discussions; activities for building professional awareness. Sp Qtr. 1 cl. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.

198 Explore Engineering UGRD 1
Lectures and discussion of various engineering disciplines: current activities, expectations, responsibilities and future trends. Sp Qtr. 2 cl. This course is graded S/U.

201 Technologies Studies I: Analyzing Our World UGRD 5
Introduction to technology concepts for students without extensive math or science backgrounds. Course explores aspects of design, communications, energy, and manufacturing. Au, Wi Qtrs. Prereq: GEC natural science course in Biology, Chemistry, or Physics. Not open to Engineering Majors.

202 Technologies Studies II: Analyzing Our World UGRD 5
Introduction to technology concepts for students without extensive math or science backgrounds. Course explores aspects of design, communications, energy, and manufacturing. Au, Wi, Sp Qtrs. Prereq: 201. Not open to Engineering Majors.

259 Fundamentals of Success for Engineering Students UGRD 5
Teaches time management and study skills to promote academic success. Students learn study skills and practice time management in relation to their engineering coursework. Wi, Sp Qtrs. 2.2-hr cl. This class focuses on technical courses and is therefore limited to engineering students.

293 Individual Studies in Engineering UGRD 1-5
Opportunity for first year students to participate in supervised individual engineering experiences. Su, Au, Wi, Sp Qtrs. 293H (honors) may be available to students enrolled in an honor program or by permission of department or instructor. Prereq: Permission of Associate Dean for Academics or Faculty Coordinator for Freshmen Programs. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.

294 Group Studies in Engineering UGRD 1-6
Special topics of general interest to engineering students. Su, Au, Wi, Sp Qtrs. 294H (honors) may be available to students enrolled in an honor program or by permission of department or instructor. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

360.01 History of Ancient Engineering UGRD 5
History of ancient engineers, engineering processes and products. Wi Qtr. 3.15-hr cl. Prereq: English 110 or equiv. GEC historical study course.

360.02 History of American Technology UGRD 5
History of the interaction of American technology and society from colonial times to the present. Sp Qtr. 3.15-hr cl. Prereq: English 110 or equiv. GEC historical study course.

367 American Attitudes about Technology UGRD 5
Exploration of various perspectives regarding the impact of engineering and technology on American culture. Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: English 110 or 111, and soph standing or above. GEC second writing and social diversity course.

400.01 The Ohio State Engineer Magazine Staff UGRD 1-3
Students run and publish an engineering and architectural magazine that increases the knowledge by publishing informative articles and information on perspective employers and student events. Designed for writers, photographers, and other contributors to The Ohio State Engineer Magazine. Prereq: Permission of magazine project advisor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

400.02 The Ohio State Engineer Magazine Management UGRD 1-3
Students run and publish an engineering and architectural magazine that increases the knowledge by publishing informative articles and information on perspective employers and student events. Designed for the student managers of The Ohio State Engineer. Prereq: Permission of magazine project advisor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

494 Group Studies in Engineering UGRD 1-6
Special topics of general interest to engineering students. Su, Au, Wi, Sp Qtrs. 494H (honors) may be available to students enrolled in an honor program or by permission of department or instructor. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs.

510 Fundamentals of Engineering (FE) UGRD 1
Examination Review
A twenty session review of all general engineering topics covered in the engineering licensing examination: Fundamentals of Engineering (FE) Morning Examination and General Afternoon Examination. Wi Qtr. 2.15-hr cl. Prereq: Sr standing in the College of Engineering or have an Engineering degree, or permission of instructor. This course is graded S/U.

581 Engineering Capstone Collaboration UGRD 2-4
Students contract to collaborate with an engineering capstone design team for at least one quarter and contribute their disciplinary expertise. Su, Au, Wi, Sp Qtrs. Prereq: Permission of the Engineering department. Not open to Engineering majors. Repeatable to a maximum of 8 cr hrs.

582 Technology Issues Seminar UGRD 2
Lecture and discussion of current technological issues and their implications presented by leading experts in the area. Builds understanding of issues for informed citizenship Su, Wi, Sp Qtrs. Prereq: 183.xx or 193.xxH or 185 or 202. Repeatable to a maximum of 8 cr hrs.

658 Introduction to Multidisciplinary Design UGRD 3
Engineering Capstone Design
A multidisciplinary introduction to the modern engineering design principles, process professional skills and specific tactical tools used for project management during design. Au Qtr. Prereq: Rank 4 or graduate standing and permission of instructor. Not open to students with credit for 659.01 or 659.02.

659.01 Multidisciplinary Engineering Capstone Project I UGRD 3
An engineering capstone design project experience in a multidisciplinary environment involving real world design projects. Wi Qtr. Prereq: Rank 4 or graduate standing and permission of instructor. This course is Progress graded. Sequenced with 659.02. This is a progress course with a grade rendered upon completion of 659.02.

659.02 Multidisciplinary Engineering Capstone Project II UGRD 3
An engineering capstone design project experience in a multidisciplinary environment involving real world design projects. Prerequisite: completion of 659.01 or 659.02. Prereq: 659.01. Sequenced with 659.01.

680 Leading in Engineering Organizations UGRD 2
Understanding and utilizing keys to leading in engineering. Exposure to the underpinning of leadership in engineering environments including tenets, theories, debates, strategies, and innovation techniques. Sp Qtr. Prereq: Rank 3 or 4 or grad standing. Opportunity for students to interact with technical/engineering leaders from government and industry will be provided. Practical applications for new engineers will be developed.

689 Professional Practice in Engineering UGRD 0
Students complete a cooperative assignment in private industry or for a government agency; assignment is supervised by the employer and monitored and evaluated by the co-op program. Su, Au, Wi, Sp Qtrs. Prereq: Permission of the Director of the Co-op Program in Engineering. Repeatable. This course is graded S/U.

692 Service Learning in Engineering UGRD 1-4
Experiential education characterized by participation in an organized service activity connected to specific learning outcomes. Meets community needs and includes student reflection. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of the Director of the Co-op Program in Engineering. Repeatable. This course is graded S/U.

694 Group Studies in Engineering UGRD 1-6
Special topics of general interest to engineering students. Su, Au, Wi, Sp Qtrs. 694H (honors) may be available to students enrolled in an honor program or by permission of department or instructor. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs.
Engineering Graphics

121 Graphic Presentation I UGRD 3
Presentation of three-dimensional subjects by precise graphics: orthographic, sectional, pictorial, and introduction to computer graphics.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl and lab. VPA Admin Cond course.

122 Graphic Presentation II UGRD 3
Continuation of 121; elements of descriptive geometry, intersections, and development of surfaces, shade, and shadow.
Au, Wi, Sp Qtrs. 3 2-hr cl and lab. Prereq: 121. VPA Admin Cond course.

166 Engineering Graphics and Problem Solving UGRD 4
Introduction to 3-dimensional visualization and presentation with freehand, manual, and CADD methods; introduction to engineering problem solving and reporting.
Su, Au, Wi, Sp Qtrs. 4 2-hr cl. Prereq or concur: Math 150 or better; status as an engineering major, pre-major, or engineering undecided, or written permission of instructor. Not open to students with credit for 110. VPA Admin Cond Course.

167 Problem Solving through Programming for Engineering Calculations and Computer Graphics

Solving engineering problems using computer programming; development of algorithms and program modules; solutions to major problems will be presented in an engineering report format.
Su, Au, Wi, Sp Qtrs. 4 2-hr cl/lab. Prereq or concur: Math 151 or better. Not open to students with credit for 200. VPA Admin Cond Course.

204 Technical Drawing UGRD 3
Various systems of size description including precision dimensioning; fastening systems; and organization and preparation of engineering drawings, perspective, and computer graphics.
Au, Wi, Sp Qtrs. 2 2-hr cl and lab. Prereq: 121 or written permission of instructor.

294 Group Studies in Engineering Graphics UGRD 1-5
Group studies of specially selected topics.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.

410 Computer Graphics UGRD 3
An advanced course in graphics with emphasis on the application of computer-generated graphics to the solution of engineering problems.
Su, Au, Wi, Sp Qtrs. Prereq: 166 or Engineer 182 or Engineer 194.07.

593 Individual Studies UGRD 1-5
Opportunity to pursue special-interest topics not otherwise offered.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies in Engineering Graphics UGRD 1-5
Special topics in engineering graphics; topics, credit hours, and instructor announced the quarter proceeding the offering.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs.

794 Group Studies UGRD 1-5
Interdisciplinary topics related to engineering design, graphics, and vision.
Su, Au, Wi, Sp Qtrs. Arr cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

English

101 American Sign Language I UGRD 5
Speaking and listening skills in American Sign Language development at an informal conversational level; instruction occurs primarily in ALS without speech.
2 2-hr cl. GEC for lang course.

102 American Sign Language II UGRD 5
Expands on skills learned in English 101; more complex conversations about self, others, activities; culture and politics of American Deaf Community explored.
2 2-hr cl. Prereq: 101 or equiv. GEC for lang course.

109.01 Intensive Writing and Reading I UGRD 5
First course in a two-course sequence that provides intensive practice in integrating academic reading and writing.
Prereq: English Placement Test score of 6. Not open to students with credit for 052, 060, 110W, 110, or 111. Credit may not count toward graduation in some degree programs.

109.02 Intensive Writing and Reading II UGRD 5
Second course in a two-course sequence that provides intensive practice in integrating academic reading and writing.
Prereq: 109.01. Not open to students with credit for 053, 060, 110W, 110, or 111. Credit may not count toward graduation in some degree programs.

110.01 First-Year English Composition UGRD 5
Practice in the fundamentals of expository writing, as illustrated in the student's own writing and in the essays of professional writers.
No preprer except when testing determines 052, 053, 106, 107, 109.01, 109.02, 110.03 or EDU T&L 108.01 to be required. Prereq: English placement level 4 or 109.02 or EDU T&L 108.01. Not open to students with credit for 110, 110C, 110L, 110W, H110, H111, H111i, or H167. Not open to students with credit for 110, 110.02 or 110.03. This course is available for EM credit only through the AP program. GEC first writing course.
May be available as service learning course with 5 hours community service required at Lima campus only.

110.01H Honors First-Year English Composition UGRD 5
Intensive practice in the fundamentals of writing for selected students, as illustrated in the student's own writing and in the essays of professional writers.
Prereq: 28 or above on the English section of the ACT or 660 on the verbal section of the SAT. Not open to students with credit for 110, H110, 110.01, H110.02. GEC first writing course.

110.02 First-Year English Composition UGRD 5
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 literature.
No preprer except when testing determines 052, 053, 106, 107, 109.01, 109.02, 110.03 or EDU T&L 108.01 to be required. Prereq: English placement level 4 or 109.02 or EDU T&L 108.01. Not open to students with credit for 110, 110C, 110L, 110W, H110, H111, H111i, or H167. Not open to students with credit for 110, 110.01, 110.03. This course is available for EM credit only through the AP program. GEC first writing course.

110.02H Honors First-Year English Composition UGRD 5
Taught with an emphasis on literature.
Prereq: 28 or above on the English section of the ACT or 660 on the verbal section of the SAT. Not open to students with credit for 110, H110 or H 110.01.

110.03 First-Year English Composition UGRD 5
Practice in the fundamentals of expository writing, as illustrated in the student's own writing and in the essays of professional writers. Intensive practice in the fundamentals of expository writing.
No preprer except when testing determines 052, 053, 106, 107, 109.01, 109.02, 110.03 or EDU T&L 108.01 to be required. Prereq: English placement level 5, placement level 4 if student requests it. Not open to students with credit for 110, 110C, 110L, 110W, H110, H111, H111i, or H167. Must be taken concurrent with 193.03. Not open to students with credit for 110, 110.01, 110.02. This course is available for EM credit only through the AP program. GEC first writing course.

167H First-Year Writing Seminar in the Humanities UGRD 5
Intensive critical reading and writing concerning central issues in the humanities.
Prereq: A score of 4 or 5 on the Advanced Placement Test, which earns EM credit for 110. GEC arts and hums, cultures and ideas course.

193.03 Individual Studies UGRD 2-5
Intensive practice in the fundamentals of expository writing.
Prereq: Fr standing and permission of Director of First-Year Writing. Must be taught concurrent with 110.03. Not open to students with credit for 193. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

201 Selected Works of British Literature: Medieval through 1800 UGRD 5
An introductory critical study of the works of major British writers from 800 to 1800. 201H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq for 201: 110 or 111 or equiv. Prereq for H201: H110 or H111 or equiv or permission of instructor. 201 is required of non-honors English majors. GEC arts and hums lit course.

201H Selected Works of British Literature: Medieval through 1800 UGRD 5
Selected Works of British Literature: Medieval through 1800.
202 Selected Works of British Literature: 1800 to the Present  
An introductory critical study of works of major British writers of the 19th and 20th centuries. Prereq: 202H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq for 202: 110 or 111 or equiv. Prereq for 202H: 110 or 111 or equiv or permission of instructor. Not open to students with credit for 284 or 285. 202 is required of non-honors English majors. GEC arts and hums lit course.

220 Introduction to Shakespeare  
Study of selected plays designed to give an understanding of drama as theatrical art and as an interpretation of fundamental human experience. Prereq for 220H: 110 or 111 or equiv. Prereq for 220: 110 or 111 or equiv. Prereq for 220H: 110 or 111 or equiv, and enrollment in an honors program. GEC arts and hums lit course.

220H INTRODUCTION TO SHAKESPEARE  
220H may be available to students enrolled in an honors program or by permission of department or instructor. Prereq for 220: 110 or 111 or equiv. Prereq for 220H: 110 or 111 or equiv, and enrollment in an honors program. GEC arts and hums lit course.

260 Introduction to Poetry  
Designed to help students understand and appreciate poetry through intensive study of a representative group of poems. Prereq: English 110 or 110.xx or 111 or 111.xx. 260H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC arts and hums lit course.

261 Introduction to Fiction  
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: English 110 or 110.xx or 111 or 111.xx. 261H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110 or 111 or equiv. GEC arts and hums lit course.

262 Introduction to Drama  
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: English 110 or 110.xx or 111 or 111.xx. 262H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC arts and hums lit course.

262H Introduction to Drama  
Introduction to Drama.

263 Introduction to Film  
Introduction to methods of reading film texts by analyzing cinema as technique, as system, and as cultural project. 1.5 hr cl, 1.25 hr cl. Prereq: English 110 or 110.xx or 111 or 111.xx. GEC arts and hums VPA course.

264 Introduction to Reading Popular Culture  
Introduction to the analysis of popular culture texts, with special emphasis on the relationship between popular culture studies and literary studies. Prereq: 110 or equiv. Not open to students with credit for Comp Std 264. Cross-listed in Comparative Studies. GEC arts and hums cultures and ideas course.

265 Writing of Fiction I  
Practice in the writing of fiction; analysis and discussion of student work, with some attention to general methods of fiction and the publishing situation. Prereq: English 110 or 110.xx or 111 or 111.xx. Repeatable to a maximum of 10 cr hrs.

266 Writing of Poetry I  
Practice in the writing of poetry; emphasis on the students' own work, with reference to established poetic patterns and established poetry. Prereq: English 110 or 110.xx or 111 or 111.xx. Repeatable to a maximum of 10 cr hrs.

268 Writing of Creative Nonfiction I  
Practice in the writing of creative nonfiction; analysis and discussion of student work, with reference to the general methods and scope of the genre. Workshop-seminar. 2.25 hr cl. Prereq: English 110 or 111 or equiv. Repeatable to a maximum of 10 cr hrs.

269 Digital Media Composing  
A writing course where students analyze and compose digital media texts while studying complex forms and practices of textual production. Prereq: English 110 or equiv. GEC arts and hums VPA course.

270 Introduction to Folklore  
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 110 or 110.xx or 111 or 111.xx. GEC arts and hums cultures and ideas course.

271 Introduction to English Language Study  
An introduction to the grammar, history, and social and regional dialects of the English language. Prereq: English 110 or 110.xx or 111 or 111.xx. Not open to students with credit for 570, 669, 671, 672; or Linguist 601. GEC arts and hums cultures and ideas course.

275 Thematic Approaches to Literature  
An introduction to literature through the examination of a major theme as treated in different genres and periods; topic varies quarterly. Prereq: English 110 or 110.xx or 111 or 111.xx. Repeatable to a maximum of 10 cr hrs. GEC arts and hums lit course.

276 Introduction to Rhetoric  
Study of developments in rhetorical theory, teaching, criticism, and practice through examination of representative figures, texts, movements and periods from antiquity to the present. 2-2 hr cl. Prereq: English 110 or 110.xx or 111 or 111.xx. GEC arts and hums, cultures and ideas course.

277 Introduction to Disability Studies  
Foundational concepts and issues in disability studies; introduction to the sociopolitical models of disability. 2-2 hr cl. Prereq: English 110 or 110.xx or 111 or 111.xx. GEC arts and hums cultures and ideas course.

280 The English Bible  
The Bible in English translation, with special attention to its literary qualities, conceptual content, and development within history. Prereq: English 110 or 110.xx or 111 or 111.xx. 280H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC arts and hums lit course.

281 Introduction to African-American Literature  
A study of representative literary works by African-American writers from 1760 to the present. Prereq: English 110 or 110.xx or 111 or 111.xx. Offered in cooperation with African-American and African Studies. GEC arts and hums lit and social diversity course.

282 Introduction to Queer Studies  
Introduces and problematizes foundational concepts of the interdisciplinary field of queer studies, highlighting the intersections of sexuality with race, class, and nationality. Au Qtr. Not available to students with credit for WomStds 282. GEC arts and hums culture and ideas and social diversity in the US course. Cross-listed in WomStds.

290 Colonial and U.S. Literature to 1865  
Introductionary study of significant works of U.S. literature from its Colonial origins to 1865. Prereq: English 110 or 110.xx or 111 or 111.xx. GEC arts and hums lit course. Either 290 or 291 is required of non-honors English majors.

291 U.S. Literature: 1865 to the Present  
Introductionary study of significant works of U.S. literature from 1865 to the present. Prereq: 110 or 111 or equiv. Either 290 or 291 is required of non-honors English majors. GEC arts and hums lit course.

294 Group Studies  
GEC arts and hums lit course. Either 290 or 291 is required of non-honors English majors.

296H Honors Seminar: Literature and Intellectual Movements  
Studies in the relationship of works of literature to their general intellectual contexts, involving such topics as Deism, Marxism, Primitivism, Freudian psychology; topic varies quarterly. Prereq: CPHR of 3.00 or better, with 3.50 or better in English, and permission of dept.

304 Business and Professional Writing  
The study of principles and the practice of techniques associated with business and professional writing; emphasis on the style, organization, and conventions appropriate to business letters and reports. 2-2 hr cl. Prereq: 110 or 111 or equiv, and jr or sr standing.

305 Technical Writing  
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. 2.5 hr cl. Prereq: 110 or 111 or equiv.

364 Special Topics in Reading Popular Culture  
Focused study in reading popular culture texts, organized around a single theme or medium. Prereq: 110 or equiv. GEC arts and hums, cultures and ideas course.
367.01 Language, Identity and Culture in the U.S. UGRD 5 Experience
Extends and refines expository writing and analytic reading skills, emphasizing recognition of intertextuality and reflection on compositional strategies on topics pertaining to education and popular culture in America.
Prereq: Credit for 110 through regular course enrollment and softh standing; or EM credit for 110; or a declared major in English. Not open to students with credit for 210, 267, H267, 301, 303, 305, or 367. Only one English 367 decimal subdivision may be taken for credit. GEC second writing and social diversity course.

367.01H Language, Identity and Culture in the U.S. UGRD 5 Experience
Extends and refines expository writing and analytic reading skills, emphasizing recognition of intertextuality and reflection on compositional strategies on topics pertaining to education and popular culture in America.
Prereq: Honors program or by permission of instructor. Credit for 110 through regular course enrollment and softh standing; or EM credit for 110. Not open to students with credit for 210, 267, H267, 301, 303, 305, or 367. Only one English 367 decimal subdivision may be taken for credit. GEC second writing and social diversity course.

367.02 Literature in the U.S. Experience UGRD 5
Discussion and practice of the conventions, practices, and expectations of scholarly reading of literature and expository writing on issues related to diversity within the U.S. experience.
Prereq: Credit for 110 through regular course enrollment and softh standing; or EM credit for 110; or a declared major in English. Not open to students with credit for 210, 267, H267, 301, 303, 305, or 367. Only one English 367 decimal subdivision may be taken for credit. GEC second writing and social diversity course, and arts and hums literature course for BS students only.

367.02H Literature in the U.S. Experience UGRD 5
Discussion and practice of the conventions, practices, and expectations of scholarly reading of literature and expository writing on issues related to diversity within the U.S. experience.
Prereq: EM credit for 110, or credit for 110 through regular course enrollment, or a declared major in English. Not open to students with credit for 210, 267, H267, 301, 303, 305, or 367. Only one English 367 decimal subdivision may be taken for credit. GEC second writing and social diversity course, and arts and hums literature course for BS students only.

367.03 Intermediate Essay Writing: African-American Voices in U.S. Literature UGRD 5
Discussion, analysis, and writing about issues presented through the diverse voices of African-American literature.
Prereq: Credit for 110 through regular course enrollment and softh standing; or EM credit for 110; or a declared major in English. Not open to students with credit for 210, 267, H267, 301, 303, 305, or 367. Only one English 367 decimal subdivision may be taken for credit. Cross-listed in African-American and African Studies. GEC second writing and social diversity course.

367.04 Intermediate Essay Writing: English in the United States UGRD 5
Discussion, analysis, and writing about issues related to the use of English in the United States.
Prereq: Credit for 110 through regular course enrollment and softh standing; or EM credit for 110; or a declared major in English. Not open to students with credit for 210, 267, H267, 301, 303, 305, or 367. Only one English 367 decimal subdivision may be taken for credit. GEC second writing and social diversity course.

367.05 The U.S. Folk Experience UGRD 5
Basic concepts of American folklore and ethnography, including folk groups, tradition and fieldwork methodology, focusing on how these concepts and methodologies contribute to the development of critical reading, writing, and thinking skills.
Prereq: Credit for 110 through regular course enrollment and softh standing; or EM credit for 110; or a declared major in English. Not open to students with credit for 210, 267, H267, 301, 303, 305, or 367. Only one English 367 decimal subdivision may be taken for credit. GEC second writing and social diversity course.

367.05H The U.S. Folk Experience UGRD 5
Basic concepts of American folklore and ethnography, including folk groups, tradition and fieldwork methodology, focusing on how these concepts and methodologies contribute to the development of critical reading, writing, and thinking skills.
Prereq: EM credit for 110, or credit for 110 through regular course enrollment, or a declared major in English. Not open to students with credit for 210, 267, H267, 301, 303, 305 or 367. Only one English 367 decimal subdivision may be taken for credit. GEC second writing and social diversity course.

367.06 Intermediate Essay Writing: Composing U.S. Communities UGRD 5
Discussion, analysis, and writing about how rhetorical discourse helps to define, sustain, and challenge American society.
Prereq: Credit for 110 through regular course enrollment and softh standing; or EM credit for 110; or a declared major in English. Not open to students with credit for 210, 267, H267, 301, 303, 305 or 367. Only one English 367 decimal subdivision may be taken for credit. GEC second writing course.

Discussion, analysis and writing about issues of diversity as they affect communication in U.S. workplaces.
Prereq: Credit for 110 through regular course enrollment and softh standing; or EM credit for 110; or a declared major in English. Not open to students with credit for 210, 267, H267, 301, 303, 305, or 367. Only one English 367 decimal subdivision may be taken for credit. GEC second writing course.

372 Science Fiction and/or Fantasy UGRD 5
Introduction to the tradition and practice of speculative writing. Provides students the opportunity to examine and compare works of science fiction and/or fantasy.
Wi Prereq: PreReq: 110 or equivalent. GEC arts and hums lit course.

378 Special Topics in Film and Literature UGRD 5
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.
1-3 hr, 1-2 hr cl. Prereq: 110 or 111 or equiv. GEC arts and hums, cultures and ideas course.

398 Writing for English Majors UGRD 5
Analysis of poetry, fiction, and drama, and issues in literary studies; intensive practice in writing critical essays in preparation for upper-division course work in English.
Prereq: 110 or 111 or equiv, a 367 writing course, and a declared English major; Rank 4 students must have permission of the director of undergraduate studies. Not open to students with credit for 302. Required of English majors; enrollment limited to English majors except by permission of dept. GEC third writing course.

398H Honors Writing for English Majors UGRD 5
Intensive practice in writing various kinds of analyses of literary texts.
2-2 hr cl. Prereq: 110 or 111, a second writing course, English honors major or writer permission of instructor. GEC third writing course.

405 Special Topics in Professional Communication UGRD 5
Topics vary; possible topics include technical communication, technical editing, managerial communication, international business communication, visual rhetoric, writing for the web, and scientific writing.
2-2 hr cl. Prereq: A 367 second writing course. Repeatable to a maximum of 10 cr hrs.

465 Intermediate Creative Writing: Special Topics in Fiction UGRD 5
Designed for students who have experience with the basic elements of fiction writing. Advanced techniques in fiction writing will be explored.
Au Qtr. 5 cl. Pre-req: C or better in 265. Repeatable to a maximum of 10 cr hrs.

466 Intermediate Creative Writing: Special Topics in Poetry UGRD 5
Poetry workshop will explore the many figures a poem can take and will include practical and theoretical study of various poetic forms.
Au Qtr. 5 cl. Prereq: C or better in 266. Repeatable to a maximum of 10 cr hrs.

467 Issues and Methods in Tutoring Writing UGRD 5
Theories and practices in tutoring and writing; explores the writing-learning connections and prepares students to work as writing consultants/tutors for small writing groups.
Au, Wi Qtrs. Prereq: 110 or equivalent. GEC third writing course.

468 Intermediate Creative Writing: Special Topics in Creative Non-Fiction UGRD 5
Designed for students who have experience with the basic elements of creative non-fiction writing. Advanced techniques will be explored.
Au Qtr. 5 cl. Pre-req: C or better in 268. Repeatable to a maximum of 10 cr hrs.

505 Language and the Black Experience UGRD 5
Introduction to the structure, history, and use of distinctive varieties of English used by and among many African Americans in the U.S.
Prereq: English 110 or 110.01 or 110.02 or 110.03. Not open to students with credit for AfrAmSt 505 or Linguist 505. Cross-listed in African American and African Studies and Linguistics.

505S Language and the Black Experience UGRD 5
Introduction to the structure, history, and use of distinctive varieties of English used by and among many African Americans in the U.S.
Sp Qtr. Prereq: Linguist 201 or Linguist 303 or Linguist 367.01 or Linguist 372 or Linguist 375. Not open to students with credit for AfrAmSt 505S or Linguist 505S. Crosslisted in AfrAmSt and Linguist. Service Learning course.

513 Introduction to Medieval Literature UGRD 5
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: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor A 367.xx in any subject is acceptable towards the 10 cr hrs.
514  Middle English Literature  UGRD  5
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.
2 2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

515  Chaucer  UGRD  5
A close study of Troilus and Criseyde and The Canterbury Tales as introduction to the artist and his period.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Not open to students with credit for 615.

520.01  Shakespeare  UGRD  5
A critical consideration of the art, personality, and achievement of Shakespeare in the light of Renaissance and modern significance.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Not open to students with credit for 520.

520.02  Special Topics in Shakespeare  UGRD  5
Topics include genre-specific courses (e.g. the Histories), period-specific courses (e.g. Elizabethan Shakespeare), and theme-specific courses (e.g. Shakespeare and religion).
Prereq: 220 or 520.01 or equiv.

521  16th-Century Literature  UGRD  5
A study of Tudor prose and poetry as they exemplify literary art and as they reflect the creative and inquiring temper of the age.
Not open to students with credit for 621.

522  Early 17th-Century Literature  UGRD  5
A study of the poetry and prose of 1600-1660, including the major works of Milton.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

531  Restoration and Early 18th-Century Literature  UGRD  5
Study of poetry, prose and drama from the Restoration to the 1730s; authors may include Behn, Swift, and Wycherley.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

533  Literature of the Eighteenth Century, 1740-1800  UGRD  5
Study of poetry, prose, and drama from the 1740s to the end of the eighteenth century; authors may include Johnson, Burke, Sheridan, and Wollstonecraft.
2 2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Not open to students with credit for 533 prior to Au Qtr 2002.

535  The Early British Novel: Origins to the 1830s  UGRD  5
Readings in the British Novel before the 1830s, with particular attention to novels of the 18th century; authors may include Fielding, Richardson, Burney, and Austen.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

540  Poetry and Poetics of the British Romantic Period  UGRD  5
Study of Romantic poetry and poetics: readings in Blake, Wordsworth, Coleridge, Byron, Shelley, Keats, and Mary Shelley.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

541  Victorian Poetry and Poetics  UGRD  5
Study of Victorian poetry and poetics; readings in Tennyson, the Brownings, Arnold, the Rossettis, Swinburne, Hopkins, and Hardy.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

542  The Victorian Novel  UGRD  5
Readings in a group of representative Victorian novelists, such as George Eliot, Charles Dickens, and William Thackeray, with special emphasis upon social and humanistic values.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Not open to students with credit for 641.

543  20th-Century British Fiction  UGRD  5
A study of the development of British fiction after 1900, with emphasis on such major novelists as Conrad, Joyce, Lawrence, and Woolf.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Not open to students with credit for 643.

547  20th-Century Poetry  UGRD  5
A study of 20th-century American and British poetry, with emphasis on such major figures as Frost, Yeats, Stevens, Eliot, Williams, Auden, Bishop, and Langston Hughes.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

549  Modern Drama  UGRD  5
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 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Not open to students with credit for 649.

550  Colonial and U.S. Literature to 1830  UGRD  5
Introduction to selected works of early U.S. and Colonial literature including such writers as Anne Bradstreet, Phillis Wheatley, Benjamin Franklin, Washington Irving, James Fenimore Cooper.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

551  U.S. Literature, 1830-1865  UGRD  5
An introduction to the major American writers of the mid-19th century: Poe, Hawthorne, Melville, Emerson, Thoreau, and Whitman.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. 551E may be available for honors embedded experience.

551E  U.S. Literature, 1830-1865  UGRD  5
An introduction to the major American writers of the mid-19th century: Poe, Hawthorne, Melville, Emerson, Thoreau, and Whitman.
551E may be available for honors embedded experience.

552  U.S. Literature, 1865-1914  UGRD  5
Studies in fiction and poetry emphasizing such major figures as Twain, Howells, James, Dickinson, Robinson, Crane, Dreiser, and Willa Cather.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

553  20th-Century U.S. Fiction  UGRD  5
A study of American fiction after 1914, with emphasis on the work of such major figures as Anderson, Fitzgerald, Hemingway, and Faulkner.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

559  Introduction to Narrative and Narrative Theory  UGRD  5
Study of narrative in its different manifestations, e.g., novel, autobiography, film, legal testimony, and of theories of its form and significance.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

560  Special Topics in Poetry  UGRD  5
Topic varies; examples: the dramatic monologue; epic and mock epic; the religious lyric; narrative poetry.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs.

561  Special Topics in Fictional and Nonfictional Narrative  UGRD  5
Topic may focus on fiction, nonfiction, or both; examples: the novel in the city; character narrators in fiction and autobiography.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs.

562  Special Topics in Drama  UGRD  5
Topic varies; examples: the revenge play; Restoration and 18th-century drama; tragedy; the play within the play.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs.

563  Contemporary Literature  UGRD  5
A study of prose and poetry written since approximately 1945.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

564.01  Special Topics in a Major Author: Medieval and Renaissance British Literature  UGRD  5
Intensive study of the work of one of the major authors of English and American Literature.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.
564.02 Special Topics in a Major Author: 18th and 19th Century British Literature
Intensive study of the work of one of the major authors of English and American Literature.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

564.03 Special Topics in a Major Author: American Literature to 1900
Intensive study of the work of one of the major authors of English and American Literature.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

564.04 Special Topics in a Major Author: 20th Century Literature in English
Intensive study of the work of one of the major authors of English and American Literature.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

565 Writing of Fiction II
Practice in the writing of fiction; continuation of 265 at an advanced level.
Prereq: 265 or equiv and permission of instructor. Repeatable to a maximum of 15 cr hrs.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

566 Writing of Poetry II
Practice in the writing of poetry; continuation of 266 at an advanced level.
Prereq: 266 or equiv and permission of instructor. Repeatable to a maximum of 15 cr hrs.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

566E Writing of Poetry II
Practice in the writing of poetry; continuation of 266 at an advanced level.
Prereq: 266 or equiv and permission of instructor. Repeatable to a maximum of 15 cr hrs.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

567 Rhetoric and Community Service: A Writing Seminar
The study of issues relating to rhetoric, community service, and intercultural communication while serving as volunteers and as writers for a local community service agency.
2-2 hr cl, 2 hrs on site. Prereq: 110 and one of the 367 decimals. Repeatable to a maximum of 10 cr hrs.

568 Writing of Creative Nonfiction II
Practice in the writing of essays and book-length creative nonfiction; continuation of 268 at an advanced level.
Prereq: 268 or equiv and permission of instructor. Repeatable to a maximum of 15 cr hrs.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

569 Digital Media and English Studies
A critical examination of the intersection of English studies and the emergent technologies that are used to acquire and create knowledge in the discipline.
2-2 hr cl. Prereq: 10 hr crs of English courses at the 200 or 300 level or permission of instructor.
A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs.

570 Introduction to the History of English
A study of the historical development of English giving attention to social factors associated with language changes in the phonology, morphology, syntax, lexicology, and discourse structure.
Prereq: 10 cr hrs of English at 200 or 300 level or equiv, or permission of instructor.
Not open to students with credit for 274.

571 Studies in the English Language
Topic varies; examples: American English; the sociology of American dialects; language and style.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor.
A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs.

572 Traditional Grammar and Usage
An examination of terminology and structures traditionally associated with the study of English grammar and of usage rules, especially problematical ones, governing edited written American English.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

573.01 Rhetorical Theory and Analysis of Discourse
Examination of persuasive strategies in a representative selection of textual genres, including oratory, news articles, editorials, essays, advertisements, fiction, poetry, and film.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

573.01E Rhetorical Theory and Analysis of Discourse
Examination of persuasive strategies in a representative selection of textual genres, including oratory, news articles, editorials, essays, advertisements, fiction, poetry, and film.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor.
A 367.xx in any subject is acceptable towards the 10 cr hrs. 573.01E may be available for honors embedded experience.

573.02 Rhetorical Theory and Analysis of Social Action
Examination of persuasive strategies in social interaction, including collective social movements, political protests, cultural trends, rituals and ceremonies, and everyday practices.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor.
A 367.xx in any subject is acceptable towards the 10 cr hrs.

574 History and Theories of Writing
Study of the origins, definitions, and development of writing, with varying perspectives on historical, technological, theoretical, and ideological issues.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.
Repeatable to a maximum of 10 cr hrs. E575 may be offered for honors embedded experience.

575 Special Topics in Literary Forms and Themes
Topic varies; examples: ironic forms; the Trojan War in English literature; the hero and the anti-hero; pastoralism and romance.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

576.01 History of Critical Theory: Plato to Aesthetcism
Study of the developments and basic texts in literary criticism and critical theory from Plato to Oscar Wilde.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

576.02 History of Critical Theory: 1900 to Present
Study of the developments and basic texts in literary criticism and critical theory from 1900 to the present.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

576.03 Issues and Movements 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.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

577.01 Studies in Folklore: Folk Groups and Communities
Study of group identities, group concerns, expressive strategies of particular groups; African-American folklore; folklore and the elderly; women and folklore; ethnicity, identity, heritage.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

577.02 Studies in Folklore: Folklore Genres: Form, Meaning and Use
Study of the relationship between cultural forms, community interpretations, and social uses; topics include fairy tales; festival; folksong; the joke; narrative, self, and society.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

577.03 Studies in Folklore: Issues and Methods in the Study of Folklore
General concerns in the study of folklore; topics include ethnography and fieldwork; folklore and public policy; tourism and museums; folklore and memory; folklore and race.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

578 Special Topics in Film
Examination of particular topics, themes, genres, or movements in cinema; topics may include particular directors (Orson Welles), periods (The Sixties), genres (horror).
1-3 hr, 1-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.
Repeatable to a maximum of 15 cr hrs.
579  Special Topics in Nonfiction  UGRD  5  
Critical analysis of nonfiction written discourse with varied topics, e.g., Victorian prose, American nature writing, business and professional writing, rhetorical discourse, biography and autobiography.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs.

580  Special Topics in Gay and Lesbian Language and Literature  UGRD  5  
Issues in the representation of gay and lesbian desires, identities, and cultures, through the study of literature, film, folklore, or language.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs.

581  Special Topics in U.S. Ethnic Literatures  UGRD  5  
Study of selected issues or forms in U.S. ethnic literatures and cultures; topic varies: Native American autobiography, Asian American poetry; Latino/Latina novel. 2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs.

582  Studies in African-American Literature  UGRD  5  
Prereq: 110, 110.01, 110.02 or 110.03. Repeatable to a maximum of 10 cr hrs.

583  Special Topics in World Literature in English  UGRD  5  
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.
2-2 hr cl. Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs.

585.01  Topics in Literary Studies  UGRD  5  
This foundational course explores how our understanding of literary and its relationships to ongoing societies, cultures, and social change has been challenged and revised. Reconsiders the "great debates" about literacy--oral v. written, etc.--through the critical study of literacy's acquisition, practice or use, and consequences/concomitants.
Prereq: 10 credit hours of English courses at the 200 or 300 level or permission of instructor. Not open to students with credit for Hist 585.01. History will be cross-listing the 585.02 version of the class only. They will offer it as 585. Comparative Studies will cross-list both versions (585.01 and 585.02) of the class. Cross-listed with Comp St 585.01.

585.02  History of Literacy  UGRD  5  
This foundational course explores how our understanding of literacy and its relationships to ongoing societies, cultures, and social change has been challenged and revised. This course seeks to understand the history of literacy by examining literacy's contributions to making the modern world, and social changes' impacts on literacy.
Prereq: 10 credit hours of English courses at the 200 or 300 level or permission of instructor. Not open to students with credit for Hist 585 or Comp St 585.02. History will be cross-listing the 585.02 version of the class only. They will offer it as 585. Comparative Studies will cross-list both versions (585.01 and 585.02) of the class. Cross-listed with History 585 and Comp St 585.02.

586  Studies in American Indian Literature and Culture  UGRD  5  
Focused study of a topic in American Indian literary and cultural studies.
Prereq: 110, 110.01, 110.02 or 110.03. Repeatable to a maximum of 10 cr hrs.

587  Studies in Asian American Literature and Culture  UGRD  5  
Focused study of a topic in Asian American literary and cultural studies.
Prereq: 110, 110.01, 110.02 or 110.03. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in Comp St 543. Cross-listed with Comp St 543.

588  Studies in Latino/a Literature and Culture  UGRD  5  
Focused study of a topic in Latino/a literary and cultural studies.
Prereq: 110, 110.01, 110.02 or 110.03. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in Comp St 544. Cross-listed with Comp St 544.

590.01H  Honors Seminar: Major Periods in Literary History: The Middle Ages  UGRD  5  
Intensive study of one of the major periods of English and American literature; The Middle Ages.
Prereq: CPHIR of 3.00 or better, with a 3.50 or better in English, and permission of dept.

590.02H  Honors Seminar: Major Periods in Literary History: The Renaissance  UGRD  5  
Intensive study of one of the major periods of English and American literature: The Renaissance.
Prereq: CPHIR of 3.00 or better, with a 3.50 or better in English, and permission of dept.

590.03H  Honors Seminar: Major Periods in Literary History: 18th Century British Literature  UGRD  5  
Intensive study of one of the major periods of English and American literature: 18th Century British Literature.
Prereq: CPHIR of 3.00 or better, with a 3.50 or better in English, and permission of dept.

590.04H  Honors Seminar: Major Periods in Literary History: Romanticism  UGRD  5  
Intensive study of one of the major periods of English and American literature: Romanticism.
Prereq: CPHIR of 3.00 or better, with a 3.50 or better in English, and permission of dept.

590.05H  Honors Seminar: Major Periods in Literary History: The Later 19th Century  UGRD  5  
Intensive study of one of the major periods of English and American literature: The Later 19th Century.
Prereq: CPHIR of 3.00 or better, with a 3.50 or better in English, and permission of dept.

590.06H  Honors Seminar: Major Periods in Literary History: The Modern Period  UGRD  5  
Intensive study of one of the major periods of English and American literature: The Modern Period.
Prereq: CPHIR of 3.00 or better, with a 3.50 or better in English, and permission of dept.

590.07H  Honors Seminar: Major Periods in Literary History: U.S. and Colonial Literature  UGRD  5  
Intensive study of one of the major periods of English and American literature: U.S. and Colonial Literature.
2-2 hr cl. Prereq: CPHIR of 3.00 or better, with a 3.50 or better in English, and permission of dept.

591.01H  Honors Seminar: Special Topics in the Study of Creative Writing  UGRD  5  
A seminar in literary forms and themes, with a significant creative writing component.
2-2 hr cl. Prereq: 265 or 266 or 268; and enrollment in an honors program; or permission of instructor. Repeatable to a maximum of 10 cr hrs.

591.02H  Honors Seminar: Special Topics in the Study of Rhetoric  UGRD  5  
Study of rhetorical theories, practices, and literacies through examination of rhetorical discourse, texts, movements, and periods both past and present. Prereq: Enrollment in an honors program or permission of instructor. Repeatable to a maximum of 10 cr hrs.

592  Special Topics in Women in Literature  UGRD  5  
Close examination from feminist perspectives of literature by and about women; central topic varies, for example, biography or autobiography, women as artists, images, and stereotypes.
Prereq: 10 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs. Repeatable to a maximum of 10 cr hrs. Offered in cooperation with Women's Studies.

593  Literature and Law  UGRD  5  
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 cr hrs of English courses at the 200 or 300 level or permission of instructor. A 367.xx in any subject is acceptable towards the 10 cr hrs.

595  Literary Locations  UGRD  5  
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.
Prereq: CPHR of 3.00 or better, with a 3.50 or better in English, and permission of dept.
596 Studies in Literature and the Other Arts UGRD 5
Studies in English literature in interdisciplinary context. Period and context will vary: topics include modernism and music, romanticism and painting, Elizabethan literature and iconography. Prereq: 10 cr hrs of English courses at the 200 or 300-level or permission of instructor. Repeatable to a maximum of 10 cr hrs.

597.01 The Disability Experience in the Contemporary World UGRD 5
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: Jr or Sr standing. GEC: Capstone: Issues of the Contemporary World course.

597.02 American Regional Cultures in Transition UGRD 5
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. Sp Qtr. Prereq: Junior or Senior standing. GEC issues of the contemporary world course.

597.03 Environmental Citizenship UGRD 5
Provides tools for environmental citizenship by teaching interdisciplinary perspective on biophysical and sociocultural forces that shape environments. Addresses general processes through local case studies. Sp Qtr. Prereq: Not open to students with credit for Geography 597.03. GEC issues of the contemporary world course. Cross-listed in Geography.

597.04H Interdisciplinary Approaches to Narrative in the Contemporary World UGRD 5
Interdisciplinary Approaches to Narrative in the Contemporary World: Variable topics in the interdisciplinary study of narrative's role in contemporary culture; topics include narrative and cognition, narrative and emotion; narrative and ethics. Wi Qtr. Prereq: Jr or Sr standing; enrollment in an Honors program. GEC contemporary world issues course.

598H Honors Seminar: Selected Topics in Literature and Literary Interpretation UGRD 5
Selected problems (themes, movements, genres, and styles) emphasizing continuity and development in English and American literary and linguistic history; topic varies quarterly. Prereq: CRH of 3.00 or better with a 3.50 or better in English, and permission of dep. Repeatable to a maximum of 10 cr hrs.

662 Literary Publishing UGRD 5
Theory and practice of editing and publishing literature. Prereq: 265 or 266, 5 cr hrs of 500-level literature courses in English, and permission of instructor.

681.01 Studies in Asian-American Literature: Korean-American Literature UGRD 5
Critical study of Korean-American literature and literary genres of the twentieth century, with particular attention to historical, social and cultural contexts. 2-2 hr cl. Prereq: 10 cr hrs in any literature or grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

Critical study of modern Japanese-American literature in historical and cultural context; topics vary: literature of the interment, genre and identity politics, genre studies, women's writing. 2-2 hr cl. Prereq: 10 cr hrs in any literature or grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in Comp Stds 645 or Japanese 665. Cross-listed with Comp Stds 645 and Japanese 665.

Critical study of modern Chinese-American literature in historical and cultural context topics vary: gender issues, genre studies, women's studies. 2-2 hr cl. Prereq: 10 cr hrs in any literature or grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in Comp Stds 665 or Japanese 665. Cross-listed with Comp Stds 665 and Japanese 665.

689 Writing Internship UGRD 1-5
Workplace experience requiring writing, editing, and/or research; projects are student-initiated. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 5 credits toward completion of English major.

692 Workshop UGRD 1-8
Workshop. Repeatable to a maximum of 12 cr hrs.

693 Individual Studies UGRD 1-10
Students may register for individual directed study under this number for work not normally offered in courses. Prereq: Sr standing and permission of instructor and of dept undergrad or grad committee. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies UGRD 2-5
Group Studies. Repeatable to a maximum of 15 cr hrs.

696 Research in English: Comprehensive Examinations UGRD 1-18
Research in preparation for MA comprehensive exams. Arr. Prereq: Permission of grad studies director. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

700 Introduction to Graduate Study in English GRAD 5
Introduction to bibliography, research methods, critical theory, and the principles of literary criticism for advanced work in English studies. Prereq: Permission of director of graduate studies. Not open to students with credit for 800. Required of all MA candidates.

710 Introduction to Old English Language and Literature GRAD 5
The reading of Old English prose with special attention to the language and to cultural background. Prereq: 15 cr hrs of English courses at the 300 or 500 or 600 levels or the equivalent work in allied departments or permission of instructor.

713 Introduction to Middle English Language GRAD 5
An intensive study of Middle English phonology, morphology, syntax, and dialectology from 1100-1500, with selected readings in the literature. Prereq: 15 cr hrs of English courses at the 300 or 500 or 600 levels or the equivalent work in allied departments or permission of instructor.

716 Introduction to Graduate Study in the Middle Ages GRAD 5
Introduction to advanced study and current scholarship and criticism in medieval literature, 1300-1500. Prereq: Grad standing or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

718 Introduction to Graduate Study in Chaucer GRAD 5
Introduction to advanced study in Chaucer, with a focus on The Canterbury Tales and Troilus and Criseyde. 2-2 hr cl. Prereq: Grad standing in English or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

720 Introduction to Graduate Study in Renaissance Drama GRAD 5
Introduction to advanced study and current scholarship and criticism in drama by Shakespeare and his contemporaries. 2-2 hr cl. Prereq: Grad standing in English or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

727 Introduction to Graduate Study in Literature of the 16th Century GRAD 5
Introduction to advanced study and current scholarship and criticism in 16th century English literature. 2-2 hr cl. Prereq: Grad standing in English or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

728 Introduction to Graduate Study in English GRAD 5
Introduction to advanced study and current scholarship and criticism in 17th century English literature. 2-2 hr cl. Prereq: Grad standing in English or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

736 Introduction to Graduate Study in the Restoration and 18th Century GRAD 5
Introduction to advanced study and current scholarship and criticism in English literature, 1660-1800. Prereq: Grad standing in English or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

737 Introduction to Graduate Study in 18th Century English Fiction GRAD 5
Introduction to advanced study and current scholarship and criticism in 18th century English fiction. 2-2 hr cl. Prereq: Grad standing or permission of instructor. Advanced undergrads may be admitted with permission of instructor.
Introduction to Graduate Study in British Literature of the Romantic Period

Introduction to advanced study and current scholarship and criticism in British literature of the Romantic period.
Prereq: Grad standing or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

Introduction to Graduate Study in British Literature of the Victorian Period

Introduction to advanced study and current scholarship and criticism in British Victorian literature.
2 2-hr cl. Prereq: Grad standing in English or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

Introduction to Graduate Study in Literary Basics in literacy research: the "great debates" about literacy - oral v. written, traditional v. modern - literacy's relationships with development, major approaches in interpreting literacy.
Sp Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor.

Introduction to Graduate Study in American Literature, Origins to 1840
Introduction to advanced study and current scholarship and criticism in early American literature.
2 2-hr cl. Prereq: Grad standing in English or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

Introduction to Graduate Study in American Literature, 1840-1914
Introduction to advanced study and current scholarship and criticism in American Literature, 1840-1914.
Prereq: Grad standing in English or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

Introduction to Graduate Studies in African-American Literature: 1746-1900
A survey of creative texts and critical interpretations representing and reflecting black culture and literary expression in the United States from 1746 to 1900.
2 2-hr cl. Not open to students with credit for AFAm&ASI 757.01. Cross-listed in African-American and African Studies.

Introduction to Graduate Studies in African-American Literature: 1900 to Present
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.
2 2-hr cl. Not open to students with credit for AFAm&ASI 757.02. Cross-listed in African-American and African Studies.

Introduction to Graduate Study in U.S. Ethnic Literature and Culture
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. Repeatable to a maximum of 10 cr hrs.

Introduction to Graduate Study in Postcolonial Literature and Theory
Introduction to graduate-level study of representative examples of the literary, cultural and theoretical texts that inform postcolonial studies.
Au, Wi, Sp Qtr. 2 2-hr cl. Prereq: Grad standing.

Introduction to Graduate Study in Narrative and Narrative Theory
Study of narrative in its different forms (novel, history, autobiography, film, etc.) and of key issues in narrative theory (narrative discourse, plot, progression, ethics, etc.).
Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Grad standing or permission of instructor. Advanced undergraduates may be admitted with permission of instructor.

Introduction to Graduate Study in Drama and Performance
Introduction to advanced study in the theory, history, and practice of drama and performance.
Prereq: Grad standing in English or permission of instructor. Advanced undergrads may be admitted with permission of instructor.

Graduate Workshop in Poetry
A graduate-level workshop in the writing of poetry.
Prereq: MFA standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

Graduate Workshop in Fiction
A graduate-level workshop in the writing of fiction.
Prereq: MFA standing or permission of instructor. Repeatable to a maximum of 20 cr hrs. Designed for advanced undergrads and grad students.
864 Postcolonial/Transnational Literatures GRAD 5
Topics include postcolonial and transnational literature in English; theories of colonia
postcolonial, and transnational literature and culture.
Prereq: 2-2 hr cl. Repeatable to a maximum of 15 cr hrs.

870 Seminar in Folklore GRAD 5
Intensive study of some particular aspect of folklore.
Prereq: 770 or equiv with written permission of instructor. Repeatable to a maximum
of 10 cr hrs.

871 Seminar in the Forms of Literature GRAD 5
Problems in the criticism of fiction, poetry, or drama.
Repeatable to a maximum of 20 cr hrs.

872 Seminar in the English Language GRAD 5
Advanced English language study; topics vary.
Prereq: 771 or Linguist 601 or equiv with permission of instructor. Repeatable to a
maximum of 10 cr hrs.

876 Seminar in Critical Theory GRAD 5
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.
Repeatable to a maximum of 10 cr hrs.

878 Seminar in Film Studies GRAD 5
An intensive consideration of selected issues, themes, and forms in Film Studies.
Topics vary.
Su, Au, Wi, Sp Qtr. 2-2 hr cl. Prereq: Grad standing or permission of instructor.
Repeatable to a maximum of 10 cr hrs.

879 Seminar in Rhetoric GRAD 5
Rhetoric of a particular period; major figures in rhetoric, rhetorical analysis of
literature.
Repeatable to a maximum of 10 cr hrs.

880 Seminar in Composition GRAD 5
Invention; the composing process and revision; evaluating and responding to writing;
discourse analysis.
Repeatable to a maximum of 10 cr hrs.

881.02 Teaching Basic Writing GRAD 5
Theory and practice in the teaching of basic writing.
Prereq: 781 or permission of instructor.

881.03 Teaching of College Composition in English GRAD 5
as a Second Language
Research in teaching English as a second language at the college level; materials and
pedagogical techniques to use in English as a second language courses.
Prereq: 671 or Linguist 602.01 or permission of instructor.

881.04 Teaching Business and Professional Communication GRAD 5
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: 881.01 or permission of instructor.

883 Studies in Literacy GRAD 5
Examination of the meanings of the term "literacy" and the historical, cognitive, socia
economic, artistic, and political consequences of these definitions.
2-2 hr cl. Prereq: Grad standing in English or permission of instructor. Repeatable to a
maximum of 15 cr hrs.

884 Literacy Past and Present GRAD 5
From the invention of alphabets to the electronic age: literacy's relationships with
social, cultural, political, and economic changes; impacts and significance for
individuals and collectives.
Sp Qtr. 2-2 hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a
maximum of 10 cr hrs. Cross-listed with History 775.

889 Seminar on Digital Media Studies GRAD 5
Advanced theoretical and practical approaches to digital media in English studies.
Examines such intellectual questions as authorship, narrative, argument, and the natu
of texts.
Repeatable to a maximum of 10 cr hrs.

890 Interdepartmental Seminar in Critical Theory GRAD 5
Interdisciplinary study of a movement (phenomenology, feminism, deconstruction,
etc.) or problems (intentionality, evaluation, etc.) in literary theory.
Prereq: Background in critical theory recommended. Cross-listed in Comparative
Studies, French, German, Spanish, and Women's Studies.

891 Seminar in Disability Studies in Language and Literature GRAD 5
Intensive study of disability as a representational system and of key issues in disability
studies.
Repeatable to a maximum of 20 cr hrs.
101  Insect Biology I  UGRD  5
Biological sciences with insects as a model; structure, function, development, and
interactions with environment.
Au Qtr. 4 cl, 1 2-hr lab. Prereq: Math 075, 076, or 104; or Mathematics Placement
Level R. GEC bio sci course.

102  Insect Biology II  UGRD  5
Continuation of 101; behavior, diversity, insect interactions with humans, pathogens,
social insects.
Wi Qtr. 4 cl, 1 2-hr lab. Prereq: 101 or Biology 101. GEC bio sci course.

126  Introductory Insect Biology  UGRD  3
Biological science and selection, emphasis on course; ecology and
diversity; collection is required.
Su Qtr. Offered at Stone Lab. Prereq: A high school course in biology. Offered at
Stone Lab, one week (7 days).

294  Group Studies  UGRD  1-5
Group studies in the field of the chosen problem.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a
maximum of 15 cr hrs.

333  Social Insects  UGRD  5
Exploration of biological and evolutionary factors that permit ants, bees, wasps,
and termites to maintain large and complex societies.
Au Qtr. 3 cl, 1 rec. Prereq: Any biology 101 or equiv. Not open to students with
credit for H444. GEC bio sci course.

444H  Social Insects  UGRD  5
Introduction to the biology of social insects (ants, bees, wasps, termites).
Sp Qtr. 3 cl, 1 2-hr lab. Prereq: 102, or Biology 102 or 114 or H116, or Plant Bio 102;
and enrollment in an honors program; or equivs with permission of instructor. Not
open to students with credit for 333.

460  Economic Entomology and Insect Pest Management  UGRD  5
Survey of arthropods that affect public health, crops, livestock, and the home;
integrated control methods, and evaluation of specimens from economic orders,
and important pests.
Wi Qtr. 3 cl, 2 2-hr labs. Prereq: Biology 101 or 113 or H115. Not open to students with
credit for 462. Requirement for entomol undergrad majors.

461  Forest Entomology  UGRD  3
Insects and other arthropods in the forest as they relate to effective management for
maximum production of wood products and sustained preservation of forests and
parklands.
** Wi Qtr. 3 cl, 2 lab hrs. Prereq: Biology 101 or 113 or H115, and PCMB 102; Natural
Resources 221 recommended.

462  Economic Entomology for Turf, Ornaments, and Greenhouses  UGRD  4
Survey of arthropods of turf, ornamentals, and greenhouses; emphasis on biology
identification, and control methods, including integrated pest management.
Sp Qtr. 3 cl, 1 2-hr lab. Prereq: Biology 101 or 113 or equiv. Not open to students with
credit for 460.

500  General Entomology  UGRD  5
Structure, function, development, ecology, and insect-human interactions in an
evolutionary context; lab stresses classification and identification of insects; insect
collection required.
Au Qtr. 3 cl, 2 2-hr labs, field trip. Prereq: 15 cr hrs in biological sciences. For
students at the jr or sr level in biological and agricultural sciences and grad students in
biological sciences.

550  Comparative Endocrinology  UGRD  3
Introduction to hormones and hormone action; comparison between vertebrates
and invertebrates with emphasis on special situations such as metamorphosis.
** Au Qtr. 3 cl. Prereq: Biochem 511 or equiv. Not open to students with credit for

592  Workshop  UGRD  1-6
Intensive study of a topic in entomology; the format will depend upon the topic.
Su, Au, Wi, Sp Qtrs. Arr, lecs, labs, or lecs/labs. Prereq: Written permission of
workshop director. Repeatable to a maximum of 6 cr hrs.

612  Aquatic Entomology  UGRD  5
Designed for preparation in the teaching of biology or for research on aquatic
resources; emphasis on taxonomy and ecology of immature and adult aquatic insects.
Su Qtr. 3 cl, 1-day cl. Prereq: 500 or equiv.

621  Insect Systematics and Diversity  UGRD  5
Principles of systematics and application to insect classification and identification.
** Au Qtr. 2 cl, 6 lab hrs. Prereq: 500 or equiv.

623  Insect Morphology  UGRD  5
Comparative external and internal anatomy of insects and other arthropods; organ
systems in developmental, functional, and evolutionary contexts; individual
histological projects.
* Wi Qtr. 2 cl, 2 2-hr labs. Prereq: 500 or equiv.

626  Cladistic Methods  UGRD  3
Designed to familiarize students with the philosophy and tools of cladistic analysis to
interpret current literature and to execute publishable analysis of their own data.
* Wi Qtr. 3 cl. Prereq: EEOB or Zoology 400 or equiv. Repeatable to a maximum of
6 cr hrs.

631  Insect Physiology  UGRD  5
The general physiology of insects and other arthropods; labs stress the use of insects
to demonstrate fundamental physiological processes.
Au Qtr. 3 cl, 2 2-hr labs. Prereq: 500, and Chem 251 and 254; or equivs.

632  Insect Molecular Genetics  UGRD  3
Structure, genetics and methodology of insect genes and genomes.
Wi Qtr. 3 cl. Prereq: Biochem 511, Mol Gen 500 or equiv. Cross-listed in Molecular
Genetics.

641  Insect Ecology  UGRD  5
The distribution, abundance, population regulation, plant-insect interactions, and
specific survival patterns of insects are analyzed in relation to microenvironment
and ecosystems.
* Au Qtr. 3 2 hr lec/labs. Prereq: 500, and EEOB/PCMB 413.01; or equiv.

642  Insect Behavior  UGRD  4
Introduction to mechanisms of insect behavior, behavioral physiology and ecology,
and social behavior.
* Wi Qtr. 2 2 hr cl. Prereq: 500 or permission of instructor.

645  Simulation Modeling in Applied Insect Ecology  UGRD  5
Theory and practice of systems analysis relative to management of insect pests.
** Wi Qtr. 3 cl, 2 lab hrs. Prereq: 460 or 462 and Math 132, or their equivs and
permission of instructor.

650  Biological Control of Arthropod Pests  UGRD  4
Introduction to the theory and practice of biological control of arthropod pests.
* Sp Qtr. 3 cl, 2 lab hrs. Prereq: 20 cr hrs in life sciences, including at least one
entomol course.

655  Quantitative Methods in Applied Biology  UGRD  3
Review of quantitative methods used in biological research especially emphasizing
practical application to agricultural and environmental sciences.
Au Qtr. 3 1 hr lectures. Prereq: Stat 528 or equiv. Not open to students with credit for
Plant Pth 655. Cross-listed in Plant Pathology. Recommended to graduate students
beginning their research.

660  Advanced Economic Entomology  UGRD  5
Theory and practice of pest population management, emphasizing current research,
population modelling, sampling, and data analysis.
* Sp Qtr. 3 cl, 2 2-hr labs, field trips. Prereq: 460 or 462, and EEOB/PCMB 413.01;
or equivs with written permission of instructor.

661  Medical Entomology  UGRD  5
Arthropod agents and vectors of vertebrate disease: life cycles, behavior,
pathogenesis, identification, control; arthropod-pathogen and arthropod vertebrate
relationships; arthropod-borne disease systems.
Wi Qtr. 3 cl, 2 2-hr labs. Prereq: 500 and EEOB 610 recommended.

670  General Acarology  UGRD  2
An introduction to the morphology, development, and general biology of mites;
laboratory consists of a taxonomic review of the families of Acari.
Su Qtr. 3 cl, 2-3 2-hr lab/day for 6 consecutive days. Course is part of Acarology
Summer Program.

693  Individual Studies  UGRD  1-10
Individual work in the field of the chosen problems.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a
maximum of 30 cr hrs. No more than 5 cr hrs may be counted toward an undergrad
entomol major. This course is graded S/U.

694  Group Studies  UGRD  2-5
Group work in the field of the chosen problems.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of
20 cr hrs for grad students and 15 cr hrs for undergrads.

697  Study at a Foreign Institution  UGRD  1-15
An opportunity for students to study at a foreign institution and receive Ohio State
credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable
to a maximum of 45 cr hrs. This course is Progress (‘P’) graded. Students will pay
Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and
subsistence costs.

698.01 Study Tour: Domestic  UGRD  1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact
department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.
698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

699 Undergraduate Research in Entomology UGRD 1-6
Undergraduate experience in entomological research in variable topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

762 Environmental Toxicology and Chemistry UGRD 3
Technical examination of the environmental behavior of organic, inorganic, and microbial xenobiotics; emphasis on chemistry of interactions with physical environment, fugacity models, risk assessment, and predictive toxicology.
* Sp Qtr. 3 cl. Prereq: Chem 251 and 252.

783H Honors Research UGRD 3-5
A program of reading and research for each student with individual conferences, reports, and Honors thesis.
Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing with a grade of A in at least half of the courses in biological sciences 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. Repeatable to a maximum of 15 cr hrs. At least 2 qtrs are required of candidates for the degrees BA or BS with distinction in entomol. Failure to receive a mark of S in this course is a disqualification for special honors. This course is graded S/U.

790 The Nature and Practice of Science GRAD 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.
* Wi Qtr. 1 2-hr cl. Recommended for graduate students conducting independent research. Not repeatable except as audit.

795.01 Special Topics in Entomology: Acarology UGRD 1-3
Seminar on publications, current research, or research techniques: Acarology.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.02 Special Topics in Entomology: Apiculture UGRD 1-3
Seminar on publications, current research, or research techniques: Apiculture.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.03 Special Topics in Entomology: Behavior UGRD 1-3
Seminar on publications, current research, or research techniques: Behavior.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.04 Special Topics in Entomology: Biological Control UGRD 1-3
Seminar on publications, current research, or research techniques: Biological Control.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.05 Special Topics in Entomology: Ecology UGRD 1-3
Seminar on publications, current research, or research techniques: Ecology.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.06 Special Topics in Entomology: Economic Entomology UGRD 1-3
Seminar on publications, current research, or research techniques: Economic Entomology.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.07 Special Topics in Entomology: Genetics UGRD 1-3
Seminar on publications, current research, or research techniques: Genetics.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.08 Special Topics in Entomology: Medical Entomology UGRD 1-3
Seminar on publications, current research, or research techniques: Medical Entomology.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.09 Special Topics in Entomology: Pathology UGRD 1-3
Seminar on publications, current research, or research techniques: Pathology.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.10 Special Topics in Entomology: Physiology-Toxicology UGRD 1-3
Seminar on publications, current research, or research techniques: Physiology-Toxicology.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.11 Special Topics in Entomology: Research Methods UGRD 1-3
Seminar on publications, current research, or research techniques: Research Methods.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

795.12 Special Topics in Entomology: Systematics UGRD 1-3
Seminar on publications, current research, or research techniques: Systematics.
Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 10 cr hrs.

796 Advanced Studies and Techniques in Entomology GRAD 1-2
Presentation of specialized information and methods of entomologically related research, teaching, and extension.
Su, Au, Wi, Sp Qtrs. Prereq: 1 or 2 2-hr cl. Prereq: 500 or equiv. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

880 Entomology Seminar GRAD 1
Faculty, graduate students, and outside speakers will participate; topics: recent advances in various entomological fields.
Au, Wi, Sp Qtrs. 1 1.5-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

831 Advanced Insect Physiology GRAD 5
Insect biochemistry and recent advances in insect physiology; lab consists of a term project.
* Sp Qtr. 2 cl, 2 3-hr labs. Prereq: 631 or EEOB 415 or Zoology 415 or 432, or equiv.

840 Insect Chemical Ecology GRAD 3
Chemical strategies used by insects for defense, mate finding, and host selection; techniques used for the characterization of semiochemicals.
* Sp Qtr. 1 2-hr cl, 1 2-hr lab. Given at OARDC, Wooster, Ohio. Prereq: 642 and Chem 251 and 254; or equiv or permission of instructor; Biochem 511 recommended.

870 Medical-Veterinary Acarology GRAD 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.
Su Qtr. 1 cl, 4 1-hr lab; 3 hrs cl/lab daily for 2 wks. Course is part of Acarology Summer Program.

871 Agricultural Acarology GRAD 4
An intensive review of the mites associated with crops, ornamental plants, and stored food products with emphasis on taxonomy and ecology of these animals.
Su Qtr. 1 cl, 1 4-hr lab, 8 hrs cl/lab daily for 2 wks. Course is part of Acarology Summer Program.

872 Soil Acarology GRAD 6
Taxonomy, ecology and life-history of mites associated with soil and litter.
Su Qtr. 3 cl, 2 2-hr labs/day for 19 days. Prereq: 670 and Biology 114, or permission of instructor. Course is part of the Acarology Summer Program. This course is graded S/U.

880 Research and Training Seminar GRAD 2
Presentation of procedures, resources, and faculty research in the Department of Entomology; required of all graduate majors during the first year of registration.
Au Qtr. 1 2-hr cl. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

891 Interdepartmental Seminar in Environmental Biology GRAD 2
Selected topics treating the environmental aspects of organisms, populations, and ecosystems as they may relate to time, space, and human activities.
Su, Au, Wi, Sp Qtrs. 1 2-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

999 Research in Entomology GRAD 1-18
Research for thesis and dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Environment and Natural Resources

101 Soils in Our Environment UGRD 5
Soil as: an irreplaceable natural resource, source of pollution, and as the media for storage and inactivation of pollutants. Nutrient pollution of waters, homeowners' problems with soils, and the effect of soils on the food chain.
Su, Au Qtrs. 3 cl, 1 2-hr disc. Not open to Soil Science majors or students required to take or with credit for 300.01 or Soil Sci 300.01. GEC phys sci sequence course, phys sci sequence with EarthSci 100.
119.01 Survey of Park and Policy Careers UGRD 1
The identification, development and recommended academic preparation for professional career opportunities in park administration and conservation policy.
Wi Qtr. 1.2-hr cl. Repeatable to a maximum of 3 cr hrs. Some off campus field trips for direct contact with various park operation and programs with professional administrators. This course is graded S/U.

119.02 Professional Survey of Forestry, Fisheries and Wildlife UGRD 1
Origin, development, and future of the Forestry, Fisheries, and Wildlife professions. Career opportunities, professional development, and curriculum planning for majors and exploring students. Wi Qtr. 1.2-hr cl. Not open to students with credit for Nat Res 119.02. Repeatable to a maximum of 3 cr hrs. Required of Forestry, Fisheries, and Wildlife majors. This course is graded S/U.

119.03 Professional Survey of Environmental Science UGRD 1
Exploration of the field, including areas of study and career opportunities in Ecosystem Restoration, Environmental Science Education, Stream, Coastal and Wetland Science, and Soil and Water Conservation. Wi Qtr. This course is graded S/U.

155 Energy and Environment UGRD 5
This course introduces and examines the fundamentals of energy sources, energy use, energy efficiency, and resulting environmental implications of the various energy supplies. Sp Qtr. Open to students with credit for Earthsci 155. Crosslisted with Earthsci 155. GEC Natural Sciences, Physical Science Courses and sequences.

189 Work Experience in Natural Resources UGRD 2
Student must secure approval of instructor prior to employment (equivalent to 10 weeks full-time) and submit an evaluation by third Friday of quarter following work. Su, Au, Wi, Sp Qtrs. Equiv of 10 wks employment. Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

201 Introduction to Environmental Science UGRD 5
Introduction to environmental science, the ecological foundation of environmental systems, and the ecological impacts of environmental degradation by humans. Su, Au, Wi, Sp Qtrs. 4 cr, 1 dis. GEC bio sciences course.

203 Society and Natural Resources UGRD 5
Introduction to interactions between humans, natural resources, and ecosystems from a social science perspective. GEC Breadth; Social Sciences; Human, Natural, and Economic Resources. Su, Wi, Sp Qtrs.

221 Biology and Identification of Woody Forest Plants UGRD 5
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 Qtr. 3 cr, 1.4-5 hr lab.

222 Natural Resources Data Analysis UGRD 5
Natural resources applications of statistics to land management. Au, Wi, Sp Qtrs. 4 cr, 1.3 hr lab. GEC course.

230 Ecology and Conservation of Birds UGRD 3
Introduction to the ecology and conservation of birds, with special emphasis on field ornithology and student research projects. Su Qtr. Course integrates concepts related to the design of ecological studies, avian ecology, habitat management, and conservation in order to foster an understanding of how research and management can support bird conservation.

231 Research in Avian Ecology UGRD 5
Introduction to the scientific process and research methods as commonly applied to studies of avian ecology and conservation. Sp Qtr. 1.2-3 hr. C311H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Honors program or permission of instructor. Three weekend field trips are required.

232 Landscape Maintenance UGRD 4
Management of landscape plantings with special emphasis on transplanting, mulching, nutrition, pest control, pruning, physiological disorders and diagnosing plant problems. Wi Qtr. 2.2-hr cl. Cross-listed in Horticulture and Crop Science.

289 Natural Resources Practicum UGRD 2
Experience in the application of principles and techniques of environmental/natural resources problem solving. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Enrollment in the School of Environment and Natural Resources and permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

300.01 Soil Science UGRD 3
Introduction to soil physical, chemical, and biological properties related to land use, environmental quality, and crop production. Au, Wi Qtrs. 3 cr. This course is available for EM credit. NS Adminis Cond course. BER/GEC/LAR course.

300.02 Soil Science Laboratory UGRD 2
Observation and quantitative determination of soil properties. Au, Wi Qtrs. 1.3-hr lab. Prereq or concur: 300.01. This course is available for EM credit. NS Adminis Cond course. BER/GEC/LAR course.

311 Foundations for Environmental Communications, Education and Interpretation UGRD 3
Foundational course that prepares students in ECEI for understanding the theoretical bases that relate and differentiate environmental communications, education, and interpretation. Au Qtr. 2.1-5 hr cl. Prereq: 201 and 203 or permission of instructor. Course includes required field trips.

319 Introduction to Forestry Fisheries and Wildlife UGRD 3
Ecological principles applied to integrated management of forest, fish, and wildlife resources; economic, policy, and administrative aspects of forestry, fisheries, and wildlife management. Au, Sp Qtrs. 3 cr. Prereq: 201 and 203. Required of Forestry, Fisheries, and Wildlife majors.

322 Forest Ecosystems UGRD 5
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. Au Qtr. 3 cr, 1.4-5 hr lab. Prereq or concur: 201, 203, 221 or permission of instructor.

323 Forest Biometrics UGRD 5
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 Qtr. 3 cr, 2.2 hr lab. Prereq: 222 or Stat 145 or H&CS 260 or Anim Sci 260.

324 Natural Resources Photointerpretation UGRD 3
Principles and methods of photointerpretation for natural resources management. Wi Qtr. 2 cr, 1.3 hr lab. Prereq: 201 and 203.

333 Silviculture UGRD 5
Ecological principles and practical applications of methods for controlling forest ecosystem structure and function; prescription of silvicultural practices in the field. Sp Qtr. 3 cr, 1.5 hr lab. 1 or 2 all-day field trips. Prereq or concur: 201, 203, and 221, or permission of instructor.

340 Concepts of Parks and Recreation UGRD 3
Examination of parks and recreation concepts including development, rationale, and frameworks for park and recreation systems in the United States. Wi Qtr. 3 cr.

350.01 Introduction to Wildland Fire Management UGRD 3
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 Qtr. 1.3 cr.

350.02 Wildland Fire Management Laboratory UGRD 2
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 Qtr. 1.3 hr cl. Concur: 350.01.

355 Water Quality Management UGRD 3
Causes, consequences, and solutions of pollution in lakes, rivers, wetlands, and groundwater; analysis of the physical, chemical, and biological indicators of water quality. Wi Qtr. 1.3 hr cl.

367 The Making and Meaning of the American Landscape UGRD 5
Interpretation of the contemporary American landscape as the product of many interacting physical and sociocultural forces.

400 Natural Resources Policy UGRD 5
Conceptual and historic development, implementation, and evaluation of resource policy. Wi, Sp Qtrs. 4 cr, 1 rec. Prereq: 201 and 203. BER/GEC/LAR course.

410 Environmental Interpretation and Visitor Services UGRD 5
Principles and practice in communicating with visitors in leisure and non-formal education settings. Wi Qtr. 2.2-5 hr cl. 3 independent off campus site visits. Prereq: 367 or equiv. Not open to students with credit for 610.
413 Methods for Environmental and Conservation Education UGRD 5
Experience centered course for environmental and conservation education including objective, instructional, and evaluative procedures appropriate for nonformal settings. Sp Qtr. 2 2.5-hr cl. Not open to students with credit for 613, Educ T&L 613.

415 Zoo Science and Management UGRD 4
This course introduces students to zoo science and management through combination of formal course work and experience with zoo/aquarium professionals. Wi Qtr. Prereq: 319 or 340 or 311 or permission of instructor. This course will be held on-site at the Columbus Zoo and Aquarium in their classrooms, laboratories and other facilities.

432 Sustainable Forest Products UGRD 5
A study of forest operations including timber harvesting and transport from the forest to the mill. Uses of wood, fiber products, and wood waste, including solid wood products, wood composites, biomass energy, and biofuel. Consideration of the environmental effects of the harvesting and manufacturing processes. Sp Qtr. Prereq: 201 and 203 or permission of instructor.

442 Soil Management UGRD 5
A consideration of the necessity for conserving our soil resource. Emphasis on processes active in erosion and management practice to sustain productivity and maintain environmental quality. Sp Qtr. 5 cl.

448 Natural Resources Law Enforcement UGRD 4
An examination of the law enforcement function in natural resources and recreation management. Prerequisite for acceptance to the Natural Resources Ranger Academy Program. Wi Qtr. 1 4-hr cl.

494 Group Studies UGRD 3-5
Selected topics in soil science. Au, Wi, Sp Qtr. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs.

498.01 Study Tour - Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.

498.02 Study Tour - Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.

510 Natural History of Ohio UGRD 5
Field course emphasizing inter-relationship among physical and biological factors in various ecological settings; field techniques and identification skills used for research paper; teacher section offered. Sp Qtr. 2 2.5-hr cl and Sat field trip.

531 Environmental and Natural Resources Economics UGRD 5
Economic analysis of the use and management of natural resources and of environmental policy. Au. Sp Qtr. 5 cl. Not open to students with credit for AED Econ 531. Cross-listed in Agricultural, Environmental, and Development Economics.

540 Urban and Sports Turf Soils UGRD 3
Soil science relevant to urban use, including problems associated with urban soil, urban and sports turf soil design, and playability of sports turf soils. Sp Qtr. 3 cl. Prereq: 300.01 or permission of instructor.

567 Communicating Environmental and Natural Resources Information UGRD 5
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. Au, Wi, Sp Qtr. 3 2-hr cl. Prereq: Second writing course. GEC/LAR course.

580 Soil Fertility and Fertilizers UGRD 3
Principles of soil fertility, plant nutrition, and fertilizer management; environmental considerations and low input concepts in soil fertility. Wi Qtr. 2 1.5-hr cl.

590H Honors Colloquium UGRD 2
Instruction in the preparation of research proposals and discussion of current research in natural resources. Wi Qtr. 1 2-hr cl. Prereq: Jr standing in ENR honors program. Required of all ENR honors students. This course is graded S/U.

595.01 Wilderness Leadership Education - Term UGRD 6
Affiliate program with the National Outdoor Leadership School (NOLS). Field study and practice of wilderness expedition skills, leadership, group dynamics, safety, judgement, and environmental studies. Term - 4 weeks. Prereq: Permission of instructor. Approval of NOLS application. Repeatable for different titled study tours only. Specific content, location, quarter(s) of offering, and prerequisites vary. Contact department office for details. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

595.02 Wilderness Leadership Education - Quarter UGRD 15
Affiliate program with the National Outdoor Leadership School (NOLS). Field study and practice of wilderness expedition skills, leadership, group dynamics, safety, judgement, and environmental studies. Quarter - 12 weeks. Prereq: Permission of instructor. Approval of NOLS application. Repeatable for different titled study tours only. Specific content, location, quarter(s) of offering, and prerequisites vary. Contact department office for details. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

596.01 Environmental Field Studies - Term UGRD 6
Affiliate program with the School for Field Studies (SFS). Interdisciplinary studies an field research methods exploring ecological, socio-political, and economic aspects of environmental issues. Term - 4 weeks. Prereq: Permission of instructor. Approval of SFS application. Repeatable for different titled study tours only. Specific content, location, quarter(s) of offering, and prerequisites vary. Contact department office for details. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

596.02 Environmental Field Studies - Quarter UGRD 15
Affiliate program with the School for Field Studies (SFS). Interdisciplinary studies an field research methods exploring ecological, socio-political, and economic aspects of environmental issues. Quarter - 12 weeks. Prereq: Permission of instructor. Approval of SFS application. Repeatable for different titled study tours only. Specific content, location, quarter(s) of offering, and prerequisites vary. Contact department office for details. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

597.02 Antarctic Marine Ecology and Policy UGRD 5
Historical and contemporary evaluation of Antarctic resource management and its scientific basis. Sp Qtr. 1 5-hr cl. Prereq: Sr standing. Not open to students with credit for Int Stds 597.02 or Zoology 597.02. GEC/LAR courses. Cross-listed in International Studies.

598 Natural Resources Management Study Tour UGRD 2-5
Analysis and comparative studies of natural resources management program through on-site visits and interaction with professional managers. Au, Wi, Sp Qtrs. 1-2 hr cl; field study tour. Prereq: Jr standing. Repeatable to a maximum of 10 cr hrs. Travel and subsistence costs will be borne by the student.

601 Evaluation of Environmental Impact UGRD 4
Study of impact of human activity in natural resources through evaluation of environmental impact. Au Qtr. 2 2-hr cl. Prereq: Sr or grad standing. Not open to students with credit for Nat Res 601.

602 International Environmental Impact UGRD 5
Assessment
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. Wi Qtr. 2 2-hr cl, 1 hr arr. Prereq: Jr, sr, grad standing or permission of instructor.

606.01 Natural Resources Management UGRD 5
Integration of technical knowledge with social and institutional constraints as they relate to professions in resources management. Au, Wi, Sp Qtrs. 4 cl, 1-hr disc (Arranged). Prereq: Sr standing and permission of instructor. Required of Human Dimensions and Environmental Science majors.

606.02 Natural Resources Management for Forestry Fisheries and Wildlife UGRD 5
Application and integration of technical knowledge and methodologies in the forestry fisheries, and wildlife sciences to planning, problem-solving, and decision-making in natural resources. Au Qtr. Arr. Prereq: 323 or 626 or 662 or Nat Res 323 or 626 or 662 and 659 and standing in natural resources. Students will normally be Forestry, Fisheries, and Wildlife majors. Required of Forestry, Fisheries, and Wildlife majors. Lodging, meals, and transportation fee required for off-campus field experience. 2-week off campus field experience before autumn quarter. Course continues on-campus during autumn quarter.

611 Great Lakes Education Workshop UGRD 1-4
Techniques and curricula for presenting interdisciplinary aspects of the oceans and Great Lakes in formal and nonformal education settings. 6 cr Qtr, Wi, Sp Qtrs. 10 course hrs per cr hr, field trip. Prereq: Jr standing or above. Repeatable to a maximum of 10 cr hrs. Offered frequently off-campus on request. Cross-listed with Education Teaching and Learning. Taught at F. T. Stone Lab.
614 Marine and Aquatic Education UGRD 3
Overview of oceanic and Great Lakes resources, their roles in history, climate, commerce, and culture; examination of teaching materials for formal and informal settings.
Su, Wi Qtr. 1 3-hr cl, field trip. Prereq: 20 cr hrs of physical, and/or biological sciences or teacher certification, and permission of instructor. Cross-listed with Educational Studies. Travel and subsistence costs for winter field trip must be borne by students. Taught at F.T. Stone Lab.

615 Environment, Risk, and Decision Making: Theory UGRD 5
The theory and psychology behind individual and group decision making for the environment and other risk management contexts. Wi Qtr. 3 1.5-hr cl. Prereq: Jr standing or above. Not open to students with credit for ENR 815.

617 Aquatic Environmental Science for Teachers UGRD 3
Classroom adaptable study of coastal/lake environments including physical and biological characteristics and processes, species interactions, management principles, and human environmental impacts. Su Qtr. 6 days, 8AM-4PM. Prereq: 20 cr hrs of physical and/or biological sciences. Taught at F.T. Stone Laboratory.

618 Ecological Engineering and Science UGRD 4
Definition, classification, and practice of Ecological Engineering. Course describes ecological systems and the design of natural systems to provide societal services and benefits to nature. Wi Qtr. 2.2-hr cl. Prereq: Jr standing with at least one course in one of the following subject areas: biology, ecology, engineering, or geology. Not open to students with credit for Civil En 618 or FA&KB Eng 618 or Env Eng 618. Cross-listed in Food, Agricultural and Biological Engineering and Environmental Engineering.

620 Principles of Fisheries Ecology and Management UGRD 5
Ecological principles applied to conservation and management of aquatic vertebrates. Principles of fisheries management including social and economic factors. Wi Qtr. 5 cl. Prereq: 319, or grad standing, or permission of instructor.

622 Stream Ecology UGRD 5
Structure, function, and biota of streams and rivers. Emphasis on ecosystem processes and community dynamics over space and time. * Sp Qtr. Prereq: 319 or permission of instructor.

623 Principles of Wildlife Ecology and Management UGRD 5
Principles of population and community ecology applied to conservation and management of terrestrial vertebrates. Principles of wildlife management including social and economic factors. Au Qtr. 3 1.5-hr cl. Prereq: 319 or Nat Res 319 or grad standing or permission of instructor.

624 Wildlife Identification and Management UGRD 5
Characteristics, life histories, and population management of North American game, non-game, and special interest wildlife. Wi Qtr. 2 1.5-hr cl, 2 2-hr labs, 1-2 Sat field trips required. Prereq: 319 or equiv.

625 Management of Wildlife Habitat UGRD 3
Principles and practices of ecosystem conservation for game, non-game, and special interest wildlife. Wi Qtr. 3 1-hr cl. Prereq: 319 or permission of instructor.

626 Methods in Aquatic Ecology UGRD 5
Introduction to experimental designs, field and laboratory techniques, and statistical methods commonly used to study aquatic ecosystems. Au Qtr. 3 cl, 1 4-hr lab, 4 overnight field trips. Prereq: 201 or grad standing.

627 Ecology and Management of Aquatic Invertebrates UGRD 5
Diversity, ecology, and management of the major groups of aquatic invertebrates, with an emphasis on North American freshwater macroinvertebrates. * Sp Qtr. 3 cl, 1 4-hr lab. Prereq: 319 or permission of instructor.

628 Aquaculture UGRD 5
Overview of physical, biological and economical factors influencing fish culture systems. World fish production practice comparisons. Emphasis on propagation and conservation efforts. Wi Qtr. 3 cl, 1 4-hr lab, 2 fish hatchery trips. Prereq: 319 or grad standing.

629 Ecology and Management of Wetlands Birds UGRD 3
Ecology and habitat relationships of wetland birds that inhabit the Lake Erie region. Management of wetlands as wildlife habitat. Su Qtr. Prereq: College Biology, Ecology, or permission of instructor. Taught at F.T. Stone Lab.

630 Soils of Forest Ecosystems UGRD 3
Characteristics and processes of soils in natural and managed forests; interactions of forest communities and soils; management of soils in forest ecosystems. Au Qtr. 3 cl. Designed for undergraduate and graduate students, and practicing professionals in forestry and soil science.

631 Arboriculture UGRD 5
Integration of environmental factors and culture practices necessary to establish, grow and maintain plant function in the landscape in an ethical, cost effective manner. Au Qtr. 4 cl, 1 2-hr lab. Prereq: H&C&S 234 or ENR 221. 400 level course in Entomol or Plnt Path is strongly recommended. This course is available for EM credit.

635 Forest Management UGRD 4
Application of biological, economic, and planning principles to address the sustainable management of forest resources with emphasis of the timber resource and associated products. Wi Qtr. 2 2-hr cl. Prereq: 323 and 333, or permission of instructor.

640 Natural Resources Program Planning I UGRD 5
Inventory and evaluation of natural resources for program planning with consideration of goals, objectives and actions, budgeting, and planning documents. Au Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 311 or 340 and 400.

641 Natural Resources Program Planning II UGRD 3
Application of concepts, strategies, and data from Natural Resources Program Planning I to a field planning exercise. Wi Qtr. 1 2-hr cl, 1 2-hr lab. Prereq: 640.

642 Natural Resources Administration UGRD 5
Organisation and administration of parks and associated recreation areas and activities. Sp Qtr. 5 1-hr cl. Prereq: 400 or permission of instructor.

643 Outdoor Recreation and Tourism by the Private Sector UGRD 4
Factors influencing supply and demand for outdoor recreation and tourism facilities provided by the private sector; the feasibility study, liability, insurance, and other managerial concerns. Sp Qtr. 4 cl. Prereq: 545.

649 Wildlife Conservation Policy UGRD 4
Overview of fish and wildlife policy in the US and key issues affecting wildlife conservation in North America. Wi Qtr. Prereq: 400.

650 Soil Landscapes: Morphology, Genesis and Classification UGRD 5
Course in soil genesis, classification and mapping. Au Qtr. 2 2-hr cl, 1 2-hr lab. Prereq: 300.01 and 300.02 or permission of instructor.

651 Water Resources Institutions and Policies UGRD 5
Review and advanced analysis of Ohio, interstate, and federal institutions and policies which influence the use and management of water resources. Wi Qtr. 2 2-hr, 1 1-hr cl arr. Prereq: 400 or permission of instructor and sr standing or grad standing.

655 The Soil Physical Environment UGRD 4
Principally involves the state and transport of water, heat and gas within soil, and the associated soil physical properties. Au Qtr. 4 hrs lec. Prereq: Physics 111 or 131 and Math 150 or equiv.

656 Ecosystems of the World: Temperate, Boreal and High Latitude Ecosystems UGRD 3
Intermediate course in ecology emphasizing structure-function relations at broad scales, incorporating soil development, geomorphology, climate, and human impact into analyses of major temperate, boreal, and polar ecosystems. Wi Qtr. 2 1.5-hr cl. Prereq: Sr or grad standing; PCMB 413.01 or EEOB 413.01 or equiv; and 20 additional hrs in natural science or natural resources or permission of instructor. Not open to students with credit for EEOB 656 or PCMB 656. Cross-listed in Evolution, Ecology, and Organismal Biology.

660 Soil Chemical Processes and Environmental Quality UGRD 5
A comprehensive study of chemical processes in soils and their impact on environmental quality. Computer laboratory provides hands-on experience with geochemical speciation models. Wi Qtr. 2 2-hr cl. Prereq: 300.01 or graduate standing or permission of instructor. Not open to students with credit for 680.

662 Wildlife Ecology Methods UGRD 5
Methods used by professional wildlife ecologists to measure population characteristic and habitat quality for wild terrestrial vertebrates. Sp Qtr. 2 cl, 2 3-hr labs, 2 Sat and 1 full weekend field trips required. Prereq: 222 or Stat 145 or H&C&S 260 or Anim Sci 260 or AEE 387 and ENR 319, or permission of instructor.
665 Biology of Soil Ecosystems UGRD 4
A comprehensive study of microbial communities and their role in providing ecosystems services.
Sp Qtr. 2-2 hr cl. Prereq: 300.01 or Soil Sci 300.01. Not open to students with credit for 682.

671 Environmental Soil Physics UGRD 5
Soil physical, mechanical, hydrological and rheological properties in relation to environment quality including Greenhouse effect, wetland management, irrigation and salinity, soil erosion, tillage and mulching.
Wi Qtr. 3 cl, 2-2 hr labs. Prereq: 442 or Soil Sci 442, Physics 131, Math 151.

675 Environmental Fate and Impact of Contaminants in Soil and Water UGRD 4
An overview of contaminants sources, transport through soil and water, and environmental fate and impact to human and ecosystem receptors.
Sp Qtr. 2-2 hr cl. Prereq: Two qtrs of chemistry.

684 Internships in Natural Resources UGRD 0

Professions
Internship (equivalent to 10 weeks of full-time employment) in natural resources professions arranged with cooperating natural resources or environmental agencies, organizations or industries.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Enrollment in the School of Environmental Natural Resources and permission of instructor. Maximum of 6 quarters. Repeatable. This course is graded S/U.

689 Professional Practice in Natural Resources UGRD 4
Preparation of a written report and delivery of a presentation based on internship employment in natural resources professions.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 684 and permission of instructor. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

690 Workshop in Environmental Education UGRD 1-3
Problems of instruction in environmental education with consideration of both traditional approaches and current developments in content and methodology.

691 Workshop in Environmental Management UGRD 1-2
Identification of environmental problems and management alternatives with emphasis on related education and communications techniques; survey of related research; development of applied educational and communications strategies.
Arr. Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

693 Individual Studies in Natural Resources UGRD 2-5
Individual Studies in Natural Resources.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies UGRD 2-5
Group studies on the nature and management of natural resources encompassed in one of the following areas.
Su, Au, Wi, Sp Qtrs. 1 3-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress ('P') graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour - Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour - Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

720 Characterization of Soil in the Field and Laboratory: Sampling UGRD 3
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.
Au Qtr. 2 3-hr labs. Prereq: 300.01, 300.02.

725 Wetland Ecology and Management UGRD 5
Biological, physical, chemical, and ecological aspects of major wetland ecosystems in North America; valuation, classification, and management of wetlands for biotic resources and water management.
Au Qtr. 1 5-hr cl. Prereq: EEOB 413.01 or EEOB 503.01 or permission of instructor.
770 Watershed Ecology and Restoration UGRD 4
Fundamental ecological processes affecting streams, wetlands, and rivers at the watershed scale and the emerging roles of restoration and adaptive management in disturbed aquatic ecosystems.
* Au Qtr. 3 hr lecture, field trips. Prereq: Grad standing or permission of instructor. Offered every other year.

797 Interdepartmental Seminar UGRD 1-5
Two or more departments may collaborate in presenting seminars in subjects of mutual interest; topics to be announced.
Su, Au, Wi, Sp Qtr. Repeatable.

799 Current Topics in Environment and Engineering UGRD 1
Summer seminar which presents research, management and policy of topics in science, environment and engineering.
Su Qtr. 1.5-hr/wk, 5 week term. Taught at F.T. Stone Laboratory. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

800 Research in Natural Resources GRAD 3
The use of science and research to address natural resource problems; development of a thesis proposal.
Au Qtr. 2-1.5 hr cl. Prereq: Grad standing. This course is graded S/U.

815 Advanced Environment, Risk and Decision Making GRAD 5
Theory of individual and participatory risk-based decision making and applications to improve risk communication and decision making in environmental and other risk-based management contexts.
* Wi Qtr.

835 Ecosystem Management Policy GRAD 5
Theory and practice of integrating natural and social science for managing watersheds, forests, and regions. Foundations, adoption, and potential future for this emerging natural resources paradigm.
* Au Qtr. 2-2 hr cl, 1-2 hr lab. Prereq: Grad standing. Service learning may include field and campus experience.

840 Theoretical Foundations in the Human Dimensions of Ecosystem Management GRAD 3
Provides an overview of interdisciplinary theories and frameworks for understanding and addressing natural resources management issues.
Au Qtr. Prereq: Grad standing.

851 Human Dimensions Theory Building in Natural Resources GRAD 4
Explores fundamental concepts in human dimensions theory building related to natural resources. Bridges qualitative and quantitative research approaches, applied to developing a practice thesis proposal.
* Wi Qtr.

871 Soils and Climate Change GRAD 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.
Wi Qtr.

880 Natural Resources Seminar UGRD 1
Required of all graduate students in natural resources.
Au, Wi, Sp Qtr. 1.2 hr cl. Prereq: Grad standing. Repeatable. This course is graded S/U.

893 Advanced Individual Studies UGRD 1-5
Individual studies in selected areas not otherwise offered in natural resources.
Su, Au, Wi, Sp Qtr. Arr. Prereq: Grad standing and permission of instructor. Repeatable. Not for use by PhD candidates who have passed the general examination. Not more than 10 hrs of any 693 and/or any 893 will apply toward the master's degree. This course is graded S/U.

894 Advanced Group Studies UGRD 2-5
Advanced group studies in the nature and management of natural resources.
Su, Au, Wi, Sp Qtr. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.

897 Research Proposal Symposium GRAD 1
A symposium for graduate students to present their thesis and dissertation proposals.
Sp Qtr. Arr. Prereq: Grad standing. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

899.01 Fish and Wildlife Management Seminar GRAD 2-5
Seminar on special topics in fish and wildlife ecology and management.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 160 cr hrs, each subdivision repeatable to 20 cr hrs.

899.02 Watershed Ecology and Management GRAD 2-5
Seminar on special topics in watershed ecology and management.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 160 cr hrs, each subdivision repeatable to 20 cr hrs.

899.03 Environmental Science Seminar GRAD 2-5
Seminar on special topics in environmental science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 160 cr hrs, each subdivision repeatable to 20 cr hrs.

899.04 Soil Science Seminar GRAD 2-5
Seminar on special topics in soil science.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 160 cr hrs, each subdivision repeatable to 20 cr hrs.

899.05 Forest Science and Management Seminar GRAD 2-5
Seminar on special topics in forest science and management.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 160 cr hrs, each subdivision repeatable to 20 cr hrs.

899.06 Environmental Policy and Decision-Making Seminar GRAD 2-5
Seminar on special topics in environmental policy and decision-making.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 160 cr hrs, each subdivision repeatable to 20 cr hrs.

899.07 Environmental Education and Communication Seminar GRAD 2-5
Seminar on special topics in environmental education and communication.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 160 cr hrs, each subdivision repeatable to 20 cr hrs.

985 Research Paradigms GRAD 5
An examination of research paradigms and techniques used in the disciplines involved in natural resource science and management.
* Au Qtr. 5 cl. Prereq: PhD standing or permission of instructor. Required of all E&AE PhD students in Natural Resources.

993.01 Individual Studies: Soil Science Instruction GRAD 3-5
Special problems in soil science not included in regular courses. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

993.02 Individual Studies: Special Problems GRAD 3-5
Special problems in soil science not included in regular courses. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

999 Research GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Environmental Engineering

413 Fluid Mechanics UGRD 4
Fluid properties; fluid statics; flow concepts; continuity, energy, and momentum equations; dimensional analysis and dynamic similarity; viscous effects; drag; basic pipe flow; lab demonstrations and experiments.
* 3 cl, 1 hr lab. Prereq: Env Eng or Civil En or F&A&B Eng major; minimum CIPHR of 2.0, or written permission of dept chairperson. Not open to students with credit for Civil En 413. Cross-listed in Civil Engineering.

460 Professional Aspects of Civil and Environmental Engineering UGRD 1
Topics in civil and environmental engineering ethics and practice.
1 2-hr lab. Prereq: Civil En or Env Eng major; must be taken as soon as possible upon entering the major. Not open to students with credit for Civil En 460. Cross-listed in Civil Engineering. This course is graded S/U.

511 Introduction to Environmental Engineering UGRD 3
Quantitative analysis of water, air, and noise pollution, hazardous waste management, ionizing radiation, occupational and environmental health engineering, and pollution prevention.
Sp Qtr. 3 cl. Prereq: Chem 122 or 125, and Math 152; acceptance as an engineering science major or permission of instructor. Not open to students with credit for Civil En 511.

516 Water Resources Engineering UGRD 4
Pipe systems, introduction to open channel flow, basic hydrology, demographic studies, water supply, and wastewater flows.
4 cl. Prereq: 413 and En Graph 200 or En Graph 167 and env eng or civil en major. Not open to students with credit for Civil En 516. Cross-listed in Civil Engineering.

520 Design of Treatment Facilities UGRD 4
Selection and design of processes for the purification of natural and used waters.
4 cl. Prereq: Chem 122 or 125. Not open to students with credit for Civil En 520. Cross-listed in Civil Engineering.
450 Civil and Environmental Engineering UGRD 4 Systems
Basic concepts and methods of systems engineering and applications to civil engineering problems in transportation and water resources planning, structural design, and construction management. 4 cl. Prereq: Civil En 405. Not open to students with credit for Civil En 540. Cross-listed in Civil Engineering.

576 Civil and Environmental Engineering UGRD 4 Economics and Planning
Engineering economics and theories of planning applied to private and public civil works. 4 cl. Prereq or coreq: Civil En 406. Not open to students with credit for Civil En 576. Cross-listed in Civil Engineering.

590.04 Special Topics: Environmental Engineering UGRD 2 Process Development
Studies in analysis, design, test, fabrication, and construction. Topics of special interest in environmental engineering process design. Prereq: Jt standing in engineering or written permission of instructor. Repeatable to a maximum of 8 cr hrs. Not open to students with credit for Civil En 590.04.

610 Analysis of Natural and Polluted Waters UGRD 3 A laboratory study of the measurement and interpretation of water quality indices and pollution parameters including BOD, COD, alkalinity, nutrients, PH, and heavy metal. Au Qtr. 2 cl, 1 3-hr lab. Prereq: Chem 122 or 125 and Math 152 or equiv. Not open to students with credit for Civil En 610.

613 Applied Hydrology UGRD 4 Hydrologic cycle, meteorology, streamflow, evapotranspiration, hydrographs, runoff relations, runoff hydrographs, groundwater, unit hydrographs, flood routing, frequency, and duration studies, and application of hydrologic techniques. 4 cl. Prereq: 516 or Civil En 510 or 516. Not open to students with credit for Civil En 613. Cross-listed in Civil Engineering.

618 Ecological Engineering and Science UGRD 4 Definition, classification, and practice of Ecological Engineering. Course describes ecological systems and the design of natural systems to provide societal services and benefits to nature. * 2 2-hr cl. Prereq: Jt standing with at least one course in one of the following subject areas: biology, ecology, engineering, or geology. Not open to students with credit for F&KB Eng 618 or ENR 618 or Nat Res 618 or Civil En 618. Cross-listed in Food, Agricultural and Biological Engineering and Environment and Natural Resources.

619 Environmental Engineering Capstone UGRD 4 Design
Experimental and design laboratory for water supply collection, transmission, distribution and measurement systems, sewage and storm water collection, and disposal and measurement systems. Sp Qtr. 2 cl, 2 2-hr labs. Prereq: 516, 520, 576 or Civil En 516, 520, 576 and sr standing in environmental eng. Must be taken as close to graduation as possible. Not open to students with credit for 519 or Civil En 619. Third writing course.

620 Treatment Plant Design Laboratory UGRD 2 A laboratory demonstration of the treatment processes discussed in 520 and an introduction to pilot-testing procedures for environmental engineering majors. Wi Qtr. 1 cl, 1 3-hr lab. Prereq: 510 or Civil En 610; prereq or concur 520 or Civil En 520. Not open to students with credit for Civil En 520.

624 Coastal and Ocean Engineering UGRD 4 Linear and nonlinear waves, water level and wave forecasting spectra, forces on fixed structures; beach processes, littoral drift, and transport; shoreline protection. 4 cl. Prereq: 516 or Civil En 516. Not open to students with credit for Civil En 624. Cross-listed in Civil Engineering.

640 Civil and Environmental Systems Engineering UGRD 4 Engineering
Critical path method; linear, integer, and nonlinear programming simulation; mathematical modeling and optimization with design applications in civil and environmental engineering; research paper. 4 cl. Prereq: Permission of instructor. Not open to students with credit for 540 or Civil En 540 or 540. Cross-listed in Civil Engineering.

693 Individual Studies UGRD 1-5 Individual conferences, assigned readings, and reports on minor investigations. Prereq: Permission of instructor. Limitations on number of cr hrs applicable toward degrees are governed by departmental rules. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694.03 Group Studies: Environmental Engineering UGRD 1-5 The student must register for particular decimals from fields of environmental engineering listed; the topics, cr hrs, and instructors will be announced in quarter previous to the quarter offered. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs, not more than 10 of which shall be in any one of the decimals.

699 Undergraduate Research in Environmental Engineering UGRD 1-5 Engineering
Opportunity for undergraduate student to conduct research in Environmental Engineering. This course is graded S/U. Repeatable to a maximum of 15 cr hrs.

711 Bioremediation of Used Waters UGRD 4 Principles and design of biological processes for used water treatment. Wi Qtr. 4 cl. Prereq: 520 or Civil En 520. Not open to students with credit for Civil En 711.

713 Water Quality and Environmental Measurements UGRD 4 The application of advanced physical and chemical measurement and calculation techniques to environmental engineering problems. Wi Qtr. 4 cl. Prereq: 510 or Civil En 510 or permission of instructor. Not open to students with credit for Civil En 713.

714 Hazardous Waste Management UGRD 3 Environmental regulations; site remediation process; remedial alternatives; implementation; case studies. * Sp Qtr. 3 cl. Prereq: 520 or Civil En 520. Not open to students with credit for Civil En 714. Offered in odd years.

715 Water Resource Systems: Water Supply UGRD 5 Regional and municipal water supply design and management; water use, law, demand, pricing, supply alternatives, and allocation; and optimal system and component design. * Sp Qtr. 5 cl. Prereq: 516 and 540 or Civil En 516 and 540. Not open to students with credit for Civil En 715.

717 Municipal and Industrial Solid Waste Management UGRD 4 Characterization and sources of solid wastes; solid waste management; collection systems; processing; disposal; and recycle. Sp Qtr. 4 cl. Prereq or concur: 520 or Civil En 520. Not open to students with credit for Civil En 520.

718 Strategies for Industrial Environmental Management UGRD 3 Industrial environmental management systems, audits, accounting, reports; industrial ecology; design for environment; ISO 9000, 14000, global competition; entrepreneurship; case studies. Au Qtr. 1 3-hr cl. Prereq or concur: 540 or Civil En 540 or equiv with permission of instructor. Not open to students with credit for Civil En 718.

719 Water Quality Modeling UGRD 3 Stream and effluent standards for beneficial uses, and computer modeling of pollutant impacts on rivers. * Au Qtr. 3 cl. Prereq: 520 or Civil En 520 or equiv with written permission of instructor. Not open to students with credit for Civil En 719. Offered in even years.

720 Environmental Engineering Risk Assessment UGRD 3 Basic methodologies for quantitative risk assessment and applications to a variety of contaminants, pathways, and engineering problem areas. Wi Qtr. 3 cl. Prereq: 540 or Civil En 540 or grad standing. Not open to students with credit for Civil En 720.

722 Open Channel Hydraulics UGRD 4 Flow classifications, channel properties, energy and momentum principles, critical flow, uniform flow formulas, erodible and nonerodible channel design, and gradually varied flow profiles computations. 4 cl. Prereq: 516 or Civil En 516. Not open to students with credit for Civil En 722. Cross-listed in Civil Engineering.

723 Transport Phenomena in Water Resources UGRD 4 Engineering
Water environment momentum mass energy transport, laminar and turbulent mixing; applications include river and lake pollutant dispersal, heated effluent plumes, eutrophication processes. 4 cl. Prereq: 516 or Civil En 516 and Math 255 or 415, or equivs. Not open to students with credit for Civil En 614 or 723. Cross-listed in Civil Engineering.

760 Civil and Environmental Engineering UGRD 5 Planning
Water resource planning process, benefit-cost analysis; environmental, economic, and social impacts of civil engineering projects; project selection; and case studies in water resources, transportation, and energy. 5 cl. Prereq: 516 or Civil En 516. Not open to students with credit for Civil En 760.

771 Radioactive Waste Management UGRD 3 Overview of radioactive waste management. Covers waste categories, sources, treatment and disposal methods, minimization, transportation and current research topics. 3 cl. Prereq: Nuclr En 505 or Nuclr En 606 or permission of instructor. Not open to students with credit for Civil En 771 or Nuclr En 771. Cross-listed in Nuclear Engineering.
783H Honors Research UGRD 1-5
Supervised research and project work arranged individually for honors students. Prereq: Honors standing; permission of instructor. Limitations on number of credit hours applicable toward degree are governed by departmental rules. This course is graded S/U.

797 Interdepartmental Seminars UGRD 1-5
Two or more departments may collaborate in presenting seminars in subjects of mutual interest; topics to be announced. Repeatable. Cross-listed in Civil Engineering.

798 Current Topics in Environmental Science and Engineering UGRD 1
Seminar course which presents current research findings on environmental quality and pollution control.
Au, Sp Qtr. 1 cl. Prereq: Grad standing in engineer, science, nat res, or agr, or permission of instructor. Repeatable to a maximum of 3 cr hrs. Not available for simultaneous credit as ENR 798. Cross-listed in Environment and Natural Resources.

Environmental Science

694 Group Studies UGRD 1-5
Group Studies.
Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr cl. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

793 Individual Studies in Environmental Science GRAD 1-18
Affords the qualified student the opportunity for independent reading, study, practical experience, or laboratory work in a specialized field of interest.
Su, Au, Wi, Sp Qtr. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

798 Current Research Issues in Environmental GRAD 1-18
Studies
Graduate seminar where faculty from within and outside the University and graduating students will present their research.
Au, Wi, Sp Qtr. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

999 Research in Environmental Science GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.

Evolution, Ecology and Organismal Biology

110 Introduction to Local Flora UGRD 3
Structures, processes, and stages of the plant life cycle; common families of flowering plants; plant geography, ecology, and conservation; and uses of plants.
Su Qtr. 1 week full-time at Stone Laboratory. Prereq: A course in high school biology

125 Introductory Aquatic Biology UGRD 3
Components of the ecosystem in freshwater aquatic environments at Stone Laboratory.
Su Qtr. 1 week full-time at Stone Laboratory. Prereq: A course in high school biology

126 Introduction to the Study of Birds UGRD 3
An introductory course for students interested in ornithology including bird identification, behavior and ecology, with an emphasis on field and laboratory techniques.
Su Qtr. 1 week full-time at Stone Laboratory. Prereq: Successful completion of a course in high school biology.

210 Local Flora UGRD 5
A lecture, laboratory, and field course in identifying common Ohio plants; emphasis on taxonomic principles, use of keys and manuals, and field recognition of plants.
Su, Sp Qtrs. 3 cl, 2-2 hr labs, several Sat field trips. Prereq: Biology 114, or Plnt Bio 102 or 112, or equiv with written permission of instructor. Not open to students with credit for Plnt Bio 210. NS Admis Cond course.

232 Introductory Physiology UGRD 5
A survey of the human nervous system, sense organs, muscle function, circulation, respiration, digestion, metabolism, kidney function, and reproduction.
Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: 5 cr hrs in general biology or general chemistry; Biology 102 or 113 recommended. Credit does not count toward a major in evolution and ecology or zoology. Not intended for biological science majors. GEC bio sci course. NS Admis Cond course.

235 Introductory Anatomy UGRD 5
An introduction to mammalian anatomy with emphasis on human anatomy; dissection of cat.
Su, Wi Qtrs. 3 cl, 1-3 hr lab. Prereq: 5 cr hrs in general biology (Biology 102 recommended) or Anthrop 200. Credit does not count toward a major in evolution and ecology or zoology. Not intended for biological science majors. GEC bio sci course. NS Admis Cond course.

293 Individual Studies UGRD 1-5
Individual work in the field of the chosen problem.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 405; and written permission of instructor. Repeatable to a maximum of 15 cr hrs. Only 5 hrs to count on evolution and ecology or zoology majors. This course is graded S/U.

294 Group Studies UGRD 1-5
Study of selected topics in evolution, ecology, and organismal biology.
Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

322 Introduction to Ornithology UGRD 5
The general biology of birds with emphasis on their natural histories and on the field identification of local species.
Sp Qtr. 3 cr, 2 2-hr labs. Prereq: 5 cr hrs in introductory biology. NS Admis Cond course.

350 Dynamics of the Dinosaurs UGRD 3
Review of current information on dinosaur biology, emphasizing scientific approaches to reconstructing dinosaurs as living, dynamic animals.
Sp Qtr. 3 cl. Prereq: 5 cr hrs of biological science or historical geology course work.

370 Extinction UGRD 3
Exploration of the causes of, and possible solutions to, the present-day global extinction event.
Sp Qtr. 2 1.5-hr cl. Prereq: 5 cr hrs of biological sciences course work.

400 Evolution UGRD 5
Basic conceptual issues and processes in evolution with emphasis on the ecological basis of adaptation and consequences of natural selection.
Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: Biology 114 or H116.

400H Evolution UGRD 5
Basic conceptual issues and processes in evolution focusing on the ecological basis of adaptation and consequences of natural selection; class discussions, reading, and writing assignments.
Wi Qtr. 3 80-min cl. Prereq: Biology 114 or H116, and Mol Gen 500 or 501.

405.01 Diversity and Systematics of Organisms: Lecture UGRD 4
Survey of organismal diversity and the evolutionary relationships between and within major taxonomic groups.
4 cl. Prereq: 400.

405.02 Diversity and Systematics of Organisms: Laboratory UGRD 2
Laboratory survey of animal diversity (including animal-like protists), and the evolutionary relationships between and within major taxonomic groups.
2 2-hr labs. Prereq: 400; or concur: 405.01.

410 Animal Form and Function UGRD 4
Functional systems in invertebrates and vertebrates: respiration; circulation; water, ion, and energy balance; communication; locomotion; and reproduction.
Au, Wi, Sp Qtrs. 3 cl, 1-1 hr discussion. 410H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq for 410: Biology 114 or H116, Chem 122, Math 148, and Physics 111 or 131. Prereq for H410: Biology 114 or H116, Chem 122, Math 148, and Physics 111 or 131; Math 150

415 Principles of Animal Cellular and Developmental Biology UGRD 4
Introduction to the structure and function of animal cells, and to patterns of early development in vertebrates and invertebrates.
Wi Qtr. 4 cl. 415H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 400 or H400, recommended; Biology 113 or H115, Chem 231 or 252, and Physics 112 or equiv. Not open to students with credit for Mol Gen 502.

440 Introductory Ethology UGRD 5
Observations of animal behaviors, and introductory analysis of their adaptive value, physiological mechanisms, development, and evolution; emphasis on movie presentations, reading, and small group discussions.
Au Qtr. 4 cl, 1-2 hr field work per week. Prereq: 405. GEC third writing course.

470 Biology of Vertebrates UGRD 5
Analysis of the anatomical, physiological, behavioral and ecological characteristics of the major vertebrate groups.
Au Qtr. 3 cl, 2 2-hr labs. Prereq: 405.
**502 Plants and People**  
UGRD 4  
Introductory course on the botany and historical uses of economically important plants; topics include the major food, spice, drug and industrial plants, their domestication and cultural significance.  
* Au Qtr. 3, 1 arr. Prereq: 5 cr hrs in biological sciences.

**503.01 Introduction to Ecology: Lecture**  
UGRD 4  
Distribution and abundance of species, population dynamics, community ecology, ecosystem dynamics, and applied perspectives.  
Au, Wi Qtrns. 4cl. Prereq: 10 cr hrs in biological sciences. Not open to students with credit for 413.01.

**503.02 Introduction to Ecology: Laboratory**  
UGRD 2  
Critique of ecological primary literature, analysis of ecological data, and design and execution of experiments.  
Au, Wi Qtrns. 2 cl. Prereq or concur: 413.01 or 503.01. Not open to students with credit for 413.02.

**503.03 Introduction to Ecology: Lecture and Lab**  
UGRD 6  
Distribution and abundance of species, population dynamics, community ecology, ecosystem dynamics, applied perspectives, and design and execution of experiments.  
Su Qtr. Prereq: Math 151 and Biology 402 or 20 hrs in biological sciences. Not open to students with credit for 413.01 or 413.02 or 413.03 or 503.01 or 503.02.

**505 Marine Biology and Ecology**  
UGRD 5  
Diversity and distribution of marine organisms; population dynamics, productivity, an structure of marine ecosystems; human impact on ocean resources.  
* Su Qtr. 3 all-day cl per wk for 1 term at Stone Laboratory. Prereq: 405, or PCMB 102 or equiv; PCMB 413.02 or 413.03 recommended.

**510 Field Botany**  
UGRD 5  
Collection, preservation, field and laboratory identification, and local distribution of plants of the major groups.  
Su, Sp Qtrns. 3 cl, 1-3 hr labs. Prereq: Biology 102 or 114, or PCMB 102; or permission of instructor.

**511 Local Flora for Teachers**  
UGRD 3  
Basic botanical and identification skills, field experience, and preparation for lessons for the classroom with special attention given to ODE Academic Content Standards.  
Su Qtr. One week full-time at Stone Laboratory. Prereq: In-service teacher, non-formal educator, or education major with jr standing or above. No graduate credit for plant biology majors.

**512 Laboratory in Comparative Vertebrate**  
UGRD 2  
Introduction to trends in vertebrate evolution as illustrated by the anatomy of select taxa; involves dissection of specimens.  
Au, Wi, Sp Qtrns. 1-4 hr lab. Prereq or concur: 410.

**513 Field Ecology**  
UGRD 3  
A field based introduction to the distribution and abundance of animals and plant in pond, lake, river, marsh, beach, field and woodland ecosystems.  
Su Qtr. 1 week full-time at Stone Laboratory (8AM-4PM, evenings 7PM-9PM). Prereq: At least jr standing by the summer of enrollment, minimum GPA 2.5 and completion of 15 hours of biology including introductory ecology; or permission of instructor.

**522 Ornithology for Teachers**  
UGRD 3  
Field and laboratory studies of birds, discussion of birds of the world and their classification with resource material for classroom teachers and other educators.  
Su Qtr. 1 week full-time at Stone Laboratory. Prereq: In-service teacher, non-formal educator, or education major with sr standing.

**550 Comparative Endocrinology**  
UGRD 3  
Introduction to hormones and hormone action; comparison between vertebrates and invertebrates with emphasis on special situations such as metamorphosis.  
Sp Qtr. 3 hr cl. Prereq: Biochem 511 or equiv. Not open to students with credit for Entomol 550. Cross-listed in Entomology.

**557H Tropical Field Ecology**  
UGRD 3  
Study of tropical ecosystems and biodiversity; includes travel to Costa Rica, independent field experimentation, and inquiry into the natural history of tropical plants and animals.  
* Sp Qtr. Arr. Prereq: 413.01; enrollment in an honors program and permission of instructor. Travel to Costa Rica over Spring break. Mandatory organizational meetings Wi Qtrns. Students will pay Ohio State fees as well as travel and subsistence costs.

**597.02 Antarctic Marine Ecology and Policy**  
UGRD 5  
Historical and contemporary evaluation of Antarctic resource management and its scientific basis.  
Au, Wi, Sp Qtrns. 3.5 cl. 597.02H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Sr standing. Not open to students with credit for Int Stds 597.02 or Nat Res 597.02. GEC course. Cross-listed in International Studies and Natural Resources.

**598 Aquatic and Wetland Flora**  
UGRD 5  
Aquatic plants, other than the algae, of Great Lakes region; field and laboratory work on their identification and ecological and geographical relations.  
Su (2nd term) Qtr. 5 all-day cl per wk for 3 wks at Stone Laboratory. Prereq: Plnt Bio 102 or 112, and 15 additional cr hrs in biological sciences. Not open to students with credit for Plnt Bio 611.

**617 Theoretical Ecology**  
UGRD 5  
The models, assumptions, and conclusions of the mathematical theory of ecology including stability notions, deterministic and stochastic models, and models for patchy environments.  
* Wi Qtr. 3 cl. Prereq. 413.01 or 413.03, equiv; and introductory calculus. This course is graded S/U.

**620 Animal Communication**  
UGRD 4  
Study of the structure of animal communication signals, methods used by scientists in this field, and how signals function and evolve.  
Wi Qtr. 3 lecture, 1 lab. Prereq: 440 or permission of instructor.

**621 Ichthyology**  
UGRD 5  
Study of the distribution and classification of fishes, which includes methods of identification, collection, and preservation.  
Su Qtr. 3 all-day cl per wk for 1 term at Stone Laboratory. Prereq: 405 or equiv.

**622 Field Herpetology**  
UGRD 3  
Study of the distribution and classification of reptiles and amphibians of Ohio, which includes methods of field research, species identification, collection, preservation and conservation.  
Su Qtr. 3 all-day cl per wk for 1 term at Stone Laboratory. Prereq: Junior rank by summer of enrollment, min. GPA 2.5, 15 credit hours in biological sciences.

**625 Mammalogy**  
UGRD 5  
Mammals of the world, their natural history, distribution, taxonomy, and major anatomical and physiological adaptations; study of local species emphasized in lab.  
Wi Qtr. 3 cl, 2-2 hr labs. Prereq: 405 or equiv.

**626 Biology of Fishes**  
UGRD 5  
Lecture emphasis on the behavior, migration, distribution, and evolution of fishes; laboratory emphasis on ecological and systematic ichthyology.  
Sp Qtr. 3 cl, 1-3 hr lab. Prereq: 405 and 15 cr hrs in biological sciences; or permission of instructor.

**630 Vertebrate Histology**  
UGRD 5  
Examination and analysis of the functional morphology of cells and tissues of vertebrate animals, with emphasis on mammalian histology.  
Sp Qtr. 3 cl, 2-3 hr labs. Prereq. 5 cr hrs in biological structure/functions e.g., 410 or 415 or permission of instructor. GEC third writing course.

**632 Neurobiology**  
UGRD 3  
Integration of studies of sensory, integrative and motor systems with evolution and ecology.  
* Sp Qtr. 3 cl. Prereq: 10 cr hrs of biological sciences at 500 level or above, or grad standing.

**640 The Genetic Basis of Evolution**  
UGRD 5  
The modern theory of evolution and its underlying genetic basis.  
Sp Qtr. 3.5 hr cl. Prereq: Mol Gen 500 or Mol Gen 606 or equiv. Not open to students with credit for Mol Gen 640. Cross-listed in Molecular Genetics.

**647 Plankton**  
UGRD 5  
Examination of phytoplankton and zooplankton communities, emphasizing population dynamics, seasonality, predation, and productivity; lab emphasis on identification and quantitative methods for collecting and enumerating plankton.  
Au Qtr. 2 cl, 2-3 hr labs, 1 required wkend field trip to Lake Erie. Prereq: English 110 or 111 or equiv, and 20 cr hrs in biological sciences recommended; 413.01 or 413.03 or 652 or 655, recommended. Occasionally offered at Stone Laboratory. GEC third writing course.

**651 Field Zoology**  
UGRD 5  
Field and laboratory identification of aquatic and terrestrial vertebrates and invertebrates of the region, in relation to habitats occupied.  
Su Qtr. 3 all-day cl per wk for 1 term at Stone Laboratory. Prereq: 405 or equiv.

**652 Limnology at Stone Laboratory**  
UGRD 5  
Study of physical, geological, chemical and biological factors influencing freshwater life; field and laboratory techniques for determining lake morphometry, chemistry and biological productivity are emphasized.  
Su Qtr. 3 all-day cl per wk for 1 term at Stone Laboratory. Prereq: 405 or equiv; 10 cr hrs in chem; 10 cr hrs in physics; and written permission of instructor.

**653 Fish Ecology**  
UGRD 5  
Field and laboratory studies of life histories and interspecific relationships of fishes and of the various factors influencing their abundance.  
Su Qtr. 3 all-day cl per wk for 1 term at Stone Laboratory. Overnight field trips. Prereq: 621.
654.01 Ecological Physiology of Animals UGRD 4
Study of the habitat includes physical and chemical adjustment, tolerance, and acclimatization to environment by vertebrates and invertebrates.
* Wi Qtr. 4 cl. Prereq: 410 or equiv.

654.02 Ecological Physiology of Animals: Third Writing Course
Study of the habitat including physical and chemical adjustment, tolerance, and acclimatization to environment by vertebrates and invertebrates.
* Wi Qtr. 4 cl. Prereq: 410 or equiv; 5 cr hrs each in chem, physics, and physiol; and GEC second writing course. GEC third writing course.

655 Limnology UGRD 5
Aquatic Ecology: 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.
Sp Qtr. 3 cl, 1 4-hr lab, several field trips (1 required field trip to Lake Erie). Prereq: 10 cr hrs in chem and 20 cr hrs in biological sciences.

657 Experimental Field Ecology UGRD 5
Field research projects in plant and animal and aquatic and terrestrial ecology, emphasizing experimental design, data collection, analysis, interpretation, and expression of results.
** Au Qtr. Prereq: 413.02 or 413.03, and at least 15 cr hrs in biological sciences.

661 Conservation Biology UGRD 5
Application of population and community ecology, population genetics, and biogeography to the study and conservation of biodiversity, threatened communities, and endangered species.
Au Qtr. 3 cl, 2 2-hr labs, occasional field trips (some Sat). Prereq: 15 cr hrs in biological sciences above the 100 level, including 413.01 or 413.03.

671 Plant Population Ecology UGRD 5
Quantitative study of plant population processes, evolutionary ecology, and ecologica methods.
* Au Qtr. 3 cl, 1 4-hr lab, field trips. Prereq: 413.01 or 413.03, or; Math 151; and 15 cr hrs in biological sciences.

672 Taxonomy of Vascular Plants UGRD 5
A laboratory and lecture course concerning the classification of vascular plants; emphasis on taxonomic principles, systems of classification, family characteristics and relationships.
* Sp Qtr. 3 cl, 2 2-hr labs. Prereq: 210 and 10 additional cr hrs in biological sciences; or permission of instructor.

673 Evolutionary Processes in Flowering Plants UGRD 5
Origin of variation in plants with emphasis on evolutionary processes unique to the flowering plants.
* Au Qtr. 5 cl.

674 Physiological Ecology of Plants UGRD 5
Physiological relationships between light, water, mineral nutrients and plant growth, including plant-insect and plant-microbe interactions.
* Au Qtr. 3 cl, 1 4-hr lab. Prereq: 413.02 or 413.03, and 15 cr hrs in biological sciences.

692 Workshop UGRD 1-6
Intensive study of topics in evolution, ecology, and organisinal biology; format will depend upon the topic and time.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of workshop director. Repeatable to a maximum of 12 cr hrs. This course is graded SU.

693 Individual Studies UGRD 2-10
Individual work in the field of the chosen problem.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. No more than 5 cr hrs may be counted toward an undergraduate evolution and ecology or majors This course is graded SU.

694 Group Studies UGRD 2-5
Group work in the field of the chosen problem.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 35 cr hrs for grad and 20 cr hrs for undergraduate.

695 Senior Seminar in Evolution and Ecology UGRD 3
Seminar on topics in evolution and/or ecology; required of all undergraduate evolution and ecology majors in their 4th year.
Wi Qtr. 1 2-hr cl. Prereq: 15 hours in the biological sciences at the 200 level or above, and 4th-yr standing. Open only to evol & ecol majors. This course is graded SU.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.

699 Undergraduate Research in Evolution, Ecology, and Organismal Biology UGRD 1-15
Undergraduate research in evolution, ecology, and organismal biology.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded SU.

700 Principles of Biogeography UGRD 5
Principles and patterns of animal and plant distribution over the world, using historical, geographic, and biological approaches.
* Au Qtr. 5 cl. Prereq: 10 hours of biology.

710 Creation and Evolution: Differing World Views
Philosophical and historical survey of the controversy over evolution theory and creationist viewpoints.
* Sp Qtr. 5 cl. Prereq: 10 cr hrs of biology. Not open to students with credit for Plnt Bio 710.

711 Molecular Evolution UGRD 3
Evolution and population genetics as seen at the molecular level: phenomena, concepts, methods of study, and implications for molecular biology and other disciplines.
* Wi Qtr. 3 cl. Prereq: Mol Gen 500 or Mol Gen 606, and EEOB 640 or Mol Gen 640 or Mol Gen 701 or EEOB 400 or equivs or permission of instructor. Not open to students with credit for Mol Gen 711. Cross-listed in Molecular Genetics.

713 Molecular Ecology UGRD 5
Overview of the use of molecular markers in ecological studies.
Sp Qtr. 3 cl, 1 rec, 1 3-hr lab. Prereq: 400, and an additional 10 hours of EEOB courses other than 400.

714.01 Theoretical Ecology II: Lecture UGRD 4
Dynamic optimization theory applied to ecology and resource management.
* Au Qtr. 2.5-hr cl. Prereq: 617, or Plnt Bio 617; or permission of instructor. Not open to students with credit for 714 or Plnt Bio 714.

714.02 Theoretical Ecology II: Lab UGRD 2
Computer techniques for solving optimality problems in ecology and resource management.
* Au Qtr. 1.5-hr cl. Prereq: 617, or Plnt Bio 617; or permission of instructor. Prereq or concur: 714.01. Not open to students with credit for 714 or Plnt Bio 714. This course is graded S/U.

720 Community Ecology and Ecosystems UGRD 5
A quantitative and descriptive approach to the establishment, development, succession, and dynamics of plant communities and their interrelations with historic, climatic, soil, and biotic factors.
** Sp Qtr. 5 cl, several field trips. Prereq: 413.01 or 413.03 and 20 cr hrs in biological sciences.

730 Bioacoustics UGRD 3
Theory and practice of the study of animal sound: physics of sound transmission, acoustic analysis, and the use of sound in communication.
** Au Qtr. 2 cl, 1 2-hr lab, 1 Saturday field trip. Prereq: 440 or 640 or 740, or Psych 601.

740 Behavioral Ecology UGRD 5
Comparative study of mechanisms, ontogeny, function and evolution of behavior in its ecological and social contexts.
Wi Qtr. 3.5-hr cl. Prereq: Grad standing or written permission of instructor.

741.01 Social Behavior: Lecture UGRD 4
Theory of the evolution of social behavior in animals, from spacing patterns and mating systems through complex social systems including reproductive division of labor.
* Sp Qtr. 2.5-hr cl. Prereq: 413.01 or 413.03 or 440 or 640 or 740, or Plnt Bio 313 or 413.01; or permission of instructor.

741.02 Social Behavior: Lab UGRD 2
DNA-based techniques for discerning genetic relatedness among individuals.
* Sp Qtr. 6 hrs. Prereq: 741.01; and prereq or concur: Mol Gen 500 or 501; or permission of instructor.
A program of reading and research for each student, with individual conferences, reports, and Honors thesis. Su, Au, Wi, Sp Quarters. Prereq: 4th yr standing with a grade of A in at least half of the courses in biological sciences 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. Repeatable to a maximum of 15 cr hrs. At least 2 qtrs required of candidates for the degrees BS or BA with distinction in zoology or evolution and ecology. Failure to receive a mark of S in this course is a disqualification for special honors. This course is graded S/U.

Introduces high school teachers to concepts and methodologies of stream ecology. Su Qtr. 1 week full time. Taught for OSU's Stone Laboratory at the Old Woman Creek National Estuary, Huron, OH.

A study of the principles and techniques used in the identification, classification, and nomenclature of organisms. * Sp Qtr. 2-2.5 hr cl. Prereq: 15 cr hrs in EEOB or entomology at the 600-level or above

Required of all grad majors in evolution, ecology, and organismal biology during the first Au Qtr of registration.

Seminar on Anatomy and Physiology. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Seminar on Behavior. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Seminar on Cell Biology. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Seminar on Ecology. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Seminar on Evolution. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Seminar on Marine Biology. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Seminar on Wildlife Biology. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Seminar on Fisheries Biology. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

Research for thesis and dissertation purposes only.

Introduction to the process of decision making and exploring majors at Ohio State; introduction to the university community; strategies for successful transition to and participation in that community; university resources and procedures. Prereq: First quarter student in EXP and permission of instructor. Not open to students with credit for a university survey course from another college.

Introduction to the process of decision making and exploring majors at Ohio State; introduction to the university community; strategies for successful 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.

Introduction to the process of decision making and exploring majors at Ohio State; introduction to the university community; strategies for successful transition to and participation in that community; university resources and procedures. Prereq: First quarter student athlete in EXP and permission of instructor. Not open to students with credit for a university survey course from another college. This course is graded S/U.

Directed observation-participation in family and consumer science middle and secondary programs. Wi Qtr. Arr field experience, 1 hr cl. Prereq: 2nd yr standing; C+ in Math 105 or higher and English 110 or 110.01 or 110.02 or 110.03.

Selected topics in family and consumer sciences education. Prereq: Open to students who meet program's stated prerequisites. Repeatable to a maximum of 10 cr hrs.

Directed observation and teaching experiences in family and consumer sciences programs to develop critically reflective and creative teachers through journaling, action research, and portfolio development. Urban field experience and development of knowledge and skills for teaching and accommodating needs of diverse learners. Au Qtr. 1-3 hr cl; arr 15 hrs field experience. Prereq: 2.75 CPHR; rank 4; concur: 746.01.

Directed observation and teaching experiences in family and consumer sciences programs to develop critically reflective and creative teachers through journaling, action research, and portfolio development. Examining the student and social context for teaching and learning through action research and portfolio development. Urban field experience and development of knowledge and skills for teaching and accommodating needs of diverse learners. Au Qtr. 1 hr cl, arr field experience. Prereq: 4th yr or grad standing; admission to a teacher education program. Prereq: 2.75 CPHR; 289; 742; concur: 746.01. Not open to students with credit for 589 series.

Directed observation and teaching experiences in family and consumer sciences programs to develop critically reflective and creative teachers through journaling, action research, and portfolio development. Examining the student and social context for teaching and learning through action research and portfolio development. Urban field experience and development of knowledge and skills for teaching and accommodating needs of diverse learners. Au Qtr. 1 hr cl, arr field experience. Prereq: 4th yr or grad standing; admission to a teacher education program. Prereq: 2.75 CPHR; rank 4; concur: 746.03. Not open to students with credit for 589 series.

Selected topics in family and consumer sciences education. Prereq: Open to students who meet program's stated prerequisites. Repeatable to a maximum of 10 cr hrs.

Critical analysis and development of curriculum in family and consumer sciences in terms of philosophy, design, and adaptability. 1 2.5-hr cl. Prereq: Grad standing or permission of instructor.

Principles and strategies for working with culturally diverse student populations, emphasizing teaching strategies and program modification. Su Qtr. 1 2.5-hr cl.

Nature of research in various areas of the field; criteria for setting up a research problem; techniques for collecting and analyzing data. 1 2.5-hr cl. Prereq: Grad standing or permission of instructor.

Principles of evaluation, framework for evaluation, procedures for appraising student progress in the attainment of objectives, construction of evaluation instruments, analysis and interpretation of evaluation data. 1 2.5-hr cl. Prereq: Grad standing or permission of instructor.

Principles, models, and processes of supervision in the context of student teaching at other settings where instruction in family and consumer sciences takes place. 1 2.5-hr cl. Prereq: Grad standing or permission of instructor.
746.01 Instruction for Effective Learning in Family and Consumer Sciences Education UGRD 5
Learning and developmental theory and its application to planning and instruction in family and consumer sciences education.
Au Qtr. 2-2 hr cl, 1-3 hr lab. Prereq: 289; 742; Edu P&L 109; 2.75 CPRH; rank 4; concur: 689.01.

746.03 Instruction for Problem-Based Learning GRAD 5
Cognitive learning and critical social theories and related curricular and instructional theories and their implementation.
Wi Qtr. 2-2 hr cl, 1-3 hr lab. Prereq: 2.75 CPRH; 746.01; rank 4; concur: 689.03.

791.01 Teaching Internship: Designing Instruction UGRD 4
Ten week full-time internship in a family and consumer sciences education program under guidance of a cooperating teacher and university supervisor; includes reflective seminar.
Prereq: Completion of all licensure courses, written permission of advisor, gpa 2.75. Concur: 791.02 and 791.03.

791.02 Teaching Internship: Facilitating Learning UGRD 4 in Family and Consumer Sciences
Ten week full-time internship in a family and consumer sciences education program under guidance of a cooperating teacher and university supervisor; includes reflective seminar.
Prereq: Completion of all licensure courses, written permission of advisor, gpa 2.75. Concur: 791.01 and 791.03.

791.03 Teaching Internship: Professional Development and Action Research
Ten week full-time internship in a family and consumer sciences education program under guidance of a cooperating teacher and university supervisor; includes reflective seminar.
Prereq: Completion of all licensure courses, written permission of advisor, gpa 2.75. Concur: 791.01 and 791.02.

793 Individual Studies GRAD 1-5
Problems in various phases of family and consumer sciences education.
Su, Au, Wi, Sp Qtr. 1 or more conf. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

846 Family and Consumer Sciences Teaching GRAD 3
Strategies and Learning Theory
Innovative use of teaching methods; relationship to learning theory. 1 2.5-hr cl. Prereq: A course in educational psychology.

Family Medicine

793 Individual Studies in Family Practice MED 4-24
Experience with family physician-preceptor or family practice residency programs; student must achieve objectives which fall within the curriculum objectives of the Dept of Family Medicine.
Su, Au, Wi, Sp Qtr. Arr. Prereq: Med Coll 663 and written permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

Film Studies

270 Introduction to Film Studies UGRD 5
An introduction to the field of Film Studies based on a survey of the major theories of film analysis.
Su, Au, Wi, Sp Qtrs. Prereq: English 263 or Hist Art 260. GEC arts and hums VPA course.

293 Individual Studies in Film UGRD 2-5
Individual investigation of minor problems in Film Studies not covered in regular course work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of Film Studies Director. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

294 Group Studies in Film UGRD 2-5
Investigation of minor problems in Film Studies not covered in regular coursework.
Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 10 cr hrs.

367.01 The American Film Auteur UGRD 5
An intermediate course centering around the work of one important US filmmaker that extends and refines expository writing and analytic reading / viewing skills.
Prereq: Credit for English 110 through regular course enrollment and soph standing; a EM credit for English 110; or a declared major in Film Studies. Repeatable to a maximum of 10 cr hrs. GEC 2nd writing course.

367.02 The American Film Genre UGRD 5
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: Credit for English 110 through regular course enrollment and soph standing; a EM credit for English 110; or a declared major in Film Studies. Repeatable to a maximum of 10 cr hrs. GEC 2nd writing course.

489 Film Studies Internship/Field Practicum UGRD 1-2
An opportunity for work experience and on-the-job learning in film studies or film production related employment.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor and completion of internship learning agreement. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

670H Cinema and the Historical Avant Garde UGRD 5
Historicizes cinema's political and artistic roots, concentrating on the perceived and real possibilities of the medium. Fosters critical awareness of "film culture" historically and currently.
Prereq: English 110, 110.01, 110.02 or 110.03; and honors standing. Not open to students with credit for German H670. Cross-listed in German. Taught in English.

680 Screenwriting and the Business of Cinema UGRD 5
This course examines screenwriting as both a literary art form and a challenging profession.
Prereq: Theatre 636 or permission of instructor.

690 Advanced Screenwriting UGRD 5
An intensive writing courses in which each student completes a feature-length screenplay based on work previously completed in Film Studies 680.
Su, Au, Wi, Sp Qtrs. Prereq: Film Studies 680 and permission of Director.

693 Individual Studies UGRD 2-5
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 10 cr hrs. This course is graded S/U.

694 Group Studies UGRD 2-5
Group studies for work in various fields of film studies not normally offered in courses. Repeatable to a maximum of 10 cr hrs.

695 Advanced Seminar: Topics in Film Studies UGRD 5
Selected problems (themes, movements, theories, genres, styles, etc.) in film studies; topics vary quarterly.
Au, Wi, Sp Qtrs. Prereq: Film Studies major with 4th year standing, or permission of instructor. Repeatable to a maximum of 25 cr hrs.

699 Undergraduate Research UGRD 1-15
Undergraduate research or creative activities in variable topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

788H Undergraduate Honors Research GRAD 1-15
Independent research in film studies culminating in a thesis and oral examination.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of research under whose supervision the research is to be conducted and the Arts and Sciences Honors Committee. Satisfactory completion of at least 5 cr hrs is required of candidates for an undergraduate degree with distinction in film studies. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

Food Science and Technology

101 Chocolate Science UGRD 2
Introduction to science and business of chocolate. Students develop and market a chocolate product as part of a virtual company. Students taste commercial products weekly.
Au, Wi, Sp Qtrs. 1-2 hr cl.

102 Culinary Aspects of Food Science UGRD 2
Function of food constituents. Processing conditions that affect flavor and texture.

170 Wine and Beer in Western Culture UGRD 3
The role of wine and beer in western culture with emphasis on the geographic origins, production techniques, and stylistic considerations.

201 The Science of Food UGRD 5
Food and nutrition in modern civilization; principles involved in assembling, processing, and distribution of food; and the role of science, industry, and government in meeting food needs.
Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: Biology 101 or 113 or H115 or equiv. BEJ/GE/CLAR course. E201 may be offered for honors embedded experience.

208H Food: Fact and Fiction UGRD 5
Introduction to controversial topics in food science and nutrition that are found in popular media.
Wi Qtr. 3.1-5 hr cl. Prereq: Honors or Scholars program members or permission of instructor.

289 Food Industries Field Experience UGRD 3
Ten weeks practical experience or equivalent in an approved food plant or laboratory; written report required.
Su, Au, Wi, Sp Qtrs. Open only to students majoring in food science.
294 Group Studies UGRD 1-5

Group studies on selected topics in food science and technology.

401 Introduction to Food Processing UGRD 3

Unit operations in food processing, basic elements of food processing equipment, product formulation, food manufacturing, quality control, cleaning, and sanitizing.
Au, Wi, Sp Qtrs. 1 cl, 2 3-hr labs.

410 HACCP Analysis UGRD 3

Principles of hazard analysis as applied to the food industry. Students will develop a HACCP plan.
Wi Qtr. 3 cl. Prereq: 401.

411 Brewing Science UGRD 3

Science and practices of beer production including hop and barley cultivation, the science of malting and fermentation, flavor development and beer processing.
Wi Qtr. Prereq: Biol 101 or 113; Chem 102 or 122.

493 Individual Studies UGRD 1-5

Individual study course to permit undergraduate students to explore in-depth selected areas of food science and nutrition.
Su, Au, Wi, Sp Qtrs. 3, 6, 9, 12, or 15-hr lab. Prereq: 2.50 CPRH and written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

494 Group Studies UGRD 3-5

Group studies on selected topics in food science and nutrition.
Su, Au, Wi, Sp Qtrs. Arr. 494H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

536 Food Safety and Public Health UGRD 3

Basic principles and practice of food safety. Transmission and control of foodborne illness.
Wi Qtr. Prereq: Microbiol 509 or written permission from instructor.

589 Professional Experience UGRD 5

Ten weeks of supervised structured in-depth industrial experience in selected food related subjects.
Su, Au, Wi, Sp Qtrs. Prereq: 20 cr hrs of 500-level courses or above in major field, and permission of instructor. Open only to students majoring in food science and nutrition. Repeatable to a maximum of 10 cr hrs. Experience must be obtained with organization approved by the dept.

597.01 Contemporary Issues: Alcohol and Society UGRD 5

The historical, nutritional, medical, social, technical, and economic aspects of the use of beverage and industrial alcohol.
Wi, Sp Qtrs. 2-2 hr cl. Prereq: Sr standing. GEC contemporary world courses.

597.02 Contemporary Issues: Food and Health UGRD 5

Controversies in the 21st Century
Examines current controversies surrounding food. Topics include biotech foods, dietary supplements, childhood obesity and public policies domestically and abroad that fuel the controversies.
Su, Au, Wi, Sp Qtrs. Prereq: Sr standing. Prereq: 3rd or 4th yr standing only. GEC contemporary world courses.

601 Food Analysis UGRD 5

Basic composition, chemical structures and properties of foods; and chemical and instrumental analyses of food components.
Au Qtr. 4 cl, 1 3-hr lab. Prereq: Chem 252.

605 Advanced Food Chemistry UGRD 4

Intensive coverage of the chemical reactions of food components with emphasis on the reaction mechanisms responsible for changes in food products.
Wi Qtr. 3 cl, 1 2-hr lab. Prereq or concour: Biochem 511 or permission of instructor.

610 Processing of Fluid Milk and Related UGRD 4

Products
Principles involved in the production, processing, and marketing of high quality, safe, and nutritious milk and milk products.
Wi Qtr. 3 cl, 1 3-hr lab. Prereq: Chem 101 or 121 or H201 and Rank 3 or 4 or permission of instructor.

611 Food Fermentation UGRD 4

Principles and practices related to the manufacture, processing, distribution, and marketing, nutritional value and safety of fermented foods.
Sp Qtr. 3 cl, 1 3-hr lab. Prereq: Microbiol 509 or permission of instructor.

613 Fruit and Vegetable Processing UGRD 4

Commercial processing of fruits, vegetables and related products. The effect of processing and raw product chemistry on final product quality.
Au Qtr. 3 cl, 1 3-hr lab. Prereq: 401.

621 Food Additives UGRD 3

Chemical and physical nature of food additives; functions and effects on chemical, rheological, microbiological, and nutritional properties of foods.
Au Qtr. 3 cl. Prereq: 15 cr hrs in food science or related area.

630 Principles of Food Processing UGRD 4

Principles of science and engineering applied in food processing and their unit operations including concentration, separation, and thermal sterilization processes.
Wi Qtr. 3 cl, 2-hr lab. Prereq: FABENG 481 or grad standing or permission of instructor.

632 Sensory Evaluation UGRD 4

Fundamentals of sensory evaluation and the perception of taste, smell, and flavor. Emphasis on statistical interpretation and industrial application.
Sp Qtr. 3 cl, 2-hr lab. Prereq: Stat 135 or 145 or 245 or AED Econ 205 or H&CS 260 or Anim Sci 260 or Agr Educ 387 or AEE 387 or Nat Res 222 or Psych 320 and familiarity with Excel. Not open to students with credit for Psych 632. Cross-listed in Psychology.

636.01 Food Microbiology Lecture UGRD 3

Microorganisms in relation to the production, processing and handling of food with emphasis on food transmitted pathogens and minimizing public health risks.
Au, Sp Qtrs. 3 cl. Prereq: Microbiol 509 or 521. Not open to students with credit for 636 or Microbiol 636. Cross-listed in Microbiology.

636.02 Food Microbiology Laboratory UGRD 3

Laboratory training for determining the microbiological safety and quality of food with emphasis on handling pathogens and observing analyst’s safety.
Au, Sp Qtrs. 2 2-hr labs, 1 cl. Prereq: 636.01 or concur. Not open to students with credit for 636 or Microbiol 636. Cross-listed in Microbiology.

640 Food Regulations UGRD 3

Food laws, regulations and the technical control of processed foods.
Wi Qtr. 3 cl. Prereq: 401 or 610 or 611 or grad standing or permission of instructor.

648 Essentials of Food Plant Operation UGRD 3

An in-depth presentation of the special factors affecting food plant organization, production, procurement, distribution, and the interaction required to develop plant operations.
Wi Qtr. 3 cl. Prereq: 401.

649 Food Packaging UGRD 4

A discussion of terminology and literature of commercial packaging, principal methods of packaging, and principles of selecting packaging materials.
Sp Qtr. 3 cl, 1 3-hr lab. Prereq: 401 or grad standing or permission of instructor.

650 Food Product Development UGRD 4

Development of a new food product including generation of concepts, consumer pane testing, development of prototypes, process optimization and consumer testing.
Sp Qtr. 2 cl, 2 3-hr labs. Prereq: 401 or 621 or permission of instructor.

683H Honors Projects UGRD 1-10

Conducting and reporting the honors project.
Su, Au, Wi, Sp Qtrs. Prereq: Enrollment in honors program, and permission of honors project supervisor. Repeatable to maximum of H683 or in combination with 293,593,H593,H599,693 or H693. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

693 Individual Studies UGRD 3-5

Individual project studies of current problems; planning, conducting, and reporting research.
Su, Au, Wi, Sp Qtrs. 9, 12, or 15-hr lab. Prereq: 2.50 CPRH and written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-5

Selected topics in food science and technology.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs.

696 Technical Problem Solving UGRD 5

Analysis of technical problems in food science; fostering creative thinking to the approach and solution of problems; preparation and oral presentation of papers.
Sp Qtr. 3 cl, 2 2-hr labs. Prereq: Grad or rank 4 standing, second writing course, 15 cr hrs in food science or related area. GEC course.

697.01 Study at a Foreign Institution: Irish Food and Culture UGRD 3

An opportunity for students to study at a foreign institution and receive Ohio State credit for the work. Study abroad to Dublin, Cork, and the southern countryside of Ireland touring production facilities, meeting government, industry and interest group representatives, sampling local food and drink and learning about its impact on culture.
Sp Qtr. Prereq: Written permission of program coordinator. Prereq: 694 (Irish Food and Culture), 3rd or 4th yr undergrad or grad standing, 21 yrs of age, minimum CPRH of 2.50. Repeatable to a maximum of 10 cr hrs. Decimal subdivisions not repeatable. Students pay Ohio State fees and any fees in excess of Ohio State tuition as well as travel and subsistence costs. 12-day program during Spring break.

724 Food Colors and Pigments GRAD 3

Chemistry and reactivity of pigments and colors in foods.
Sp Qtr. Prereq: 605 or equivalent or graduate standing.

218
736 Advanced Food Microbiology
Microbiological aspects of food preservation, detection of microbiological contaminants, hazards, and microorganisms of public health significance.
* Wi Qtr. 3 cl. Prereq: 636 or Microbiol 636, and Chem 123. Cross-listed in Microbiology.

761 Carbohydrate and Lipid Metabolism
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.
Wi Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv; Humn Ntr 610 or Anim Sci 630.01 OR grad standing or permission of instructor. Not open to students with credit for Anim Sci 761 or Humn Ntr 761. Cross-listed in Animal Sciences and Human Nutrition.

762 Principles of Nutrient Metabolism
In-depth examination of the cellular and molecular mechanisms responsible for regulation of nutrient transport and metabolism with focus on the utilization of dietary protein.
Au Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv; Humn Ntr 310 or Anim Sci 330 OR grad standing or permission of instructor. Not open to students with credit for Anim Sci 762 or Humn Ntr 762. Cross-listed in Animal Sciences and Human Nutrition.

763 Vitamin and Mineral Metabolism
In-depth treatment of biochemical functions, absorption, transport, utilization, interrelationships and nutritional requirements of the vitamins and minerals in humans and other higher animals.
Sp Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv; EEOB 232 or Anim Sci 310; Humn Ntr 610 or Anim Sci 630.01 or 630.02 or grad standing. Not open to students with credit for Anim Sci 763 or Humn Ntr 763. Cross-listed in Animal Sciences and Human Nutrition.

799 Teaching Experience in Food Science and Nutrition
Teaching at the higher education level, instructional development under faculty guidance, e.g., experience in testing and evaluation of students, and analysis of teaching performance.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing. Repeatable to a maximum of 10 cr hrs. Provides teacher training and evaluation which is recognized on transcript. This course is graded S/U.

820 Flavor Chemistry
Chemical properties, formation mechanisms, isolation, separation, identification and food applications of flavor compounds.
* Wi Qtr. 3 cl.

821 Food Lipids
Chemical, physical, and biological properties of food lipids.
** Wi Qtr. 3 cl.

822 Food Proteins
Sources of chemical, physical, and biological properties of food proteins; effect of food composition, handling, and processing of protein characteristics and functionalities.
** Sp Qtr. 3 cl. Prereq: one course in physical chemistry or permission of instructor.

823 Functional Properties of Food Carbohydrates
Chemical, physical, biological and functional properties of food carbohydrates and their interaction with food components.
* Sp Qtr. 3 cl. Prereq: One course in food chemistry and one course in biochemistry or permission of instructor.

830.01 Advanced Study: Energy/Lipids
Advanced concepts in nutrition: Energy/Lipids.
* Wi Qtr. 5 cl. Prereq: 761 and 762 or Anim Sci 761 and 762 or Humn Ntr 761 and 762; Anim Sci 530 or Humn Ntr 610; 10 grad cr hrs in physiology. Prereq: Fd Sc&Te 761. Not open to students with credit for Anim Sci 830 or Humn Ntr 830. Cross-listed in Animal Sciences, and Human Nutrition.

830.09 Advanced Study in Nutrition: Food and Nutritional Toxicology
Basic principles in food and nutrition toxicology focused on interactions of nutrients and food toxins, role of diet in mutagenesis and carcinogenesis and safety assessment.
* Au Qtr. Prereq: 761 and 762 or Anim Sci 761 and 762 or Humn Ntr 761 and 762; Anim Sci 530 or Humn Ntr 610; 10 grad cr hrs in physiology. Prereq: 761, 762, Humn Ntr 610 or Anim Sci 630.01 or 630.02. Not open to students with credit for Anim Sci 830 or Humn Ntr 830. Cross-listed in Animal Sciences, and Human Nutrition.

830.10 Advanced Study in Nutrition: A Comprehensive Approach to Food Safety
Course provides a comprehensive overview of food safety issues, challenges and solutions across the food chain from farm to table.
Wi Qtr. 1.5-hr cl. Prereq: 761 and 762 or Anim Sci 761 and 762 or Humn Ntr 761 and 762; Anim Sci 530 or Humn Ntr 610; 10 grad cr hrs in physiology. Prereq: Microbiol 509 and introductory level course in nutrition or food science or permission of instructor. Not open to students with credit for Anim Sci 830 or Humn Ntr 830. Cross-listed in Animal Sciences, and Human Nutrition.

830.11 Advanced Study in Nutrition: Nutrition-Endocrine Interactions in Women's Health
Examination of the historical and emerging research in the area of diet-endocrine interactions and women's health.
2.5-hr cl. Prereq: 761 and 762 or Anim Sci 761 and 762 or Humn Ntr 761 and 762; Anim Sci 530 or Humn Ntr 610; 10 grad cr hrs in physiology. Prereq: 761, 762 or Humn Ntr 761, 762 or Anim Sci 761, 762 or grad standing or permission of instructor. Not open to students with credit for Anim Sci 830 or Humn Ntr 830. Cross-listed in Animal Sciences, and Human Nutrition.

830.12 Advanced Study in Nutrition: Diet, Nutrition and Cancer
Analysis of linkages between diet, nutrition and cancer including dietary interactions with molecular and metabolic processes involved in carcinogenesis and current research methodologies.
Au Qtr. 2.25-hr cl. Prereq: 761 and 762 or Anim Sci 761 and 762 or Humn Ntr 761 or 762; Anim Sci 530 or Humn Ntr 610; 10 grad cr hrs in physiology. Prereq: Graduate standing or permission of instructor. Not open to students with credit for Anim Sci 83 or Humn Ntr 830. Not open to students with credit for Anim Sci 830.12 and Humn Ntr 830.12. Cross-listed in Animal Sciences, and Human Nutrition.

833 Advanced Instrumental Analysis
Methods of analysis of foods including chromatography, spectroscopy, electrophoresis, thermal and gravimetric techniques, and thermodynamics.
* Wi Qtr. 3 cl. 1.5-hr lab. Prereq: Permission of instructor.

850.01 Food Science Seminar
Graduate student-staff participation in a study of teaching and research trends and opportunities; critical analysis of research approaches, findings, and publications.
Au, Wi, Sp Qtrs. Repeatable to a maximum of 6 cr hrs.

868 Molecular Biology Techniques
Combined lecture/laboratory in the techniques of nucleic acid isolation, analysis, hybridization, sequencing, cloning, expression, and associated biotechnologies.
* Su Qtr. 5 cl, 5-1.5-hr labs. Prereq: Biochem 521 or 613 or equiv. Not open to students with credit for Anim Sci 868. Cross-listed in Animal Sciences.

898 Interdepartmental Seminar in Nutrition
A seminar in nutrition and related fields.
Sp Qtr.Repeatable to a maximum of 5 cr hrs. Cross-listed in Animal Sciences, and Human Nutrition. This course is graded S/U.

993 Individual Studies
Research experience and preparation of technical paper.
Su, Au, Wi, Sp Qtrs. Prereq: 15 cr hrs of grad level courses in food science or technology. For Plan B, M.S. degree students only. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

998 Research: Thesis
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

999 Research: Dissertation
Research for dissertation purposes only.
Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

** Food, Agricultural, and Biological Engineering

225 Introduction to Food, Agricultural, and Biological Engineering
Principles of engineering problem solving and communications, statistical description and inference applied to agricultural, food and environmental problems.
Au Qtr. 2 cl, 1.25-hr lab. Prereq: Soph standing in eng. Third writing course component. GEC course.

325 Transfer Processes in Food, Agricultural, and Biological Systems
Material and energy balances in food, agricultural and biological systems. Introduction to heat, mass, momentum transfer. Psychrometrics and applications in conditioning of air.
Wi Qtr. 2 cl, 1.25-hr lab. Prereq: Enrollment as engineering major; or concur: Math 153 or 162.

373 Principles of Soil and Water Engineering
Applications of level and chain surveying, hydrology, and soil dynamics to problems in food, agricultural and biological engineering.
Sp Qtr. 2 cl, 1.25-hr lab. Prereq: Mech Eng 410. Some survey/data gathering labs for specific course projects will be conducted away from campus though completed within lab period.

425 Analysis of Elementary Biological-Physical Systems
Mathematical model formulation and analysis techniques developed and applied to elementary biological and physical systems.
Wi Qtr. 3 cl, 2-hr lab. Prereq: Math 255 or 415.
481 Introduction to Food Process Engineering UGRD 4
Introduction to engineering operations in food processing, process control and instrumentation, emphasizing heat transfer and fluid flow. Sp Qtr. 3, 1.5-hr lab. Prereq: Math 148 and Physics 106 or 111. Open to non-engineering majors only. Offered in cooperation with Food Science and Technology.

489 Professional Practice UGRD 2
Preparation and submission of a comprehensive report based on a pre-assigned outline of actual co-op employment in industry. Su, Au, Wi, Sp Qtrs. Prereq: Admission to Co-op Program in Food, Agricultural and Biological Engineering. Open only to dept majors. Repeatable to a maximum of 10 cr hrs.

525 Electrical Power Systems for Agriculture UGRD 4
Design and specification of systems and components essential for the distribution of electrical power and for the control of electrical systems for agricultural production units. Sp Qtr. 3, 1-3-hr lab. Prereq: 425.

545 Agricultural Structures UGRD 4
Analysis and design of frames and members for agricultural structures. Au Qtr. 3 cl, 1-2-hr lab. Prereq: Mech Eng 410.

565 Utilization of Energy in Agriculture UGRD 4
Study of motive and stationary power needs of agriculture, mechanics of traction, characteristics of power sources, morphology of off-the-road vehicle design. Sp Qtr. 3, 1-2-hr lab. Prereq: 425 and Mech Eng 501.

584 Food Process Engineering UGRD 4
Principles of food process engineering with emphasis on design of freezing and drying equipment and thermal stabilization processes. Wi Qtr. 3 cl, 1-2-hr lab. Prereq: Mech Eng 501 or CHBE 509.

593 Individual Studies UGRD 1-5
Advanced study of problems not included in regular courses of this department. Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

605 Measurement and Instrumentation UGRD 4
Analysis and design of measurement systems; data acquisition, signal conditioning, error and noise control and transducers used in food, agricultural and biological systems. Au Qtr. 3 cl, 1-3-hr lab. Prereq: 525 or Elec Eng 300 or grad standing in engineering.

618 Ecological Engineering and Science UGRD 4
Definition, classification, and practice of Ecological Engineering. Course describes ecological systems and the design of natural systems to provide societal services and benefits to nature. Wi Qtr. 2-2-hr cl. Prereq: Jr standing with at least one course in one of the following subject areas: biology, ecology, engineering, or geology. Not open to students with credit for CEE 618 or ENR 618 or Nat Res 618 or Env Eng 618. Cross-listed in Environmental and Natural Resources and Environmental Engineering.

629 Modeling and Design of Biological Systems UGRD 4
Application of transport processes, enzyme kinetics and the simulation of plant and animal growth to the analysis and design of biological systems and processes. Au Qtr. 3 cl, 1-2-hr lab. Prereq: 425, Civil En 413 or Chem Eng 420 or CHEB 420 or equiv or grad standing.

645 Environmental Controls for Agricultural Structures UGRD 4
Functional requirements and principles involved in housing animals and crops; analysis of factors and properties affecting energy exchanges with the environment. Sp Qtr. 4 cl. Prereq: 325, Civil En 413 or CHEB 420 or Chem Eng 420 or grad standing.

650 Design of Waste Management Systems UGRD 4
Application of bioengineering principles of pollution control in the design of management systems for wastes from food and fiber production, storage, and processing operations. Sp Qtr. 3 cl, 1-2-hr lab (includes 2 field trips). Prereq: Sr standing in ENG, or permission of instructor. Civil Eng 413 or Chem Eng 420 or CHEB 420 or F&AE & Eng 373.

652 Ecosystems for Waste Treatment UGRD 4
Through a design project and case studies, students will integrate ecological and engineering principles to design ecosystem-based systems to purify water and air. Sp Qtr. 2-1.5-hr cl, 1-3-hr lab. Prereq: EEOB 413, or Nat Res 725, or F&AE & Eng 625, or Civil En 520, or permission of instructor. Sr in ENG or grad standing in ENG or science required. Field trips to Oberlin College Living Machine and wetland treatment systems in central Ohio.

673 Design of Agricultural Water Management UGRD 4
Systems
Basic knowledge of water management principles and introduction to agricultural drainage and irrigation methods and their applications. Sp Qtr. 2-2.2-hr cl. Prereq: 373 and Civil En 413 or equiv or grad standing in ENG or permission of instructor.

684 Food Extrusion Processing UGRD 3
Principles of food extrusions processing including extruder design, transport phenomena, chemical/physical changes during extrusion, product quality, automation. Economics discussed in relation to food industry. * Sp Qtr. 1 2-hr cl; 1 3.5-hr lab. Prereq: Senior standing for undergraduates, grad standing or permission of instructor. Lab time includes travel time for plant visits.

693 Individual Studies UGRD 1-5
Work on problems not included in regular courses; practice in development, organization, solution, and report on problems of student's choosing. Su, Au, Wi, Sp Qtrs. Prereq: 15 cr hrs of 300 level or higher in Food, Agricultural and Biological Engineering courses. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-5
Advanced studies in Food, Agricultural and Biological Engineering with principal emphasis on design. Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.

695 Professional Development UGRD 1
Study and programs of professional development in engineering related to food, agriculture, and environment; communication for professional advancement, engineering ethics, and responsibilities to society. Au Qtr. 1 1-hr cl. Prereq: 3rd yr standing in Food, Agricultural and Biological Engineering. GEC course.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

723 Capstone Design I UGRD 2
Methodology of engineering design in a team environment; practice in the design and communication of a specific system within the student’s area of specialization. Au Qtr. 2 1-hr cl. Prereq: 525, Mech Eng 430, and Civil En 413 or Chem Eng 420 or CHEB 420, or Sr or grad standing in engineering. GEC requirement (for technical writing). F&AE & Eng 723, 724 and 725 must be taken in sequence in same academic year.

724 Capstone Design II UGRD 2
Continuation of 723. Wi Qtr. 2 1-hr cl. Prereq: 723. GEC third writing course. F&AE & Eng 723, 724 and 725 must be taken in sequence in the same academic year.

725 Capstone Design III UGRD 2
Complete design project, produce final design report, oral presentation, short introductory video, build and test prototype. Sp Qtr. 2 1-hr cl. Prereq: 724. GEC third writing course. F&AE & Eng 723, 724 and 725 must be taken in sequence in the same academic year.

732 Agroecosystems UGRD 4
Holistic analysis of agricultural systems. Application of energy analysis to evaluate and design sustainable agroecosystems. ^* Wi Qtr. 2-2-hr cl. Prereq: Grad standing or permission of instructor. Offered in winter quarters of odd-numbered years.

735 Probabilistic Methods in Engineering UGRD 4
Design
Application of concepts of probability, random variables, statistical inference, multiple regression and correlation analysis to making reliable engineering design decisions. Sp Qtr. 3 cl, 1-2-hr lab. Prereq: Stat 427 or permission of instructor.

773 Engineering Soil-Water Management UGRD 4
Engineering design of systems with high potential for negative environmental impacts livestock waste, rural landfills, and strip mine reclamation; related water storage and conveyance structures. Au Qtr. 3 cl, 1-3-hr lab. Prereq: 373 and Civil En 413 or equiv.

783H Undergraduate Honors Program Research UGRD 1-3
Individually supervised research and project work for Honors program students. Student presentations and thesis writing included. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Honors standing; permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

784 Advanced Food Process Engineering UGRD 3
Application of heat and mass transfer, fluid flow, food properties, and food processing constraints in the design and selection of food process equipment. Sp Qtr. 3 cl. Prereq: Chem Eng 521 CHBE 521 or Mech Eng 510 or equiv. Offered in cooperation with Food Science and Technology.

801 Research Methods in Food, Agricultural and Biological Engineering GRAD 3
Research problem selection, mathematical models, errors, proposal development and peer review. Wi Qtr. 1 3-hr cl.
Preparation for instruction in engineering at the college level. Focuses on skills, strategies and issues common to university teaching and engineering instruction more specifically.

Au, Wi, Sp Qtr. 1 cl. Prereq: Written permission of instructor. Repeatable to a maximum of 10 credit hours.

Lecture and discussion of current topics related to food, agricultural and biological engineering presented by faculty, staff, graduate students, and guest speakers.

Su, Wi, Sp Qtr. Prereq: 101.01 or 103.51. Progress is sequential, for each hour, with a proficiency of 80% required to move to the next hour. Students who complete 5 hours before the end of the qtr may proceed to 103.51. Progress is sequential from one credit hour to the next with proficiency at the level of 80% required for advancement.

Lecture and discussion of current topics in food, agricultural and environmental sciences.

Su, Au, Wi, Sp Qtr. Prereq: Written permission of instructor. Repeatable to a maximum of 10 credit hours.

Preparation of honors programs, design of honors research projects, and writing of research proposals.

Au Qtr. 1 cl. Prereq: Enrollment in AGR honors program and jr standing or permission of instructor.

Study in interdisciplinary topics in agriculture.

Su, Au, Wi, Sp Qtr. Repeatable to a maximum of 10 credit hours.

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

Su, Au, Wi, Sp Qtr. Prereq: Written permission of instructor. Repeatable to a maximum of 25 credit hours. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

Two or more departments or colleges may collaborate in presenting seminars in subjects of mutual interest; topics to be announced.

Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable. Repeatable by permission. This course is graded S/U.

Introduction to French; development of listening, reading, speaking, and writing skills.

Not open to students with credit for 100.02 or 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 dept. GEC for lang courses. FL Admis Cond courses. Students must register for and complete 5 credit hours during the qtr. Progress is sequential from one credit hour to the next, with proficiency at the level of 80% required for advancement.

Introduction to French; development of listening, reading, speaking, and writing skills.

Not open to students with credit for 100.02 or 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 dept. GEC for lang courses. FL Admis Cond course. Students register for and complete from 1 to 5 credit hours during the qtr. Students who complete 5 hours before the end of the qtr may proceed to 102.51. Progress is sequential from one credit hour to the next, with proficiency at the level of 80% required for advancement.

Continuation of 101, further development of listening, reading, speaking, and writing skills.

Prereq: 101.01 or 5 credit hours of 101.51. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. Students must register for and complete 5 credit hours during the qtr. Progress is sequential from one credit hour to the next, with proficiency at the level of 80% required for advancement.

Continuation of 101, further development of listening, reading, speaking, and writing skills.

Prereq: Grade of B- or above in 101.01 or 5 credit hours of 101.51, or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admis Cond courses. Students may register for 101.51 and 102.51 concurrently with permission of instructor. Students who complete 5 credit hours before the end of the qtr may proceed to 103.51. Progress is sequential from one credit hour to the next, with proficiency at the level of 80% required for advancement.

Continuation of 101, further development of listening, reading, speaking, and writing skills.

Prereq: 2 or more years of high school French and placement in 101 by placement exam. Not open to native speakers of this language through regular course enrollment or EM credit. Not open to native speakers of French through regular course enrollment or EM credit or to students with credit for 101.01, 101.51, 102.01, or 102.51. GEC for lang courses. FL Admis Cond courses. Students must register for and complete 5 credit hours during the qtr. Students may register for and complete 102B66 for 1-5 credit hours.

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

Prereq: Grade of B- or above in 102.01, or 102.66, or 5 credit hours of 102.51. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. Students must register for and complete 5 credit hours during the qtr. This course is available for EM credit.

Continuation of study of French; development of listening, reading, speaking, and writing skills.

Prereq: Grade of B- or above in 102.01, or 102.66, or 5 credit hours of 102.51. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. Students may register for 102.51 and 103.51 concurrently with permission of instructor. Students register for and complete from 1 to 5 credit hours during the qtr. Progress is sequential from one credit hour to the next, with proficiency at the level of 80% required for advancement.

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

Classroom track; intensive review of basic structures, vocabulary, and skills needed for entry into 104.

Prereq: 101.01 or 5 credit hours of 101.51, or 3 or more yrs of high school French and placement into 102 by placement exam. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. Students may register for 102.51 and 103.51 concurrently with permission of instructor. Students register for and complete from 1 to 5 credit hours during the qtr. Progress is sequential for each hour, with a proficiency of 80% required to move to the next credit hour.

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

Classroom track; intensive review of basic structures, vocabulary, and skills needed for entry into 104.

Prereq: 101.01 or 5 credit hours of 101.51, or 3 or more yrs of high school French and placement into 102 by placement exam. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. Only one of the decimal subdivisions may be taken for credit. GEC for lang courses. Highly recommended for majors and minors.

Course conducted in French. This course is available for EM credit.

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

Classroom track; intensive review of basic structures, vocabulary, and skills needed for entry into 104.

Prereq: 101.01 or 5 credit hours of 101.51, or 3 or more yrs of high school French and placement into 102 by placement exam. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. Only one of the decimal subdivisions may be taken for credit. GEC for lang courses.
104.03 *Intermediate French II: Contemporary French Society* UGRD 5

Emphasis on various aspects of contemporary French cultures; readings and discussion in French.
Su, Au, Wi, Sp Qtrs. Prereq: 103.01 or 103.66 or 5 cr hrs of 103.51 or 112. Not open to students with credit for 104; or to native speakers of this language through regular course enrollment or EM credit. Only one of the decimal subdivisions may be taken for credit. GEC for lang courses.

104.04 *Intermediate French II: Civilization* UGRD 5

Aspects of French civilization: geography, history, social developments, and the arts; readings and discussion in French.
Au, Wi, Sp Qtrs. Prereq: 103.01 or 103.66 or 5 cr hrs of 103.51 or 112. Not open to students with credit for 104; or to native speakers of this language through regular course enrollment or EM credit. Only one of the decimal subdivisions may be taken for credit. GEC for lang courses.

104.51 *Intermediate French II: Conversation and Composition* UGRD 1-5

Continued development of listening, speaking, reading, and writing with an emphasis on oral and written skills; focus on functional topics and thematic vocabulary.
Su, Au, Wi, Sp Qtrs. Prereq: 103.01 or 103.66 or 5 cr hrs of 103.51 or 112. Prereq: Grade of B- or above in 103.01, 103.66, or 5 cr hrs in 103.51, or permission of instructor. Not open to students with credit for 104; or to native speakers of this language through regular course enrollment or EM credit. Only one of the decimal subdivisions may be taken for credit. GEC for lang courses. Students register for and complete from 1 to 5 cr hrs during the qr. Proficiency at the level of 80% is required for advancement from 1 cr hr to the next.

112 *Intensive French* UGRD 5-15

Elementary and intermediate French; intensive drill in form, syntax, vocabulary, and idiom; reading of short stories, novels, and plays.
Su Qtr. 15 cl. Prereq: Permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. Enrollment limited to 20 students. Full-time fees required regardless of number of cr hrs. Equiv of 101, 102, and 103. Students may not register for any other course if they enroll in 112. Students with credit for 103 or equiv may not register for credit. Students with credit for 101 and 102 will enroll for 5 cr hrs. Students with credit for 101 only will enroll for 10 cr hrs. Students with no credit in French will enroll for 15 cr hrs. Regardless of cr hrs enrolled a student will attend class throughout entire qr. Withdrawal from the course means forfeiture of all cr hrs. No audit. GEC for lang course. FL Admis Cond course.

150 *French Literary and Cultural Works in Translation: From Renaissance to Enlightenment and Revolution* UGRD 5

Important issues in 16th to 18th-century French literature and culture; focus on Humanist, Classical, and Enlightenment writings of such authors as Montaigne, Moliere, Voltaire, Rousseau.
Taught in English. GEC arts and hums lit course.

151 *French Literary and Cultural Works in Translation: from Romantic Passion to Existential Doubt* UGRD 5

Traces the growth of modernism and postmodernism out of romantic, realist, and symbolism currents of the nineteenth century in narratives, plays, poetry, films, art and music.
Taught in English. GEC arts and hums lit and western (non-US) course.

152 *Introduction to Francophone African and Caribbean Literatures in Translation* UGRD 5

Introduces students to the literatures and cultures of important non-Western regions of the Francophone world and develops their analytical reading and writing skills. Taught in English. GEC arts and hums lit course.

153 *Issues in French or Francophone Culture* UGRD 5

Exploration of a particular issue of a specific French or Francophone culture.
2 2-hr cl. Taught in English; GEC arts and hums cultures and ideas course.

201.01 *Introduction to French Studies* UGRD 5

Techniques for reading and interpreting different French texts: stories, poetry, plays, films, music, and ads while building vocabulary, comprehension, speaking and writing skills.
2 2-hr cl. Prereq: 104 or 5 cr hrs of 104.51 or permission of instructor. Conducted in French Prereq: 104.01,104.02,104.03,104.04 or 5 cr hrs of 104.51 or permission of instructor. Course conducted in French.

201.51 *Introduction to French Studies: Individualized Track* UGRD 1-5

Techniques for reading and interpreting different French texts: stories, poetry, plays, films, music, and ads while building vocabulary, comprehension, speaking and writing skills.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 104 or 5 cr hrs of 104.51 or permission of instructor. Conducted in French Students register for and complete from 1 to 5 cr hrs during the qr. Proficiency at the level of 80% is required for advancement from 1 cr hr to the next. Repeatable to a maximum of 5 cr hrs.

206 *Introduction to French Media and Visual Culture* UGRD 5

Introduction to French media and visual culture based on texts from the electronic press, interior design and fashion magazines, multimedia documents, television, radio and film.
Prereq: 104 or 5 cr hrs of 104.51 or permission of instructor. Not open to native speakers of French through course enrollment or EM credit. Conducted in French.

250 *Topics in French Literature and Culture in Translation* UGRD 5

Examination of selected topics through a study of French literary works in the context of culture and the arts. Topic varies. 2 2-hr cl. Prereq: English 110 recommended. Repeatable to a maximum of 10 cr hrs. Conducted in English. GEC arts and hums lit course.

293 *Individual Studies* UGRD 1-15

Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

294 *Group Studies* UGRD 1-15

Group Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept. Repeatable to a maximum of 30 cr hrs.

401 *French Grammar Review* UGRD 5

Basic kinds of French prose and techniques of composition; practice in writing letters, essays; descriptive, narrative, and personal compositions.
Prereq: 401. Not open to native speakers of this language through regular course enrollment or EM credit.

404 *French Pronunciation* UGRD 5

Formation of French sounds, rules of pronunciation and diction; lectures and practical exercises; use of phonetic symbols.
Prereq: 401.

406 *Business French I* UGRD 5

An introduction to business French with emphasis on basic business terminology, commercial correspondence, similarities and differences in business transactions, and international procedures.
Prereq: 206 or any 400-level course or permission of instructor.

418 *French Language and Cultures* UGRD 5

Exploration of an aspect of French culture through the use of varied texts and multimedia tools (e.g., CD-roms, music, film, internet); topics vary.
Prereq: 201 or 206. Not open to native or near-native speakers of this language through regular course enrollment or EM credit.

425 *French Literature and Society* UGRD 5

Readings and analysis of the relationship between literature and society represented in different genres and periods of French literature.
425H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 201; 401 recommended.

426 *French Literature and the Self* UGRD 5

Readings and analysis of various concepts of the self as represented in different genre and periods of French literature.
426H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 201; 401 recommended.

427 *Francophone Literature: from Empire to Nation* UGRD 5

Readings and analysis of French-language literary texts as these relate to issues of empire, nation, and identity.
427H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 201; 401 recommended.

440 *Introduction to the Study of Contemporary French Culture* UGRD 5

Introduction to ways of studying major aspects of French culture by means of lectures readings, research projects, in-class presentations, and research reports.
Prereq: 201 or 206. Conducted in French.

470 *Introduction to French Cinema* UGRD 5

Introduction to the study of French cinema, of French film history, and the art of the cinema.
2 2-hr cl. Prereq: 401. Conducted in French.
506 French-Speaking Cultures in a Business Context
UGRD 5
Designed to provide students with a basic hands-on knowledge of principles of social and business interactions within the French-speaking world. Taught in English. Course cannot be used for the major or the minor.

571 Basic French for Graduate Students
UGRD 5
Designed primarily for students who have no formal preparation in French; covers basic grammar and vocabulary.
Prereq: Grad standing. Credit does not apply to the minimum number of hours required for the master's or doctoral degrees. No audit.

572 French for Research I
UGRD 3
Prereq: Grade of C or above in 571, or equiv preparation demonstrated by a placement test. Credit does not apply to the minimum number of hours required for the master's or doctoral degrees. No audit. Satisfactory completion of this course (grade of A or B) may be accepted by the student's dept as evidence of a dictionary reading knowledge in fulfillment of PhD language requirement. Repeatable to a maximum of 6 cr hrs.

573 French for Research II
UGRD 3
French for Research II.
Prereq: Grade of A or B in 572, or equiv preparation demonstrated by a placement test. Credit does not apply to the minimum number of hours required for the master's or doctoral degrees. No audit. Satisfactory completion of this course (grade of A or B) may be accepted by the student's dept as evidence of a dictionary reading knowledge in fulfillment of PhD language requirement. Repeatable to a maximum of 6 cr hrs.

601 Advanced French Grammar
UGRD 5
Systematic review of French grammar with composition and other exercises based on contemporary authors; modern tendencies in syntactic analysis.
Prereq: 401, 403, and at least one other 400 or 600-level course other than 404.

602 French Translating
UGRD 5
An introduction to the theory of translation and practice of translation (French to English and English to French) based on texts reflecting different types of written communication.
Prereq: 601 or equiv.

603 Advanced Spoken and Written French
UGRD 3
Intensive practice in speaking and writing French; based on contemporary usage.
Prereq: 402, 403, and 601 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 15 hr cr.

604 Advanced French Pronunciation, Styles, and Francophone Accents
UGRD 5
Training in auditory and oral aspects of advanced French pronunciation; analysis of different styles of spoken French and different francophone accents.
^ 2 1.5-hr cl. Prereq: 404 or permission of instructor.

631 Topics in French Cultures and Literatures
UGRD 2-5
Intensive study of an aspect of French culture or literature; topic varies.
Prereq: 401 and 403, and 601 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 15 cr hrs.

634 From Absolute Monarchy to WWII
UGRD 5
Political and cultural history of France from Absolute Monarchy to World War II.
Prereq: 401 and 440, or permission of instructor.

644 French Civilization since WWII
UGRD 5
The transformation of French society since WWII as a result of changing social and political structures.
Prereq: 401 and 440, or permission of instructor.

650 Survey of Medieval French Literature
UGRD 5
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: 401 and either 425, 426, 427, or 440; or permission of instructor. Repeatable to a maximum of 15 cr hrs.

652 Early Modern French Literature
UGRD 5
Major early modern French literary movements and authors. Prereq: 401 and either 425, 426, or 427.

653 French Literature of the Enlightenment
UGRD 5
Major ideas and authors of the 18th century in France; emphasis on such writers as Montesquieu, Voltaire, Diderot, and Rousseau.
^ Prereq: 401 and either 425, 426, or 427.

655 French Literature of the 19th Century
UGRD 5
Major 19th-century French literary movements and authors from romanticism to symbolism and naturalism.
Prereq: 401 and either 425, 426, or 427.

656 French Literature of the 20th and 21st Centuries
UGRD 5
Major intellectual and literary currents in France from the early 20th century to the present.
Prereq: 401 and either 425, 426, or 427.

657 Francophone Literature from Black Africa and the Caribbean
UGRD 5
Major intellectual and literary currents in black Africa and the Caribbean.
Prereq: 401 and either 425, 426, or 427.

657.02 Literature from North Africa
UGRD 5
Major intellectual and literary currents in francophone North Africa.
^ Prereq: 401 and either 425, 426, or 427.

657.03 Quebec Literature
UGRD 5
Major intellectual and literary currents in Quebec.
^ Prereq: 401 and either 425, 426, or 427.

663 Women in French Literature
UGRD 5
Examination of representations of women and writing by women in selected works of French literature.
^ Prereq: 401 and either 425, 426, or 427.

670 Studies in French Cinema
UGRD 5
The history and esthetics of French cinema from its beginnings to 1945.
Prereq: 470. Not open to students with credit for 671. Taught in French.

672 French Cinema, 1945 to Present
UGRD 5
The history and aesthetics of French cinema from 1945 to the present.
Prereq: 10 cr hrs in literature and/or cinema above 200 level or permission of instructor. Taught in English.

690 Business French Internship
UGRD 1-15
Supervised training in international (French-speaking) business coordinated by student's advisor and internship training director.
Su, Au, Wi, Sp Quarters. Prereq: 406 or permission of instructor. Not open to students who have credit for 692 or Linguist 692. Cross-listed in Italian and Romance Linguistics. Offered bi-annually. Taught in English. This course counts toward: the Italian major (as one of the two courses taught in English), the French major (as an elective for all the major tracks), the Linguistics major or minor, the Spanish major (as an elective and the one course taught in English permitted to count for the major).

693 Individual Studies
UGRD 1-15
Individual Studies.
Su, Au, Wi, Sp Quarters. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

694 Group Studies
UGRD 1-15
Group Studies.
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

697 Study at a Foreign Institution
UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Quarters. Prereq: Written permission of dept chairperson. This course is graded S/U. 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 45 cr hrs.

699 Undergraduate Research in French
UGRD 1-15
Undergraduate research or creative activities in variable topics.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

701 Advanced French Language Usage
UGRD 5
Advanced study of present-day French language, with emphasis on more complex and finer morphological, syntactic, semantic, and stylistic distinctions, as well as on idiomatic expression.
^ Prereq: 601.

702 Advanced Translation and Comparative Stylstics
UGRD 5
Theory of translation and a comparative study, through specific exercises and intensive translation, of the stylistic resources of French and English.
Prereq: 602 or permission of instructor.

706 France: Geographical Setting and Socio-economic Structures
UGRD 5
A study of the French geographic, economic, and social environment as it relates to business; parallel emphasis on advanced language skills.
Prereq: 406 or permission of instructor. Taught in French.
710 Contrastive Structures of French and English
Comparison of the linguistic structures (phonology, morphology, syntax, and semantics) of French and English with special emphasis on the problems of English-speaking students.
^ Prereq: 601 or permission of instructor.

712 French Phonology and Morphophonemics
The organization of the French sound system, its evolutionary tendencies, and its role in the articulation of the morphemes of the language.
^ Prereq: 601 or permission of instructor.

714 Aspects of Morphology, Syntax, and Semantics of French
Selected aspects of the morphological, syntactic, and lexical organization of modern French and the role of these subsystems in the communication of meaning.
^ Prereq: 601 or permission of instructor.

716.01 Introduction to Medieval French
Introduction to medieval French grammar and vocabulary, using a medieval text as vehicle.
^ Prereq: 601 or permission of instructor. Not open to students with credit for 811.

716.02 Introduction to Medieval Occitan
Introduction to the language and literature of medieval Occitan, especially to that of the troubadours.
^ Prereq: 716.01 or permission of instructor.

741 Topics in French Culture and Civilization
Analysis of French culture through the study of selected topics in literatures, film, and social thought; topic varies.
Prereq: 643 or 644 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

751 Studies in Genre and Mode
Intensive study of the history and/or aesthetics of a specific literary genre or mode such as theatre, poetry, irony, humor.
^ Prereq: One 600 level course and permission of instructor for undergraduates. Repeatable to a maximum of 10 cr hrs.

783H Honors Research
Offers undergraduates with special aptitudes a greater opportunity to do independent study than is possible in the ordinary course; work in conference, library, or phonetics laboratory.
Prereq: 4th yr standing with a grade of A in at least half of the French courses 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. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

792 Interdepartmental Studies in the Humanities
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 15 cr hrs.

801 Teaching French at the College Level
Methods and techniques for teaching French language at the college level.
Au Qtr. Two wks intensive workshop preview to qtr followed by a 2-hr wkly cl.
Prereq: Teaching associate in the Dept of French and Italian or permission of instructor. Not open to students with credit for Ed-T&L 801.01 or Ed-T&FP 801.01. For students enrolled in this course, the minimum number of credit hours required for graduation is increased by 5 hrs.

821 Masterworks of Medieval French Literature
Intensive study of influential authors and anonymous masterpieces of French literature between 1100 and 1500.
^ Prereq: 821. Repeatable to a maximum of 15 cr hrs.

822 Topics and Problems in Medieval French Literature
Intensive exploration of a special topic or problem, with readings in relevant criticism and scholarship.
^ Prereq: 821. Repeatable to a maximum of 15 cr hrs.

823 Topics and Problems in 16th-Century French Literature
Intensive exploration of a special topic or problem, with readings in relevant criticism and scholarship.
Prereq: 652 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

824 Topics and Problems in 17th-Century French Literature
Intensive exploration of a special topic or problem, with readings in literary works and in relevant criticism and scholarship.
Prereq: 652 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

825 Topics and Problems in 18th-Century French Literature
Intensive exploration of a special topic or problem, with readings in literary works and in relevant criticism and scholarship.
Prereq: 653 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

826 Topics and Problems in 19th-Century French Literature
Intensive exploration of special topics or problems with readings in literary works relevant to the topic.
^ Prereq: 655 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

827 Topics and Problems in 20th-Century French Literature
Intensive study of a specific topic or problem with readings of selected literary and critical works.
Prereq: 656 or equiv. Repeatable to a maximum of 15 cr hrs.

828 Topics in Francophone Literature
In-depth study of a theme, genre, movement, or author from a non-European area of the francophone world.
^ Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs.

831 Seminar in French Literature
Seminar in French Literature.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

833 Seminar in French Literature
Seminar in French Literature.
^ Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

850 Seminar in French Linguistics
Detailed exploration of selected topics in French linguistics with extensive analysis of French language data relevant to the topic.
^ Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

870 Seminar in French Cinema
Detailed exploration of particular topics or periods in French cinema with extensive analysis of individual films and readings in relevant theory and criticism.
Prereq: 671 or 672 or permission of instructor. PhD candidates may repeat to a maximum of 15 cr hrs.

883 Introduction to Graduate Study in French
Basic tools for literary research and history and major areas of literary criticism. Repeatable to a maximum of 30 cr hrs.

885 Introduction to Contemporary Critical Theory
Selected readings covering the range of critical approaches to literature.
^ Prereq: 887 Problems of Textual Analysis
Intensive work in literary and linguistic analysis of texts from various periods and genres.
Repeatable to a maximum of 15 cr hrs, including cr hrs earned in 884.

890 Interdepartmental Studies in Critical Theory
Interdisciplinary study of a movement (phenomenology, deconstruction, etc.) or problem (intentionality, evaluation, etc.) in literary theory.
Prereq: Background in critical theory recommended. Repeatable to a maximum of 10 cr hrs. Cross-listed in Comparative Studies, English, German, Spanish, and Women's Studies.

893 Individual Studies
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

894 Group Studies
Investigation of problems in the various fields of French literature and language.
Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs.

899 Interdepartmental Seminar
Two or more departments present seminars on subjects of mutual interest; topics to be announced.
Prereq: Permission of instructor(s). Permission from dept required to repeat.

903 Graduate Teaching Apprenticeship
An apprenticeship for advanced doctoral students to work with faculty members on the design and teaching of upper-level French language, literature, and culture course.
Prereq: Two years previous teaching experience, permission of instructor, and Graduate Studies chair. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.
990 International (French-Speaking) Business GRAD 1-5
Internship
Supervised training in international (French-speaking) business, coordinated by student's adviser and internship training director. Su, Au, Wi, Sp Qtrs. Arr. Prereq: 706 or equiv., and permission of adviser and internship director. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

999 Research in French Language or Literature GRAD 1-18
Research for dissertation and dissertation purposes only. Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Geodetic Science

294 Group Studies UGRD 2-5
Designed to give groups of students an opportunity to pursue special studies not otherwise offered. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

400 Introduction to Geomatics UGRD 4
A introduction to geomatics, with an emphasis on basic data collection using ground-based measurement techniques and basic photogrammetry. Au, Sp Qtrs. 3 cl, 1-3-hr lab. Prereq: Acceptance into Geomatics Engineering major or written permission of Department Chair. Not open to students with credit for Survey 301. All classes to be run in Region 1 computer lab.

450 Spatial Data Adjustment I UGRD 4
An introduction to adjustment theory in geomatics, propagation of variances and covariances; least squares adjustment in geomatics; analysis of adjustment results; hypothesis testing. Sp Qtr. 3 cl, 1-3-hr lab. Prereq: 410, Math 568, Stat 245. Not open to students with credit for 450 or Survey 450.

494 Group Studies UGRD 1-5
Designed to give groups of students an opportunity to pursue special studies not otherwise offered. Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs.

502 Engineering Surveying UGRD 4
Surveying applications for engineering, construction, mining and transportation work. Route surveying and geometric design; topographic site surveys and mapping; earthwork computations. Sp Qtr. 3 cl, 1-3-hr lab. Prereq: 410; or permission of instructor. Not open to students with credit for Survey 402 or 403.

521 Geodetic Measurement UGRD 4
Fundamentals of geodetic measurements; astronomical observations; geodetic control surveying; 3-D measurement systems. Au Qtr. 3 cl, 1-3-hr lab. Prereq: 509 or 511.

540 Senior Project I UGRD 1
First part of a project to be taken by students in their final year in the program, running from Autumn to Spring quarters. Au, Wi, Sp Qtrs. Arr. Prereq: 550. Geod Sci H783 may be available for students in the Honors program.

541 Senior Project II UGRD 1
Second part of a project to be taken by students in their final year in the program, running from Autumn to Spring quarters. Au, Wi, Sp Qtrs. Arr. Prereq: 540. Geod Sci H783 may be available for students in the Honors program.

542 Senior Project III UGRD 2
Third part of a project to be taken by students in their final year in the program, running from Autumn to Spring quarters. Au, Wi, Sp Qtrs. Arr. Prereq: 541. Geod Sci H783 may be available for students in the Honors program.

550 Spatial Data Adjustment II UGRD 3
Continuation of 450: phased adjustment; 3-D adjustment; adjustment applications in photogrammetry and high-precision metrology; network design and analysis; error analysis. Sp Qtr. 3 cl. Prereq: 450. Not open to students with credit for 650 and 651. Geod Sci H551 may be available for students in the Honors program.

560 History of Surveying UGRD 3
History of earth measurement and methods; historical connections with other sciences; history of land survey systems in the US; milestones in technology. Au Qtr. 3 cl. Prereq: 410. Not open to students with credit for Survey 403.

561 Boundary Surveying UGRD 4
Land surveyor's role; analysis of evidence and procedures for boundary location; retracement principles for sequence; simultaneous and public land surveys; laws on surveying practices. Wi Qtr. 3 cl, 1-3-hr lab. Prereq: 560. Not open to students with credit for Survey 524.

562 Subdivision Design UGRD 3
Process of subdividing and platting land; analysis of soils, topography, terrain, earthwork, geometry and other variables for land subdivision; plat preparation; layout of development plans. Sp Qtr. 3 cl. Prereq: 561. Not open to students with credit for Survey 507.

563 Land Information Management UGRD 4
Land information as a resource in an information society, land information systems (LIS), and issues related to the implementation and development of LIS. Au Qtr. 3 cl, 1-3-hr lab. Prereq: 410. Not open to students with credit for 626.

575 Professional Practice UGRD 2
Application of geomatics from the points of view of the practitioner and the consumer of land-related data. Professional responsibility and ethics. Sp Qtr. 1-2 hr cl. Prereq: 450. Not open to students with credit for Survey 510.

597 Mapping the World GRAD 5
Scientific and technological bases of modern mapping science and its contribution to contemporary world issues. ** Au Qtr. 4 cl, 1-3-hr lab. Prereq: Sr standing. GE/CLAR course.

601 Introduction to Mapping and Photogrammetry GRAD 5
Introduction to mapping and photogrammetry; modern methods and instrumentation; basic analytical procedures. Au Qtr. 4 cl, 1-3-hr lab Prereq: Math 153 and Physics 131.

603 Remote Sensing of Environment GRAD 4
The energies of the natural and cultural environment, current remote sensing systems, and case histories of applications in measuring the environment. Wi Qtr. 3 cl. 1-3-hr lab. Prereq: 410 and Math 254; or written permission of instructor. Not open to students with credit for Civil En 603. Cross-listed in Civil Engineering.

604 Terrain Analysis GRAD 4
Principles and applications of photo pattern analysis, geologic and geomorphologic patterns, terrain studies, and land use suitability and capability mapping. Au Qtr. 3 cl. 1-3-hr lab. Prereq: Civil En 405 or Survey 450 or equiv with written permission of instructor. Not open to students with credit for Civil En 604. Cross-listed in Civil Engineering.

607 Fundamentals of Geographic Information Systems GRAD 5
Systems
Basic principles of geographic and land information systems and their use in spatial analysis and information management. Au Qtr. 3 cl. 1-3 hr lab. Prereq: Sr standing. Not open to students with credit for Geog 685; or 607 in C&R Plan, Civil En, Geog. Not open to students with credit for Geog 685; or 607 in C&R Plan, Civil En, Geog, Geol sci, Geodesic or ENR. Cross-listed in City and Regional Planning, Civil Engineering, Geography, Geological Sciences, and Environment and Natural Resources.

608 Introduction to GPS: Theory and Applications UGRD 3
Introduction to reference systems; types of GPS observable; principles of GPS operations; GPS error analysis; field procedures; data collection, processing and GPS applications. Sp Qtr. 2 cl, 1-3-hr lab. Prereq: 550. Not open to students with credit for 609.

609 Surveying with Satellites UGRD 4
Surveying with Earth artificial satellites, global positioning system, relative position using interferometric techniques, kinematic surveying. Wi Qtr. 2 cl, 1-3 hr lab. Prereq: 450 or 650, and 601. Not open to students with credit for Survey 609.

623 Topics in Photogrammetry GRAD 4
Techniques, equipment for mapping and point determination; concept, methods, results of block adjustment; image based maps; computer-assisted and controlled-data processing; terrestrial and space photogrammetry. Sp Qtr. 3 cl. Prereq: 601 and 650; or permission of instructor. Not open to students with credit for 628, 725, 726, 727, or 728.

624 Advanced Topics in Photogrammetry UGRD 4
Photogrammetric aerotriangulation; analytical point positioning, applications in terrestrial photogrammetry and camera calibration; data capture for digital elevation models; orthophotography. Wi Qtr. 3 cl. 1-3-hr lab. Prereq: 450 or 650; and 623; or permission of instructor. Not open to students with credit for Survey 515.

625 Cadastral Information Systems UGRD 4
Land tenure, evolution of the cadastre and its relation to land rights; principles and applications. Sp Qtr. 3 cl, 1-3-hr lab. Prereq: 450. Not open to students with credit for Survey 625.
628  Analytical Photogrammetry I  GRAD  4
Analytical photogrammetry and mathematical models; measurement and reduction of image coordinates; bundle adjustment; analytical camera calibration; aerotriangulation.
Wi Qtr. 3 cl, 1 3-hr lab. Prereq: 650 or permission of instructor. Not open to students with credit for 623.

629  Digital Photogrammetry I  UGRD  4
Introduction to digital photogrammetry; digital image processing for photogrammetry computer vision; human visual system; data acquisition, hardware and software.
Sp Qtr. 3 cl. Prereq: 450. Not open to students with credit for 728.

630  Fundamentals of Computer-Assisted Cartography  GRAD  5
Basic principles of cartographic methods as applied to computer-assisted topographic mapping systems and their use in land information management.
Au Qtr. 4 cl, 1 3-hr lab. Prereq: CS&E 230 or written permission of instructor.

632  Large Scale and Topographic Mapping  GRAD  4
The concepts, theories, and principles of large scale mapping with emphasis on design, production, and use of digital topographic maps.
Wi Qtr. 3 cl. 1-3 hr lab. Prereq: 630 or permission of instructor.

634  Digital Mapping Systems  GRAD  4
Survey and evaluation of digital mapping systems with respect to components, accuracy, and efficiency.
Sp Qtr. 1 cl, 3 3-hr labs. Prereq: 633 or permission of instructor.

636  Map Projections  GRAD  4
The principal map projections of the sphere; their distortions, properties, and usage.
Wi Qtr. 3 cl, 1-3 hr lab.

637  Topics in Mapping  GRAD  4
A survey of cartographic fundamentals in the context of contemporary developments.
Sp Qtr. 3 cl, 1-3 hr lab Prereq: 630 or equiv. Not open for grad credit to students with credit for 632, 633, or 732.

638  Topics in Land Information Management  GRAD  3
Overview of topics in geographic and land information systems (GIS/LIS) and land information management (LIM).
* Sp Qtr. 3 cl. Prereq or concur: 630 or written permission of instructor. Not open to students with credit for 626 or Survey 625.

640  Decision-Making with GIS  UGRD  3
Examination of decision-making processes; examination of GIS functionality to assist decision-making processes; practical examples and case studies.
Su Qtr. 2 cl, 1 3-hr cl. Prereq: 630 or 607, or 607 in C&R Plan, Civil En, Geog, or Nat Res; or permission of instructor. Not open to students with credit for 694D.
Practical aspects of using GIS in a decision-making environment. Emphasis is on working in a multi-disciplinary team-based environment, using GIS as a support and analysis tool.

664  Geodetic Astronomy  GRAD  4
Stellar coordinate systems; stellar positions and motions; time; star catalogues; principles of position determination.
Wi Qtr. 3 cl, 1 3-hr lab Prereq: 650 or equiv.

693  Individual Studies  GRAD  2-9
Assigned reading laboratory or field work, under the guidance of a staff member, arranged to meet the requirements of individual students.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 60 cr hrs. This course is graded S/U.

694  Group Studies  GRAD  1-9
Group Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 60 cr hrs.

697  Study at a Foreign Institution  UGRD  1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

699  Undergraduate Research in Geomatics  UGRD  1-5
Engineering
Opportunity for undergraduate student to conduct research in Geomatics Engineering.
Su, Au, Wi, Sp Qtrs. This course is graded S/U.

725  Analytical Photogrammetry II  GRAD  4
GPS controlled aerotriangulation; quality control and network design; on-line triangulation. DEMs and orthophotography. Mapping from space. Multi-media photogrammetry.
Au Qtr. 3 cl, 1 3-hr lab. Prereq: 628 or permission of instructor. Not open to students with credit for 622 and 724.

728  Digital Photogrammetry II  GRAD  4
Au Qtr. 3 cl. 1 3-hr lab. Prereq: 628, 629, 650. Not open to students with credit for 829, 830, or 831.

732  Generalization of Topographic Maps  GRAD  4
Principles and advanced applications of the generalization of topographic maps.
Au Qtr. 3 cl, 1 3-hr lab. Prereq: 633 and 651; or written permission of instructor.

774  Spectral Methods and Raster Geometry in Digital Mapping  GRAD  4
Spectral analysis techniques and raster geometry as applied in digital photogrammetry and digital cartography; pattern recognition theories.
* Sp Qtr. 3 cl, 1 3-hr lab. Prereq: Geol Sci 642.

783H  Honors Research  UGRD  1-4
Supervised research and project work arranged individually for honors students.
Su, Au, Wi, Sp Qtrs. Prereq: 450, enrollment in the honors program and permission of instructor. Not open to students with credit for 540, 541, 542, 11783.01. This course is used by Honors students instead of the 540-542 Senior Project sequence. Students must take a minimum of 4 credit hrs. to count for their Honors Research Project.

787  Advanced Spatial Database Systems  GRAD  4
Spatial feature generation, 3-D spatial modeling; spatial relational operators and algebra, Peano relations and map data, normalization and confirmation; spatial indexing and consistency, distributed map databases; octree and subsurface modeling, animation for GIS.
Wi Qtr. 3 cl, 1 3-hr lab. Prereq: 630, 634 and Cptr/Inf 670; for Geography grad students Geog 685 and Cptr/Inf 670; or permission of instructor.

828  Advanced Photogrammetric Applications  GRAD  4
Design, application, and analysis of advanced analytical photogrammetric techniques to a variety of measurement tasks.
* Wi Qtr. 2 cl. 2 3-hr labs. Prereq: 728 or permission of instructor.

829  Advanced Digital Image Acquisition in Photogrammetry  GRAD  3
Methods and systems of acquiring digital imagery; theory and applications of error correction; assessment of image quality.
* Wi Qtr. 2 cl, 1 3-hr lab. Prereq: 774.

830  Advanced Methods of Processing Digital Imagery in Photogrammetry  GRAD  3
Utilization of advanced methods of image processing and computer vision techniques as it pertains to digital photogrammetry.
* Sp Qtr. 2 cl, 1 3-hr lab. Prereq: 829 or written permission of instructor.

831  Advanced Pattern Recognition and Interpretation Methods in Digital Mapping  GRAD  3
Methods of pattern recognition, feature extraction, feature and object classification, as it pertains to digital photogrammetry and digital cartography.
* Wi Qtr. 2 cl, 1 3-hr lab. Prereq: 830.

885  Research Principles and Techniques  GRAD  2-9
Research Principles and Techniques.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 60 cr hrs. This course is graded S/U.

887  Seminar  GRAD  1-5
Seminar.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

888  Advanced Topics in GPS  GRAD  3
Advanced GPS positioning and ambiguity resolution; GPS for low earth orbiters orbit determination; remote sensing, integration with navigation and imaging sensors (digit cameras, LIDAR).
* Sp Qtr. 2 1-hr cl. Prereq: 608 or 609, 777 and 650, or permission of instructor. An individual project is required. Offered odd numbered years.

894  Group Studies  GRAD  2-9
Group Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs.

899  Interdepartmental Seminar  GRAD  1-5
Topics to be announced each quarter offered.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.

998  Research in Geodetic Science: Thesis  GRAD  1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. This course is graded S/U.
597 Mapping the World UGRD 5
Scientific and technological bases of modern mapping science and its contribution to contemporary world issues.

607 Fundamentals of Geographic Information Systems GRAD 5
Basic principles of geographic and land information systems and their use in spatial analysis and information management.

612 Topics in Geodesy UGRD 4
Geometry of the ellipsoid; geodetic coordinates computations for short and medium lines; geodetic datums; Earth's gravity field; artificial geodetic Earth satellites; and figure of the Earth.

633 Digital Surface Models UGRD 4
Principles of digital surface modeling and their applications with the aid of computer-based techniques. Sp Qtr. 3 cl, 1-3 hr lab.

636 Map Projections GRAD 4
The principal map projections of the sphere; their distortions, properties, and usage. Wi Qtr. 3 cl, 1-3 hr lab.

637 Topics in Mapping UGRD 4
A survey of cartographic fundamentals in the context of contemporary developments. 3 cl, 1-3 hr lab Prereq: 630 or equiv. Not open for grad credit to students with credit for 632, 633, or 732.

638 Topics in Land Information Management UGRD 3
Overview of topics in geographic and land information systems (GIS/LIS) and land information management (LIM).

650 Adjustment Computations I GRAD 5
Classification of errors; measures of dispersion; variance and covariance; propagation of errors, weights, observation and normal equations, algorithms, and examples; statistical tests; error ellipsoids.

651 Adjustment Computations II GRAD 4
A posteriori variances; representation of residuals; condition equations with and without parameters; stochastic or weighted constraints; datum parameters; prior information; special test statistics; algorithms and examples.

658 Geometric Geodesy UGRD 4
Historical development; geometry of the reference ellipsoid; reductions/use of ellipsoid as a reference surface; major geodetic control; introduction to advanced geometric geodesy; principal conformal projections.

660 Geometric Reference Systems GRAD 5
Geodetic and astronomic coordinates, ellipsoidal geometry, geodetic datums, terrestrial and celestial reference systems, reduction of celestial coordinates, polar motion, time systems.

699 Undergraduate Research in Geomatics UGRD 1-5
Engineering
Opportunity for undergraduate student to conduct research in Geomatics Engineering. Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

745 Inertial Navigation/Positioning Analysis UGRD 5
Coordinate frames; inertial measurement units—mechanisms, system error dynamics; linear estimation theory with application to initialization and calibration; system integration with GPS; geodetic applications.

760 Advanced Geometric Geodesy UGRD 5
Solution of long line problems on the ellipsoid; datum transformations; determination of the size and shape of the reference ellipsoid; fundamentals of three-dimensional geodesy.

762 Advanced Adjustment Computations GRAD 4
Large patterned systems, Gauss-Markoff model and mixed models; techniques of collocation and its robustification; generalized matrices in geodetic science; estimable and projected parameters; error ellipsoids.

766 Analysis and Design of Geodetic Networks GRAD 3
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.

776 Gravimetric Geodesy GRAD 5
The gravity and its potential; the disturbing potential and its representation; applications and current methods.

777 Satellite Geodesy GRAD 4
Geometric and dynamic applications of artificial satellites in geodesy; determination of station positions and the gravity field of the Earth.

781 Topics in Geodynamics GRAD 3
Theory of Earth rotation; determination of Earth orientation parameters; precession; nutation; polar motion and time, and radio interferometry of extragalactic radio sources; and Earth tides.

783.01H Honors Research I UGRD 1
Supervised research and project work arranged individually for honors students. This course is used by Honors students instead of the 540-542 Senior Project sequence. First part of Honors Research Project sequence.

783.02H Honors Research II UGRD 1
Supervised research and project work arranged individually for honors students. This course is used by Honors students instead of the 540-542 Senior Project sequence. Second part of Honors Research Project sequence.

783.03H Honors Research III UGRD 2
Supervised research and project work arranged individually for honors students. This course is used by Honors students instead of the 540-542 Senior Project sequence. Final part of Honors Research Project sequence.

786 Managing Spatial Data Structures for Computer Mapping GRAD 4
Introduction to spatial data structures for computer mapping; implementation of domain-specific data structures using Avenue scripting and C++.

787.01X Honors Research Project sequence.
Supervised research and project work arranged individually for honors students. This course is used by Honors students instead of the 540-542 Senior Project sequence. First and final part of Honors Research Project sequence.

787.02X Honors Research Project sequence.
Supervised research and project work arranged individually for honors students. This course is used by Honors students instead of the 540-542 Senior Project sequence. Second and final part of Honors Research Project sequence.

787.03X Honors Research Project sequence.
Supervised research and project work arranged individually for honors students. This course is used by Honors students instead of the 540-542 Senior Project sequence. Final and final part of Honors Research Project sequence.

787.04X Honors Research Project sequence.
Supervised research and project work arranged individually for honors students. This course is used by Honors students instead of the 540-542 Senior Project sequence. Final part of Honors Research Project sequence.
835 Advanced Cartography UGRD 5
A review and examination of current research, development, and thinking in cartography with particular attention to mapping from space platforms.
* Wi Qtr. 3 cl, 1-hr lab. Prereq: 732 or written permission of instructor.

837 Computational Cartography UGRD 4
Computational techniques and computational complexity of various operations of digital mapping will be examined.
Sp Qtr. 3 cl, 1-hr lab. Prereq: 786 or Cptr/Inf 680 or permission of instructor.

838 Algorithms in Map Generalization UGRD 2
Classical and recent map generalization algorithms will be presented, compared, and analyzed in class. Students will assess benefits and limitation of all algorithms presented.
* Au Qtr. 1-2 hr cl. Prereq: 732 and 786 or Cptr/Inf 680; or permission of instructor.

862 Adjustment Computations for Random Processes
Random Effects Model, optimal and robust prediction, weak hypothesis testing, spatial processes, covariance function, variogram, homeogram, Kriging and alternative interpolators, quality measures.
Sp Qtr. 3 cl. Prereq: 650 or equiv.

871 Advanced Gravimetric Geodesy UGRD 4
Boundary-value problem; use of spherical harmonics; statistical application; appropriate representations; computations in space; combination of gravimetric and satellite data.
* Wi Qtr. 3 cl, 1-3 hr lab. Prereq: 762 and 777; or equivs.

873 Advanced Satellite Geodesy UGRD 4
Dynamics of earth orbiting satellites; equations of motion and their solutions; advanced data acquisition method; analysis for the gravity field and station positions.
* Sp Qtr. 3 cl, 1-3 hr lab. Prereq: 762 and 777; or equivs.

875 Spectral Methods in Gravimetric Geodesy UGRD 4
Spectral analysis theory and techniques in gravimetric geodesy. Covers Fourier, Hankel, Legendre transforms; convolutions, discrete techniques, correlation and psd estimation, and frequency-domain lsc.
* Sp Qtr. 3 cl, 1-3 hr lab. Prereq: 871 or permission of instructor.

885 Research Principles and Techniques GRAD 2-9
Research Principles and Techniques.
Prereq: Permission of instructor. Repeatable to a maximum of 60 cr hrs. This course is graded S/U.

887 Seminar GRAD 1-5
Seminar.
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

894 Group Studies GRAD 2-9
Group Studies.
Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs.

899 Interdepartmental Seminar GRAD 1-5
Topics to be announced each quarter offered.
Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.

998 Research in Geodetic Science: Thesis GRAD 1-18
Research for thesis purposes only.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

999 Research in Geodetic Science: Dissertation GRAD 1-18
Research for dissertation purposes only.
This course is graded S/U. Repeatable.

Geography

120 Earth Systems II: Atmospheric Environment UGRD 5
Introduction to the characteristics and processes of the Earth's atmosphere and their linkage with other physical systems of the planet and with human activity.
Su, Au, Wi, Sp Qtrs. 2 1 1/3-hr lec, 1 1/2-hr lab. 120H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for 220 or 520, or Atmos Sc 230. GEC phys sci course.

200 World Regional Geography UGRD 5
An examination of the human and physical geographic structure of all world regions; defined primarily at the continental scale. Examines regions in global context.
Su, Au, Wi, Sp Qtrs. 3 11/3-hr cl. GEC soc sci human, natural, and economic resources and international issues course. SS Admis Cond course.

205 Human Geography UGRD 5
Introduces key concepts in human geography: interconnections between people and places; the role of space and place in political, cultural, economic, and social interactions.
Au Qtr. GEC soc sci individuals and groups course.

210 Physical Geography and Environmental Issues UGRD 5
Introductory physical geography from an environmental perspective, including the interaction of physical and social factors in the causes of and strategies for ameliorating environmental problems.
Wi, Sp Qtrs. 2 1 1/3-hr lec, 1 1/3-hr lab. Not open to students with credit for 120. GEC phys sci course.

220 Introduction to Physical Geography UGRD 5
The elements and processes of the natural environment, their characteristics, distribution, and implications in the human habitat.
5 cl. NS Admis Cond course.

240 Economic and Social Geography UGRD 5
Geographic analysis of relationships between society and economy; focusing on such issues as globalization, production and consumption, inequality and social difference.
Su, Au, Wi, Sp Qtrs. 5 cl. GEC soc sci human, natural, and economic resources course. SS Admis Cond course.

294 Group Studies UGRD 3-5
Students are given the opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 10 cr hrs.

400 Geography of North America UGRD 5
Geographical analysis of North America; spatial patterns and processes associated with culture, politics, economy and social difference at international, national, regional and urban scales.
Su, Au, Wi, Sp Qtrs. 3 1.5-hr cl. GEC soc sci diversity course.

401 Geography of Ohio UGRD 3
An appraisal of geographic factors in the settlement and development of Ohio; an overview of the evolution of the Ohio economy.
3 cl. Prereq. Either 200, 220, or 240, or equiv.

410H Global Climate and Environmental Change UGRD 5
Examines both natural and social factors that force changes in our climate and environment and explores strategies for a sustainable environment in the future.
Sp Qtr. 2 1.5-hr cl, 1 2-hr cl. Limited to honors or scholars students. GEC soc sci human, natural, and economic resources and phys sci course.

420 Global Climate Change: Causes and Consequences
Examines the natural and human factors that force changes in our climate and environment and explores strategies for a sustainable environment in the future.
Wi Qtr. GEC natural science - physical science course.

430 Geographical Perspectives on Environment and Society
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.
Au, Sp Qtrs. 2 1 1-hr cl, 1 1.6-hr lab. GEC soc sci human, natural, and economic resources course.

445 Transportation Security UGRD 5
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.
2 2-hr cl.

450 The Making of the Modern World UGRD 5
The geopolities of modernity and their formation: the world market, the global polity diasporas and constructing difference, colonialism, the transformation of nature, Eurocentricity, post-modernity.
Wi Qtr. 2 2-hr cl. Prereq: Soph standing or above. GEC soc sci organizations and politics and global focus course.

455 Cities and their Global Spaces UGRD 5
Globalization and urbanization; urban economies, spaces, and societies; function, form, and pattern in developed and developing world cities.
Au Qtr.

460 Space, Power and Political Geography UGRD 5
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.
Au, Wi, Sp Qtrs. 2 2.5-hr cl. GEC soc sci organizations and politics course.

228
465 Global Politics and the Modern Geopolitical Imagination
Explores the neglected, rich, and contested tradition of geopolitics, defined as geographical assumptions that structure knowledge and practice of world politics; covers the 19th-21st centuries. Wi Qtr. 3 cl.  
470 Life and Death Geographies: Global Population Dynamics
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. Wi Qtr. 3 cl.  
480 Map Reading and Interpretation
Introduction to map interpretation, analysis, and use; spatial data literacy; social issue and representation. Au Qtr. 3 cl, 2 labs.  
490 Biogeography: An Introduction to Life on Earth
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. Au Qtr. 2 2-hr cl.  
505 Geography of Latin America
A thematic introduction to the lands and peoples of the region, with emphasis on interconnections between biophysical systems, landscape change, and population dynamics (urbanization, migration). 3 cl. Not open to students with credit for 505.02.  
510 Geography of the European Union
Geographic factors in the economic, social, and political progress of European integration; major problems of the area in the light of their geographic background. 3 cl.  
511 Geography of Eastern Europe
Resources, their assessment, and development, and related problems in Eastern Europe; the geographic significance of each state to the Communist bloc and to the West. 2-2 hr cl.  
512 Geography of the Former Soviet Union
A survey of the human geography of the area defined by the successor states to the Soviet Union with an emphasis on ongoing transformations. Au Qtr. 2 2-hr cl.  
513 South Asia: Ecology, Economy, Polity
Survey of the region of South Asia (India, Pakistan, Afghanistan, Bangladesh, Sri Lanka) in terms of environment, society, and politics.  
520 Climatology
The elements and the controls of climate; types of climate and their distribution; climates and their effects on the economic and other activities of humans. Au, Wi Qtrs. 5 cl. Not open to students with credit for Atmos Sc 230.  
580 Elements of Cartography
A study of the cartographic techniques of map compilation and presentation including generalization, symbolization, reproduction, and simple computer mapping with an emphasis on thematic mapping. Au, Sp Qtrs. 2 cl, 2-2 hr labs.  
597.01 World Urbanization
An examination of geographic aspects of the urbanization process in the world's major regions; interrelationships between urbanization and economic development. Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Jr or sr standing. Not open to students with credit for 450 or 597. GEC contemporary world courses.  
597.02 Integrated Earth Systems: Confronting Global Change
Introduction to numerous global change issues through the exploration of the integrated Earth system; problem-solving strategies within an interdisciplinary team environment. Wi Qtr. 2 1.5-hr cl, 1 1.5-hr lab. Prereq: Jr or sr standing. GEC contemporary world courses.  
597.03 Environmental Citizenship
Provides tools for environmental citizenship by teaching interdisciplinary perspective on biophysical and sociocultural forces that shape environments. Addresses general processes through local case studies. Sp Qtr. Prereq: Not open to students with credit for English 597.03. GEC issues of thecontemp world course. Cross-listed in English.  
600 Geographic Inquiry
History of geographic thought; covers major advances and debates in theory and method, and outlines major contributions of geographic research. Sp Qtr.
647 Locational Analysis UGRD 5
Historical review of major location theories and evaluation of application of such theories to geographic problems. 3 cl.
650 Urban Spaces in the Global Economy UGRD 5
An examination of social, economic, cultural and political processes that produce urban space in local, national and global terms. Sp Qtr. 3 cl.
652 Social Cities UGRD 5
Geographies of meaning and difference in cities: meanings of the built environment, situated cultural politics, urban geographies of race, ethnicity, class, gender, sexuality and age. Sp Qtr. 2-2 hr cl.
655 Land Use Geography UGRD 5
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. 2-2 hr cl. Prereq: 200 or 220 or 240 or permission of instructor.
660 Urban Political Geography UGRD 5
The changing politics of space in cities: class, neighborhood, and workplace in the industrial and the post-industrial city. 2-2 hr cl. Prereq: 460.
680 Computer Cartography and Geographical Visualization UGRD 5
Examination of theory, techniques, and applications of computer-based interactive mapping and visualization. Wi Qtr. 2-2 hr cl. Prereq: 380 and Math 150; or equivs.
682 Individual Studies in Cartography UGRD 3-5
Individual study of cartographic subjects; map compilation, cartographic classification, regionalization, and multi-dimensional representation, computer mapping and real-time computer cartography. Conf and lab. Prereq. Permission of instructor. This course is graded S/U.
683 Quantitative Geographical Methods UGRD 5
An introduction to statistical data analysis in geography, fundamental methods used in quantitative geographic research. Au Qtr. 2-2 cl, 1.1.5 hr lab. Prereq: Stat 145 or 245, or equiv; or grad standing in Geog.
684 Geographic Applications in Remote Sensing UGRD 5
Introduction to the fundamental principles, methods, and geographic applications of remote sensing. Au Qtr. Prereq: Statistics 245 or permission of instructor.
685 Intermediate Geographic Information Systems UGRD 5
Designed to provide a background in GIS-based spatial analysis approaches and develop an understanding of the operational basis of modern GIS technology. Wi Qtr. 2-2 cl, 1.3 hr lab. Prereq: 607, or 607 in one of the following depts: C&R Plan, Civil En, Geod Sci, or Nat Res; or permission of instructor.
686 GIS Applications in Social Science and Business UGRD 5
Application of GIS technology to the analysis of small area statistical data is illustrated through laboratory exploration of social science and business research problems. Sp Qtr. 2-1.5 hr cl, 1-3 hr lab. Prereq: One course at the 300 level or above in human geography, marketing, or planning; or precon; or grad standing in Geog.
687 GIS Design and Implementation UGRD 5
Practice-oriented development, design, implementation and evaluation of spatial databases, with an emphasis on local problems. Sp Qtr. 2-2 cl. Prereq: 685 or ENR 745 or permission of instructor.
688 Emerging Topics in GIS UGRD 5
Examination of major recent developments in the theories, technologies, and applications of geographical information science. Sp Qtr. Prereq: 686 or 687 or permission of instructor.
689 Student Intern Program in Geography UGRD 3-10
An opportunity for work experience and on-the-job learning in geography-related employment. Su, Au, Wi, Sp Qtr. Prereq: 20 hours of major program courses and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.
693 Individual Studies UGRD 1-15
Individual study of a special problem or of a particular region. Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable. This course is graded S/U.
694 Group Studies UGRD 3-5
Group study of special topics in various fields of geography. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.
695 Undergraduate Research and Professionalization Seminar UGRD 5
Introduction to conducting research in geography; practical experience in generating, analyzing, and presenting geographic information; explores fieldwork methods and develops professional skills, including proposal writing. 2-2 hr cl. Prereq: 20 cr hrs in geog.
697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Su, Au, Wi, Sp Qtr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Student will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.
740 Advanced Locational Analysis UGRD 5
Advanced problems in location analysis, application of programming techniques and spatial equilibrium analysis. 3 cl. Prereq: 647 or permission of instructor.
780 Analytical Cartography UGRD 5
An examination of the theory and methods of analytical cartography. Sp Qtr. 2-2 hr cl, 2-2 hr lab. Prereq: 680, 795 or equiv, and Math 152 or equiv; or prereq or concur: Geod Sci 631.
782 Interactive Cartographic Systems UGRD 5
An examination of the theory and methods of developing, building, and implementing interactive cartographic systems. Au Qtr. 2-2 hr cl. Prereq: 780.
783H Honors Research UGRD 3-5
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. Au, Wi, Sp Qtr. Prereq: 4th yr standing with a grade of A in at least half of the geog courses taken and an average of at least B in the remainder; written permission of instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee. At least 2 qtrs are required of candidates for the degree BA with distinction in geog. Failure to receive a mark of S in this course is a disqualification for special honors. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
787 Advanced Applications in Geographic Information Systems UGRD 5
Examination of selected problems relating to the application of geographic informatio system technology to various topical areas; the topic varies each time course is offered, and topics may include climatology, urban geography, and biogeography. 2-3 hr cl. Prereq: 685 and 687, or permission of instructor. Repeatable to a maximum of 15 cr hrs.
789 Survey Research Practicum GRAD 5
799 Seminar in Geography UGRD 5
Introduction to research procedures, problem formulation, and application of research techniques in geography. 2-2 hr cl. Repeatable to a maximum of 20 or cr hrs.
800.01 Seminar: Theory of Regional Development GRAD 3-5
The development of theory in regional development and its application to selected problems. Repeatable to a maximum of 20 cr hrs.
800.02 Seminar: Problems in Regional Development GRAD 3-5
The development of theory in regional development and its application to selected problems. Repeatable to a maximum of 20 cr hrs.
820.01 Seminar: Problems in Climatology GRAD 3-5
Problems in Climatology. Repeatable to a maximum of 20 cr hrs.
820.03 Seminar: Special Problems in Physical Geography GRAD 3-5
Special Problems. Repeatable to a maximum of 20 cr hrs.
821 Dynamic Climatology GRAD 5
Dynamics, thermodynamics, energy conservation, flows, conversion processes; large scale circulation patterns with particular emphasis upon turbulence at the synoptic scale; weather processes; regional climates. 2-2 hr cl. Prereq: 622.01 or permission of instructor.
822 Microclimatology GRAD 5
Radiation and turbulence processes, conduction; variation in wind, temperature, humidity, soil moisture, evaporation, soil temperature; influence of vegetation and artificial structures.
2-2 hr cl. Prereq: 620 or 622.01 or permission of instructor.

823 Applied Climatology GRAD 5
Analysis of climatic and environmental change on various time scales; human impact on climate; theory and application of long-range and climate forecasting.
2 2-hr cl. Prereq: 623.01 or permission of instructor.

840.01 Seminar in Location Analysis: Location Theory GRAD 3-5
The development of theory in location analysis and its application to selected problems.
Repeatable to a maximum of 20 cr hrs.

840.02 Seminar in Location Analysis: Problems GRAD 3-5
The development of theory in location analysis and its application to selected problems.
Repeatable to a maximum of 20 cr hrs.

840.03 Seminar in Location Analysis: Approaches and Issues in Economic Geography GRAD 3-5
The development of theory in location analysis and its application to selected problems. Current issues and problems in economic geography.
2-2 hr cl. Repeatable to a maximum of 20 cr hrs.

845 Theory of Transportation Geography GRAD 3-5
The development of theory in transportation geography.
Not open to students with credit for 845.01. Repeatable to a maximum of 30 cr hrs.

850.01 Seminar in Urban Geology: Spatial Organization of the City GRAD 3-5
The development of theory in urban geography and its application to selected problems. Intra-urban analysis, density and land value gradients, residential differentiation, neighborhood and community, and the urban development process.
Repeatable to a maximum of 10 cr hrs.

850.02 Seminar in Urban Geology: Urban Systems Analysis GRAD 3-5
The development of theory in urban geography and its application to selected problems. Inter-urban analysis; theory of the evolution of urban systems, structural characteristics of sets of cities, recent processes of change, notably deconcentration.
Repeatable to a maximum of 10 cr hrs.

860.01 Seminar: Theory of Political Geography GRAD 3-5
The development of theory in political geography and its application to selected problems.
Prereq: 660 or permission of instructor. Repeatable to a maximum of 30 cr hrs.

860.02 Seminar: Problems in Political Geography GRAD 3-5
The development of theory in political geography and its application to selected problems.
Prereq: 660 or permission of instructor. Repeatable to a maximum of 30 cr hrs.

870.01 Seminar: Theory of Population and Social Geography GRAD 3-5
The development of theory in population and social geography and its application to selected problems.
Repeatable to a maximum of 30 cr hrs.

870.02 Seminar: Problems in Population and Social Geography GRAD 3-5
The development of theory in population and social geography and its application to selected problems.
Repeatable to a maximum of 30 cr hrs.

880 Seminars in Cartography GRAD 3-5
Readings and research in cartography.
Prereq: 780 or written permission of instructor. Repeatable to a maximum of 20 cr hrs.

882 Development of Geographic Thought GRAD 5
The evolution of concepts concerning the nature, scope, and methodology of geography; present focus and trends as reflected in current literature.
2 2-hr cl.
101.01 Elementary German I UGRD 5
Development of aural comprehension, speaking, reading, and writing skills in cultural context.
5 cl. Open to students with no prior instruction in German and to those with a maximum of one year of high school German and a placement test score from 0-12.1. 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 dept. GEC for lang courses. FL Admin Cond courses.
Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

101.51 Elementary German I: Individualized Track UGRD 1-5
Development of aural comprehension, speaking, reading, and writing skills in cultural context.
Students register for and complete from 1 to 5 cr hrs during the qtr. Open to students with no prior instruction in German and to those with a maximum of one year of high school German and a placement test score from 0-12.1. 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 dept. GEC for lang courses. FL Admin Cond courses. Students who complete 5 hrs before the end of the qtr may proceed to 102.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Repeatable to a maximum of 5 cr hrs.

102.01 Elementary German II UGRD 5
Development of aural comprehension, speaking, reading, and writing skills in cultural context.
5 cl. Prereq: 101.01 or 5 cr hrs in 101.51. Also open to students with a maximum of two years of high school German and a placement test score from 12.2-20.5. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admin Cond courses. This course is available for EM credit.

102.51 Elementary German II: Individualized UGRD 1-5
Track
Development of aural comprehension, speaking, reading, and writing skills in cultural context.
Students register for and complete from 1 to 5 cr hrs during the qtr. Prereq: 101.01 or grade of B- or above in 101.01, or 5 cr hrs in 101.51, or permission of instructor. Also open to students with a maximum of two years of high school German and a placement test score from 12.2-20.5. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. FL Admin Cond courses. Students who register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Repeatable to a maximum of 5 cr hrs.

102.66 Elementary German II: Intensive German UGRD 5
for Review I
Development of aural comprehension, speaking, reading, and writing skills in cultural context.
Review of basic structures, vocabulary, and skills needed for entry into German 103.01.
Only open to students with 2 or more years of high school German and placement test score of 0-12.1. Not open to native speakers of this language through regular course enrollment or EM credit. Not open to native speakers of German through regular enrollment or EM credit. Not open to students with credit for 101.01, 101.51, 102.01, 102.51, GEC for lang courses. FL Admin Cond courses.

103.01 Intermediate German I UGRD 5
Reading; oral and written practice; grammar review. Balanced use of the basic language skills: reading, aural comprehension, speaking, and writing.
5 cl. Prereq: 102.01, or 5 cr hrs in 102.51, 102.66 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. (Not all decimal subdivisions offered every qtr.) GEC for lang courses. This course is available for EM credit.

103.51 Intermediate German I: Individualized UGRD 1-5
Track
Reading; oral and written practice; grammar review; students may select from among the following subdivisions which emphasize specific skills and subject matter. Prereq: 102.01, or 5 cr hrs in 102.51, 102.66, or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. Not open to students with credit for any decimal subdivision of 103. (Not all decimal subdivisions offered every qtr.) GEC for lang courses. Progress is sequential from one cr hr to the next with proficiency at the level of 80% required for advancement. Repeatable to a maximum of 5 cr hrs.

103.66 Intermediate German I: Intensive German UGRD 5
for Review II
Reading; oral and written practice; grammar review; intensive review of basic structures; vocabulary and skills needed for entry into German 104. Open only to students with 101.01 or 5 cr hrs of 101.51, or 3 or more yrs of high school German and placement test score of 12.2-20.5. Not open to students with credit for German 102.01, 102.51, 103.01, 103.51. Not open to native speakers of German through regular enrollment or EM credit. Students who test into 103.66 during Sp Qtr may audit 102.01. GEC for lang courses.

104.01 Intermediate German II UGRD 5
Reading; oral and written practice; vocabulary building. Balanced use of the basic language skills: reading, aural comprehension, speaking, and writing.
5 cl. Prereq: Any decimal subdivision of 103, or 112, or by placement test. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. This course is available for EM credit.

104.51 Intermediate German II: Individualized UGRD 1-5
Track
Reading; oral and written practice; vocabulary building; students may select from among the following subdivisions which emphasize specific skills and subject matter. Prereq: 103.01 or 5 cr hrs in 103.51. Not open to native speakers of this language through regular course enrollment or EM credit. Not open to students with credit for any decimal subdivision of 104. GEC for lang courses. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from 1 cr hr to the next with proficiency at the level of 80% required for advancement. Repeatable to a maximum of 5 cr hrs.

112 Intensive German UGRD 5-15
Elementary and intermediate German for students desiring comprehensive knowledge of German in the shortest possible time; students will devote their entire time to this course.
Sa Qtr. Prereq: Permission of dept. Not open to native speakers of this language through regular course enrollment or EM credit. Students with credit for 103 or equiv may not register for credit. Enrollment limited to 20 students. Full-time fees required regardless of number of cr hrs. Equiv of 101, 102, and 103. Students may not register for any other course if they enroll in 112. Students with credit for 101 and 102 will enroll for 5 cr hrs. Students with credit for 101 only will enroll for 10 cr hrs. Students with no credit in German will enroll for 15 cr hrs. Regardless of cr hrs enrolled a student will attend class throughout entire qtr. Withdrawal from the course means forfeiture of all cr hrs. No audit. GEC for lang course. FL Admin Cond course.

115 Intermediate German UGRD 10
Intensive 10-week summer course taught in Dresden, Germany, combining the skill development in 103 and 104 with the cultural experience of living abroad.
Su Qtr. 5-3 hr cl. Prereq: 102 or 102.51. GEC for lang course.

201 Intermediate German III: Texts and Contexts from 1945 to the Present UGRD 5
Development of reading, writing, listening, speaking skills through interaction with cultural and historical materials; trends/ideas in politics, society, culture of postwar and contemporary periods.
Au, Wi, Sp Qtr. Prereq: 104 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. No audit.

202 Business German I UGRD 5
Development of business-related cultural knowledge and communication skills in German; introduction to the world of German business through audio, video, print materials; four-skills course.
Wi, Sp Qtr. 3.5-1.5 hr cl. Prereq: 104 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. No audit.

203 Intermediate German Conversation UGRD 3
Practice in spoken everyday idiomatic German, based on texts concerning German life today.
Prereq: 104 or permission of instructor.

230 Introduction to German Prose UGRD 5
Reading and discussion of German literary texts representing significant prose types, authors, and periods including fairy tale, fable, diary, short story, novella, essay, and novel.
Prereq: 201 or equiv or permission of instructor.

231 Introduction to German Poetry UGRD 5
Reading and discussion of selected German poetry, introducing major German poets and poetic forms; these include the folksong, ballad, sonnet, and religious and political poetry.
Prereq: 201 or equiv or permission of instructor.

232 Introduction to German Drama UGRD 5
Reading and discussion of German dramatic texts, representing influential forms, authors, and traditions: folk comedy, classical tragedy, the tragi-comedy, the radio play, and documentary theatre.
Prereq: 201 or equiv or permission of instructor.
250 German Literature and Popular Culture UGRD 5
Study of popular culture forms in relation to the artistic, intellectual, historic, and
literary traditions of the German-speaking world.
Au, Wi, Sp Qtrs. 2 2-hr cl. Repeatable to a maximum of 15 cr hrs. Taught in English;
GEC arts and hums lit course.

261 German Classics in Translation UGRD 3
Social and intellectual forces in Germany as reflected in German literature from the
Enlightenment to the middle of the 19th century; masterpieces from Goethe to
Gottfried Keller.
3 cl. Credit does not apply toward a major in German. Taught in English.

262 Modern German Literature in Translation UGRD 3
Intellectual forces and literary trends in German literature from the end of the 19th
century to the present; masterpieces from Gerhart Hauptmann to Bertolt Brecht.
3 cl. Credit does not apply toward a major in German. Taught in English.

263I The Faust Theme UGRD 5
Major versions of the Faust story, its socio-cultural context, and their symbolic
expression of recurring human concerns.
2 2.5-hr cl. Prereq: English 110 or 111 or equiv. Taught in English. GEC arts and
hums lit course.

275 Development of Contemporary Germany: UGRD 5
Dresden Yesterday and Today
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.
Su Qtr. 2 2.5-hr cl. Prereq: 102 and concur 115. GEC arts and hums cultures and ideas
course.

291 Early German Literature in Cultural UGRD 5
Context
Origins and highlights of German culture and life as reflected in literary and poetic
works, Germanic mythology, religion, and the arts.
Taught in English. Supplemented by audio-visual aids. GEC arts and hums lit course.

292 Modern German Literature in Cultural UGRD 5
Context
Two hundred years of German literature, arts, philosophy, and social thought, as they
reflect cultural and social life in German-speaking countries.
Taught in English. Supplemented by audio-visual aids. GEC arts and hums lit course.

293 Individual Studies UGRD 2-5
Individual investigation of minor problems in German language and literature.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of chairperson. Repeatable to a
maximum of 10 cr hrs. This course is graded S/U.

294 Group Studies UGRD 2-5
Investigation of minor problems in German literature and language.
Au, Wi, Sp Qtrs. Prereq: Written permission of chairperson. Repeatable to a
maximum of 10 cr hrs.

298.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact
department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

298.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact
department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

299 Weimar and the Third Reich in German UGRD 5
Literature and Film
Culture of the Weimar Republic and Nazi Germany in literature, film, the other arts;
the roots of fascism and its echoes in postwar Germany.
2 2-hr cl. Taught in English. GEC arts and hums cultures and ideas course.

301 Advanced German I: Texts and Contexts UGRD 5
from 1848 to 1945
Practice of advanced language skills and development of cultural and historical
knowledge through interaction with various materials trends/ideas in politics, society,
culture.
Au, Wi, Sp Qtrs. 3 1.5-hr cl. Prereq: 201 or equiv or permission of instructor. Not
open to native speakers of this language through regular course enrollment or EM
credit.

302 Business German II UGRD 5
Continued development of cultural knowledge and communication skills in German;
study of business trends, traditions, and structures through audio, video, print texts;
four-skills course.
* Sp Qtr. 3 1.5-hr cl. Prereq: 202 or equiv or permission of instructor.

303 The Practice of Translation UGRD 3
German-English and English-German translation; texts from diverse areas; emphasis
on improvement of German grammar, syntax, idiom, and style; discussion of common
translation techniques.
3 cl. Prereq: 201 or equiv or permission of instructor.

367 German Literature and American Culture UGRD 5
German perspectives on and in 20th-century American culture. Influence of German
thought and writings on American culture; German views of American culture.
Au Qtr. 2 2-hr cl. Prereq: English 110 or 110.01 or 110.02 or 110.03. Taught in English.
GEC second writing course.

399 The Holocaust in Literature and Film UGRD 5
Reading, analysis, and discussion of representative works pertaining to the Holocaust
from the perspectives of the German and Ashkenazic traditions.
2 2-hr cl. Not open to students with credit for Yiddish 399. Cross-listed in Yiddish.
Taught in English. GEC arts and hums lit course.

401 Advanced German II: Texts and Contexts UGRD 5
to 1848
Continued practice of advanced language skills particularly pertaining to written texts
and formal speech, broadening of cultural and historical knowledge from the Middle
Ages to 1848 through interaction with various materials.
Au, Wi, Sp Qtrs. 3 1.5-hr cl. Prereq: 301 or equiv or permission of instructor. Not
open to students with credit for 410.

409 Advanced German Conversation UGRD 3
Practice in spoken German on topics of general interest and current events.
* 3 cl. Prereq: 301 or equiv or permission of instructor. Not open to native speakers of
this language through regular course enrollment or EM credit.

420 Studies in German Literature I (750-1700) UGRD 5
Development of German literature in its historical, social, and philosophical context
from earliest times to the Age of Enlightenment.
3 1.5-hr cl. Prereq: 201 or equiv, and one German literature course; or permission
of instructor. Taught in German.

421 Studies in German Literature II (1700-1870) UGRD 5
Development of German literature in its historical, social, and philosophical context
from the Age of Enlightenment to German unification.
3 1.5-hr cl. Prereq: 201 or equiv, and one German literature course; or permission
of instructor. Taught in German.

422 Studies in German Literature III (1870-
Present) UGRD 5
Development of German literature in its historical, social, and philosophical context
from 1870 to the present.
3 1.5-hr cl. Prereq: 201 or equiv, and one German literature course; or permission
of instructor. Taught in German.

463 German Culture of the 19th and 20th UGRD 5
Centuries
Intellectual, artistic, and social trends in the German-speaking countries from 1815 to
the present.
3 1.5-hr cl. Prereq: 10 cr hrs beyond 104 of courses taught in German or permission of
instructor. Taught in German.

530 German Language Past and Present UGRD 5
Understanding the German language in its historical development and its
contemporary manifestations.
Prereq: 401 or equiv. Not open to students with credit for 705.

540 Literature and Life in German-Speaking UGRD 3
Countries
Discussion of significant literary and cultural developments reflecting aspects of life in
German-speaking countries: Austria, Switzerland, and Germany; topic varies.
3 cl. Prereq: 201, 301, and one German literature course; or permission of instructor.
Repeatable to a maximum of 9 cr hrs. GEC third writing course. Taught in German.

550 Current Events in German-Speaking UGRD 5
Countries
Studies and intensive discussion of current cultural and social issues in the German-
speaking world; newspaper readings, internet material, guest lectures, films, music am
student presentations; topics vary.
2 2-hr cl. Prereq: 401 or equiv or permission of instructor. Repeatable to a maximum of
10 cr hrs. Taught in German.

571 Basic German for Graduate Students GRAD 5
The fundamentals of German grammar, as required for the reading of German texts in
the sciences, social sciences, and humanities.
Su, Au Qtrs. 5 cl. Prereq: Grad standing. No audit. Credit does not apply to the
minimum hours required for the master's or doctoral degrees.

572 German for Research I GRAD 3
Satisfactory completion of this course (grade of A or B) may be accepted by the
student's dept as evidence of a dictionary reading knowledge in fulfillment of PhD
language requirement.
Au, Wi Qtr. 3 cl. Prereq: Grade of C or above in 571 or equiv preparation
demonstrated by a placement test. Only open to grad students. No audit. Credit does
not apply to the minimum hours required for the master's or doctoral degrees.
Repeatable to a maximum of 6 cr hrs.
573 German for Research II GRAD 3
Reading of difficult material at a reasonable rate of speed and with only infrequent use of dictionaries. Completion of this course with a grade of A or B may be accepted by the student's department as evidence of a thorough reading knowledge of German.
Au, Wi Qtrs. 3 cl. Prereq: Grade of A or B in 572, or equivalent preparation demonstrated by a placement test and permission of instructor. Open only to grad students. No audit Credit does not apply to the minimum hours required for the master's or doctoral degrees. Repeatable to a maximum of 6 cr hrs.

590H Life without God? German Reflections on Secularization and Society UGRD 5
This course explores, from an interdisciplinary perspective, German and German-Jewish concepts of secularization as well as their possible significance for the present, combining the insights of philosophy, literature, psychoanalysis, and theology. Wi, Sp Qtrs. Prereq: Honors program and Sophomore or Junior or Senior standing. GEC arts and hum cultures and ideas and international issues - global course.

630 Introduction to Stylistics UGRD 5
Composition on assigned topics, intensive translation, and comparative study of usage designed to develop a sophisticated expository style in the writing of German. 2 2-hr cl. Prereq: 401, or 301 and written permission of instructor.

635 Practical German Pronunciation UGRD 5
Standard German pronunciation; oral and written drill.
* 2 2-cl. Prereq: 401 or 301 and permission of instructor.

640 Topics in German Literature and Culture UGRD 5
Intensive study and discussion of selected important issues, themes, trends, or individual authors; topic varies.
3 cl. Prereq: 201, 301, and one 400-level German literature course, or permission of instructor. Repeatable to a maximum of 15 cr hrs including cr hrs earned in 560. Taught in German.

670H Cinema and the Historical Avant Garde UGRD 5
Historicizes cinema's political and artistic roots, concentrating on the perceived and real possibilities of the medium. Fosters critical awareness of "film culture" historically and currently.
Prereq: German course at the 300 level or above and honors standing. Not open to students with credit for Film Std H670. Cross-listed in Film Studies. Taught in English

671 German Cinema to 1945 UGRD 5
Development of film from the late nineteenth century to the end of WWII; fundamental elements of film and film analysis, film as an art form, and other aspects of film.
2 3-hr cl. Prereq: Jr standing or above or permission of instructor.

672 German Cinema from 1945 to the Present UGRD 5
Development of film in Germany from 1945 to period after reunification; fundamental elements of film and film analysis; developments in German film in light of cultural and historical frameworks.
2 3-hr cl. Prereq: Jr standing or above or permission of instructor.

673 Individual Studies UGRD 1-15
Investigation of problems in various fields of Germanic studies.
Su, Au, Wi, Sp Qtrs. Prereq: Signature of undergraduate adviser or Graduate Studies Committee chair as applicable. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

694 Group Studies UGRD 2-15
Investigation of minor problems in the various fields of Germanic literature and philology.
Au, Wi, Sp Qtrs. Prereq: Permission of chairperson. Repeatable to a maximum of 30 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

702 Introduction to the Methods and Tools of Literary Analysis UGRD 5
Introduction to standard bibliographical aids, the MLA style for seminar and research papers, and the fundamental aspects of poetics, rhetoric, editorial principles, and stylistic analysis.
2 cl. Prereq: Grad standing or permission of instructor.

703 Introduction to Contemporary Critical Approaches to Literature UGRD 5
Primary current methodological and theoretical approaches to German literary study and brief consideration of their history: positivism, hermeneutics, formalism, Marxian structuralism, post-structuralism.
2 cl. Prereq: Grad standing or permission of instructor.

705 Structure and Description of Modern Standard German UGRD 5
Phonological, morphological, and syntactic systems of modern German; lexical changes, non-standard varieties of the language.
1 cl. Prereq: Grad standing or permission of instructor. Taught in German.

706 Forms of Contemporary German Usage UGRD 5
Analytical and practical study of the ways in which German is written and spoken today (colloquial speech, business and scholarly German, etc.); emphasis on oral and written practice.
2 cl. Prereq: Grad standing or permission of instructor or 401. Taught in German.

740 Development of German Narrative Prose UGRD 5
The novel, Novelle, short story, and other forms of German prose: historical overview theory, and selected primary texts as illustration.
2 cl. Prereq: Grad standing or permission of instructor.

741 Development of German Drama UGRD 5
History and theory of the drama in Germany; methods of drama analysis; interrelationship of drama, theatre, and audience; study of selected texts.
2 cl. Prereq: Grad standing or permission of instructor.

742 Development of German Poetry UGRD 5
Elements of German poetry; close study of representative poets and poems since the Baroque.
2 cl. Prereq: Grad standing or permission of instructor.

750 Periods of German Literary History: 800-1400 UGRD 5
Study of major works chosen to present prominent themes and problems and/or important developments within the period; topic varies.
* 2 cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

751 Periods of German Literary History: 1400-1700 UGRD 5
Study of major works chosen to present prominent themes and problems and/or important developments within the period; topic varies.
2 cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

752 Periods of German Literary History: 1700-1850 UGRD 5
Study of major works chosen to present prominent themes and problems and/or important developments within the period; topic varies.
2 cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

753 Periods of German Literary History: 1850-Present UGRD 5
Study of major works chosen to present prominent themes and problems within the period; topic varies.
2 cl. Prereq: Grad standing or permission of instructor.

777 Colloquium in German Literature UGRD 2-5
Selected topics, problems, and works in the various fields of German literature.
Arr. Prereq: Permission of chairperson. This course is graded S/U.

783H Honors Research UGRD 1-10
Offers undergraduates with special aptitudes a greater opportunity for independent study than is possible in ordinary courses.
Au, Wi, Sp Qtrs. Arr. Prereq: 4th yr standing with a grade of A in at least half of the German courses 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. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

790 Foundations of Contemporary Critical Theory UGRD 5
Interdisciplinary survey of the theoretical bases of the major contemporary approaches to the study of literature; readings in Marx, Freud, Derrida, Cixous, and others.
2 2-hr cl. Prereq: Jr or Sr or grad standing.

792 Interdepartmental Studies in the Humanities UGRD 3-5
Two or more departments present colloquia on subjects of mutual interest; topics to be announced.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing or permission of instructor(s).

801 Middle High German GRAD 5
Intensive introduction to Middle High German; comprehension and application of grammatical principles; selected texts for linguistic analysis.
2 cl.

806 History of the German Language GRAD 5
Basic concepts of historical linguistics; the major factors of change in the history of German from Proto-Germanic to the present.
2 cl. Prereq: 801.
810  German Literary Criticism and Theory  GRAD  5
Historical overview and evaluation of critical methods; introduction to contemporary literary theories; the use-value of literary criticism.
2 cl. 2 cl.

840  College Teaching of German  GRAD  5
Methods and techniques for teaching German at the college level.
2 cl. Prereq: Permission of instructor. Intended for grad students in German.

850  German Proseminar  GRAD  5
Selected topics in German literature, language, and culture; seminar discussion format with oral and written reports. Repeatable to a maximum of 20 cr hrs.

890  Interdepartmental Studies in Critical Theory  GRAD  5
Interdisciplinary study of a movement (phenomenology, deconstruction, etc.) or problem (intentionality, evaluation, etc.) in literary theory.
2 2-hr or 4 cl. Prereq: Background in critical theory required. Repeatable to a maximum of 10 cr hrs. Cross-listed in Comparative Studies, English, French, Spanish, and Women's Studies.

893  Individual Studies  GRAD  2-5
Investigation of specific issues in German literature, culture, linguistics, and philosophy.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of chair of Graduate Studies Committee. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

899  Interdepartmental Seminar  GRAD  3-5
Two or more departments present seminars on subjects of mutual interest; topics to be announced.
Prereq: Permission of instructor(s). Repeatable to a maximum of 15 cr hrs.

903  Graduate Student Teaching Apprenticeship  GRAD  5
Opportunity for advanced graduate students to plan and teach in conjunction with faculty member a course at 200 or higher level.
Au, Wi, Sp Qtrs. Prereq: A minimum of one year experience as GTA. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

960  Seminar in Modern German Literature: 5
Topics vary in focus and methodology; emphasis may range from individual authors, works, or themes to theoretical or interdisciplinary issues; major research papers.
1 3-hr cl. Repeatable to a maximum of 45 cr hrs.

970  Seminar in Older German Literature to 1700
Topics vary in focus and methodology; emphasis may range from individual authors, works, or themes to theoretical or interdisciplinary issues.
3 cl. Repeatable to a maximum of 45 cr hrs.

980  Seminar in Germanic Philology  GRAD  5
Topics from historical and comparative studies of older Germanic dialects; structure of New High German and contemporary German.
3 cl. Repeatable to a maximum of 45 cr hrs.

993  Individual Studies  GRAD  1-5
With the approval of the Graduate Studies Committee chair, doctoral students preparing for the candidacy exam may register for independent study.
Su, Au, Wi, Sp Qtrs. Prereq: Signature of Graduate Studies Committee chair. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.

998  Research in German: Thesis  GRAD  1-18
Research for master's thesis.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

999  Research in German: Dissertation  GRAD  1-18
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Graduate School

501  Graduate Study and Academic Careers  UGRD  1-5
Exploration of graduate study and academic careers.
Su Qtr. 1-4 hr cl. Open only to SRSP students. This course is graded S/U.

594  Group Studies  UGRD  1-5
Group Studies.
Su Qtr. Arr. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

701  Preparing Future Faculty  GRAD  1-3
Mentorship and professional development activities in conjunction with partner institutions.
Su, Su Term 1, Su Term 2, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs. Students must successfully complete applicant process and be admitted. Mentor matches are contingent upon availability. Students will make 2-4 visits to partner institution to meet with assigned mentor. In addition, are required to participate in on-campus workshops and meetings. This course is graded S/U.

889  Graduate Research or Field Study  GRAD  0
For graduate students pursuing off-campus field experiences, study or research. Full-time enrollment equivalent.
Prereq: Permission of instructor. This course is graded S/U.

999  Research: Interdisciplinary  GRAD  1-18
Interdisciplinary doctoral dissertation research approved by the Graduate School for one-of-a-kind programs.
This course is graded S/U. Repeatable.

Greek

101  Elementary Ancient Greek I  UGRD  5
Introduction to the language of the ancient Greek authors and the New Testament.
Au Qtr. 5 cl. Not open to students with 3 or more years of study in this language in high school, except by permission of dept. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

102  Elementary Ancient Greek II  UGRD  5
Elementary Ancient Greek II.
Wi Qtr. 5 cl. Prereq: 101. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

103  Intermediate Ancient Greek I  UGRD  5
Intermediate Ancient Greek I.
Sp Qtr. 5 cl. Prereq: 102. This course is available for EM credit. GEC for lang course.

104  Intermediate Ancient Greek II  UGRD  5
Intermediate Ancient Greek II.
5 cl. Prereq: 103 or permission of instructor. This course is available for EM credit. GEC for lang course.

210  The Greek New Testament  UGRD  5
^ Wi Qtr. 5 cl. Prereq: Greek 104 or permission of instructor.

221  Attic Prose  UGRD  5
Readings in Plato, Lysias, Xenophon, for example.
Au Qtr. 5 cl. Prereq: Greek 104.

222  Euripides  UGRD  5
One tragedy will be read.
Wi Qtr. Prereq: Greek 104 or permission of instructor.

223  Homer  UGRD  5
Selections from the Iliad or Odyssey.
^ Sp Qtr. Prereq: Greek 104 or permission of instructor.

224  The Greek Historians  UGRD  5
Readings from Herodotus, Thucydides or Xenophon.
Sp Qtr. Prereq: Greek 104 or permission of instructor.

225  Sophocles  UGRD  5
Readings from the tragedies of Sophocles.
^ 5 cl. Prereq: Greek 104 or permission of instructor.

293  Individual Studies  UGRD  1-6
Intermediate readings in Greek literature.
Su, Au, Wi, Sp Qtrs. Prereq: 104 or equiv or written permission of dept. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

604  Greek Historians  UGRD  5
Comparative readings from Greek historical writers such as Herodotus, Thucydides, Xenophon, and Plutarch.
2 2-hr cl. Prereq: 2 courses at 200 level. with permission of instructor. Repeatable to a maximum of 10 cr hrs.

605  Greek Tragedy  UGRD  5
Readings in the tragedies of Aeschylus, Sophocles, and Euripides.
2 2-hr cl. Prereq: 2 courses at 200 level with permission of instructor. Repeatable to a maximum of 10 cr hrs.

607  Greek Epic  UGRD  5
Readings from Greek epic, including works of Homer, Hesiod, or Apollonius.
^ 2 2-hr cl. Prereq: 2 courses at 200 level. with permission of instructor. Repeatable to a maximum of 10 cr hrs.

608  Attic Oratory  UGRD  5
Comparative readings in Attic orators, including Lysias, Demosthenes, and Aeschines
2 2-hr cl. Prereq: 2 courses at 200 level. Not open to students with credit for 608.01.
with permission of instructor. Repeatable to a maximum of 10 cr hrs.

609  Readings in Plato  UGRD  5
Readings in Plato.
5 cl. Prereq: 2 courses at 200 level.

610  Greek Comedy  UGRD  5
Comparative readings in Greek comic authors, including Aristophanes and Menander.
2 2-hr cl. Prereq: 2 courses at 200 level. with permission of instructor. Repeatable to a maximum of 10 cr hrs.
611 Greek Hymn, Lyric, and Elegy UGRD 5
Readings in Greek hymns and lyrics, including texts by Hesiod, Sappho, and Pindar. 2 2-hr cl. Prereq: 2 courses at 200 level. with permission of instructor. Repeatable to a maximum of 10 cr hrs.

612 Attic Prose Composition UGRD 5
Review of elementary syntax leading to composition of sentences and short connected passages; concurrent readings from Lysias or Xenophon.
\* 3 cl, 2 hr arr. Prereq: At least 1 course at 600 level.

660 Special Topics in Greek Literature UGRD 5
Extensive reading from masterpieces of Greek literature; topic varies.
Wi Qtr. 2-2 hr cl. Prereq: Two courses at the 200 level. Repeatable to a maximum of 20 cr hrs.

693 Individual Studies UGRD 1-6
Passages for reading and topics for investigation will be selected to meet the needs of individual students.
Su, Au, Wi, Sp qtr. Prereq: 2 courses at 600 level, or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-6
Group Studies.
Su, Au, Wi, Sp qtr. Prereq: 4 courses more advanced than 104, or permission of chairperson. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp qtr. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is a Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

701 Survey of Greek Literature: Epic/Archaic Eras UGRD 5
A survey of authors representative of the earliest period of Greek literature, with discussion of historical background and methods of criticism.
\* Au Qtr. 2-2 hr cl. Prereq: Two 200-level Greek courses and permission of instructor or grad standing. Not open to students with credit for 601.

702 Survey of Greek Literature: Classical Age UGRD 5
A survey of authors representative of the Classical Period of Greek literature, with discussion of historical background and methods of criticism.
\* Wi Qtr. 2-2 hr cl. Prereq: Two 200-level Greek courses and permission of instructor; or grad standing. Not open to students with credit for 602.

703 Survey of Greek Literature: Hellenistic Era UGRD 5
A survey of authors representative of the Hellenistic Period of Greek literature, with discussion of historical background and methods of criticism.
\* Sp Qtr. 2-2 hr cl. Prereq: Two 200-level Greek courses and permission of instructor; or grad standing. Not open to students with credit for 603.

783H Honors Research UGRD 3-5
A program of study arranged for each student with individual conferences, reports, and an honors thesis.
Su, Au, Wi, Sp qtr. Arr. Prereq: 4th yr standing with a grade of A in at least half of the Greek courses taken and with an average of B in the remainder; written permission of instructor under whose supervision the work is to be completed and the ASC Honors Committee; at least 2 qtrs are required of candidates for the degree BA with distinction in Greek. Failure to receive a mark of S in this course is a disqualification for special honors. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

802 Advanced Greek Prose Composition GRAD 5
Weekly exercises in continuous prose composition with concurrent readings from Greek prose authors.
\* Wi Qtr. 2 cl. Prereq: 612 or permission of instructor.

813 Studies in the Greek Orators UGRD 5
Selected topics in Greek oratory: Lysias, Andocide, Isocrates, or Demosthenes.
\^ 2 cl. Repeatable to a maximum of 15 cr hrs.

818 Studies in the Greek Historians UGRD 5
Selected topics in Greek historiography: Herodotus, Thucydides, Xenophon, or Polybius.
2 2-hr cl. Repeatable to a maximum of 15 cr hrs.

836 Studies in Hellenistic Literature UGRD 5
Critical study of Greek authors of the third to first centuries B.C.
\^ Repeatable to a maximum of 10 cr hrs.

840 Studies in Greek Drama UGRD 5
Critical study of one or more of the Greek dramatists: Aeschylus, Sophocles, Euripides, Aristophanes, and Menander.
2 2-hr cl. Repeatable to a maximum of 20 cr hrs.

842 Studies in Greek Lyric and Elegiac Poetry GRAD 5
Selected topics in the lyric and elegiac poets of the seventh through fifth centuries B.C.
\^ Au Qtr. 1 3-hr cl. Repeatable to a maximum of 15 cr hrs.

844 Studies in the Greek Philosophers GRAD 5
Selected topics in Greek philosophy: the pre-Socratics, Plato, Aristotle, and the Hellenistic philosophers.
Wi Qtr. 2 2-hr cl. Repeatable to a maximum of 15 cr hrs.

845 Studies in Greek Epic UGRD 5
Selected topics in Greek epic: Homer, Hesiod, or Apollonius.
1 3-hr cl. Repeatable to a maximum of 20 cr hrs.

880 Topics in Greek Antiquity GRAD 5
In-depth examination of issues that are often difficult to address in courses that focus on a single Greek author.
1 3-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

894 Group Studies GRAD 1-6
Group Studies.
Repeatable to a maximum of 20 cr hrs.

993 Individual Studies GRAD 1-5
Assigned readings; supervised individual research.
Su, Au, Wi, Sp qtr. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

995 Seminar GRAD 5
The seminar completes a two-qtr sequence (Au/Wi, Wi/Sp) begun with an 800-level intensive study of an author or a genre, e.g., Aeschylus, Thucydides, Hellenistic poet; Wi Qtr. Repeatable to a maximum of 20 cr hrs.

999 Research GRAD 1-18
Research for thesis and dissertation purposes only.
Su, Au, Wi, Sp qtr. Repeatable. This course is graded S/U.

Hausa

101 Elementary Hausa I UGRD 5
Introduction to core vocabulary and basic structures of Hausa, focus on oral proficiency.
^ Not open 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. GEC for lan course. FL Admis Cond course.

102 Elementary Hausa II UGRD 5
Continuation of 101; introduction to core vocabulary and basic structures of Hausa, focus on oral proficiency.
\^ Prereq: 101. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course.

103 Intermediate Hausa I UGRD 5
Continuation of 102; introduction to core vocabulary and basic structures of Hausa, focus on oral proficiency.
\^ Prereq: 102. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course.

104 Intermediate Hausa II UGRD 5
Continuation of 103; introduction to core vocabulary and basic structures of Hausa, focus on oral proficiency.
\^ Prereq: 103. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course.

Health Information Management And Systems

500 Medical Terminology UGRD 3
Terminology pertaining to the treatment of disease, including standard abbreviations, anatomic, diagnostic, symptomatic, eponymy, laboratory, pathologic, radiology, anesthetic, operative, and drug terms.
Au, Wi, Sp qtr. 3 cl. Not open to student with credit for Alli Med 500.01 and 500.02. Cross-listed in Allied Medicine.

520 Clinical Documentation, Storage, and Retrieval Systems UGRD 5
Introduction to content, format, value and use of clinical information and standards of documentation. Survey of identification, storage and retrieval systems and the preservation and retention of data.
Au Qtr. 4 cl, 1 3-hr lab. Prereq: Written permission of instructor.

525 Organizational Analysis of Health Care Facilities UGRD 3
Analysis of administration, governing board, medical staff committees, licensing, accrediting and certifying agencies in relation to health care facilities, and health information requirements.
Au Qtr. 3 cl. Prereq: Written permission of instructor.

535 Clinical Coding Systems UGRD 5
In depth study of clinical coding systems, particularly ICD-9-CM.
Wi Qtr. 4 cl, 1 3-hr lab. Prereq: 520 or written permission of instructor. E535 may be available for honors embedded experience.
536 Ambulatory Clinical Coding Systems UGRD 3
Ambulatory coding systems for facility outpatient and physician services.
Wi Qtr. 2 1.5-hr cl. Prereq: 535 or written permission of instructor. E536 may be available for honors embedded experience.

537 Clinical Data Management UGRD 3
Advanced concepts, applications and management of coded data.
Sp Qtr. 2 1.5-hr cl. Prereq: 535 and 536 or written permission of instructor. E537 may be available for honors embedded experience.

540 Health Care Statistics and Data Analysis UGRD 3
Statistical methods for the collection and computation of health care data with emphasis on epidemiology and data analysis.
Sp Qtr. 2 cl. 1-2 hr lab. Prereq: 520 or written permission of instructor.

544 Legal Principles for Health Managers UGRD 3
Legal system, hospital and professional liability, and legal requirements affecting the operations of healthcare organizations.
Wi Qtr. 2 1.5-hr cl. Prereq: Alli Med 591; enrollment in Health Sciences management track or written permission of instructor. Not open to students with credit for 544. Cross-listed in Allied Medicine.

545 Legal Concepts in Health Care and Information Services UGRD 3
Legal system, hospital and staff liability, privacy, confidentiality, and legal requirements affecting the control and release of health information and medical records.
Wi, Sp Qtr.s. 3 cl. Prereq: Alli Med 591; enrollment in HIMS, AMP or written permission of instructor. Not open to students with credit for 544.

589 Clinical Technical Affiliation UGRD 3
Practical applications in health information management.
Su, Au, Wi, Sp Qtr.s. 1 cl, 1 8-hr clinical study. Prereq: 520 or written permission of instructor. This course is graded S/U.

602 Healthcare Reimbursement Systems UGRD 3
Principles of clinical and reimbursement based classification systems with emphasis on utilization review in acute and managed care environments.
Sp Qtr. 3 cl. Prereq: Enrollment in HIMS, AMP or written permission of instructor.

635 Quality Management in Health Care UGRD 4
History, development and application of quality management including utilization review and outcomes measurement in health care. Survey of tools and techniques.
Au Qtr. 2 1.5-hr cl, 1-2 hr lab. Prereq: Enrollment in HIMS, AMP or permissions of instructor.

640 Management of Health Information Services UGRD 3
Principles of organizational design and behavior with emphasis on the practical aspects of managing health information services.
Au Qtr. 2 cl, 1-3 hr lab. Prereq: 520 or written permission of instructor.

645 Management Control Systems for Health Information Services UGRD 3
Application of work measurement, work standards, physical and financial resource management for health information services.
Wi Qtr. 2 cl, 1-3 hr lab. Prereq: 520 or written permission of instructor.

648 Microcomputer Applications in the Health Sciences UGRD 3
Overview of microcomputer applications in health sciences with practical applications related to discipline specific needs.
Au, Wi, Sp Qtr.s. 2 2-3 hr cl. Computer programming neither required nor taught. Cross-listed in Allied Medicine.

650 Health Care Information Systems UGRD 3
Survey of patient, administrative and financial information systems in health care, and the technologies and management practices to support them.
Sp Qtr. 2 2-3 hr cl. Cross-listed in Allied Medicine. E650 may be available for honors embedded experience.

654 Health Information Systems I: Planning and Analysis UGRD 3
Focus on structured systems analysis techniques including database design for health information systems.
Au Qtr. 3 cl. Prereq: 648, Alli Med 650, or written permission of instructor. E654 may be available for honors embedded experience.

655 Health Information Systems II: Design and Implementation UGRD 3
Continuation of HIM 654, focus is on design and implementation of a prototype health information systems application.
Wi Qtr. 1 3-hr cl. Prereq: 654 or written permission of instructor. E655 may be available for honors embedded experience.

660 Healthcare Financial Management UGRD 3
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.
Wi Qtr. 2 1-hr cl, 1 2-hr lab. Prereq: Enrollment in HIM 515, AMP or grad standing in AMP or permission of instructor. Cross-listed in AMP.

687 Documentation and Information Services in Non-Acute Care UGRD 3
Study of documentation and information services requirements in cancer registries, long term care, mental health, ambulatory care, and other non-acute care settings.
Wi Qtr. 2 cl. 1 6-hr clinical study. Prereq: 520 or written permission of instructor.

689 Clinical Management Affiliation UGRD 1-10
Application of managerial techniques in the organization and administration of health information services.
Su, Au, Wi, Sp Qtr.s. 32-40 hrs clinical study wks. Prereq: 589. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

693 Individual Studies UGRD 1-5
Problems in health information management not covered in regular course offerings.
Su, Au, Wi, Sp Qtr.s. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

695 Seminar in Health Information Management and Systems UGRD 1-4
Selected topics in health information management and systems.
Su, Au, Wi, Sp Qtr.s. 1-4 cl. Prereq: Enrollment in HIMS or grad standing. Repeatable to a maximum of 12 cr hrs.

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Hebrew

101 Elementary Hebrew I UGRD 5
Conversation, reading, writing, vocabulary building, phonetics, and grammar.
Au, Wi, Sp Qtr.s. Prereq: Alli Med 591; enrollment in HIMS, AMP or written permission of instructor. This course is graded S/U.

102 Elementary Hebrew II UGRD 5
Reading of modified passages from modern Hebrew literature supplemented with additional study of grammar.
Au, Wi, Sp Qtr.s. Prereq: 101. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

103 Intermediate Hebrew I UGRD 5
Reading of passages from various periods of Hebrew literature; review of salient points of elementary grammar and introduction to elements of classical Hebrew.
Au, Wi, Sp Qtr.s. Prereq: 102. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course.

104 Intermediate Hebrew II UGRD 5
Reading of modern Hebrew short stories, poems, and essays; special emphasis on oral practice and Hebrew idioms.
Au, Wi, Sp Qtr.s. Prereq: 103. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course.

205 Modern Hebrew Grammar, Conversation, and Composition UGRD 5
Development of communication skills in Modern Hebrew; special emphasis on using new grammatical skills in advanced forms of composition and conversation.
Prereq: 104 or permission of instructor. Not open to native speakers through regular course enrollment or EM credit.

216 The Medieval Jewish Experience UGRD 5
A survey of ten centuries of medieval Jewish culture from the rise of Islam to the death of Shabbetai Zvi, the false Messiah (1676). Not open to students with credit for Medieval 216. Cross-listed in Medieval and Renaissance Studies. GEC arts and hums cultures and ideas course.

241 Culture of Contemporary Israel UGRD 5
Introduction to the culture of modern Israel: historical roots, socio-political institution and developments, and literary and artistic creations reflecting the realities of contemporary Israeli society.
241H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC arts and hums cultures and ideas course.

245 Israeli Film & Society UGRD 5
An examination of the aesthetic and thematic dimensions of Israeli films and their impact on Israeli society.
Sp Qtr. Prereq: English 110. GEC visual and performing arts course.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>293</td>
<td>Individual Studies UGRD 1-15</td>
<td>Individual Studies. Su, Au, Wi, Sp Qtr. Prereq: Written permission of dept. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
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<tr>
<td>345</td>
<td>Art and Ancient Judaism UGRD 5</td>
<td>An exploration of the nature and function of art in ancient Judaism from the standpoint of history, cultural history and material culture. Wi Qtr. 2 2-hr cl. Prereq: English 110.xx. GEC Arts and Humanities, Visual and performing arts.</td>
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<tr>
<td>370</td>
<td>Biblical and Post-Biblical Hebrew Literature in Translation UGRD 5</td>
<td>Reading and analysis of selected chapters from the Hebrew scriptures and post-biblical Hebrew writings representative of major historical, cultural, and literary trends. 370H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110 or 111 or equiv. Not open to students with credit for 271. GEC arts and hums lit course.</td>
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<tr>
<td>371</td>
<td>Medieval Hebrew Literature in Translation UGRD 3</td>
<td>Post-biblical and medieval Hebrew literature from the Near East, North Africa, and Europe. ** Prereq: English 110 or 111 or equiv. Not open to students with credit for 272.</td>
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<tr>
<td>372</td>
<td>Modern Hebrew Literature in Translation UGRD 5</td>
<td>Modern Hebrew literature; works of major writers from the middle of the 18th century to the present; emphasis on European literary influences. 372H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: for 372: English 110 or equiv. Prereq for H372: English H110 or equiv. Not open to students with credit for 271. GEC arts and hums lit course.</td>
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<td>373</td>
<td>Prophecy in the Bible and Post-Biblical Literature UGRD 5</td>
<td>The dynamics of Israeltie prophecy and apocalyptic in the context of ancient Near Eastern culture. GEC arts and hums lit course.</td>
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<tr>
<td>374</td>
<td>Women in Biblical and Post-Biblical Literature UGRD 5</td>
<td>An examination of the social, legal, and religious position of women as they appear in the Hebrew scriptures and Rabbinic writings. Prereq: English 110 or 111 or equiv. Not open to students with credit for 274. Taught in English. GEC arts and hums lit course.</td>
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<tr>
<td>375</td>
<td>The Jewish Mystical Tradition UGRD 5</td>
<td>The history of Jewish mysticism from antiquity to the present, with emphasis on its implications for the comparative study of religious experience. 375H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110, 110.01, 110.02, 110.03 o equiv. Not open to students with credit for Rel Stds or Comp Std 376. Cross-listed in Comparative Studies/GEC arts and hums cultures and ideas course.</td>
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<tr>
<td>378</td>
<td>Biblical and Post-Biblical Wisdom Literature UGRD 5</td>
<td>An examination of the various ideas, themes, attitudes, implications, and genres of biblical and post-biblical wisdom literature. Prereq: English 110 or 111 or equiv. GEC arts and hums lit course.</td>
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<tr>
<td>379</td>
<td>The World of the Rabbis UGRD 5</td>
<td>Examination of the origins, language, and religious values of the movement of intellectuals who remade the culture of Judaism in the 2nd through 6th centuries. Prereq: English 110 or equiv. GEC arts and hums lit course.</td>
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<td>402</td>
<td>Intermediate Hebrew Conversation and Composition UGRD 5</td>
<td>Vocabulary building, practice in speaking Hebrew, conversation and composition dealing with social and everyday aspects of Israeli life. Prereq: 104 or permission of instructor.</td>
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<tr>
<td>421</td>
<td>Modern Hebrew Short Story UGRD 5</td>
<td>Reading and discussion of masterpieces of modern Hebrew short stories in the 19th and 20th centuries. Prereq: 104 or permission of instructor.</td>
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<tr>
<td>422</td>
<td>Modern Hebrew Poetry UGRD 5</td>
<td>Reading and discussion of masterpieces of modern Hebrew poetry in the 19th and 20th centuries. Prereq: 104 or permission of instructor.</td>
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<tr>
<td>601</td>
<td>Biblical Hebrew Grammar UGRD 5</td>
<td>Introduction to the phonology, morphology, and syntax of the Biblical Hebrew idiom. ** Prereq: 104 or permission of instructor.</td>
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<tr>
<td>611</td>
<td>History of the Hebrew Language UGRD 5</td>
<td>Genealogical and typological relations within the Semitic family, a survey of Biblical, Mishnaic, and modern Hebrew. ** Prereq: 104 or permission of instructor. GEC third writing course.</td>
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<td>620</td>
<td>Introduction to Hebrew Literary and Cultural Texts UGRD 5</td>
<td>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. Prereq: 205 or permission of instructor.</td>
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<tr>
<td>621</td>
<td>The Bible as Literature: Selected Readings UGRD 5</td>
<td>Critical study of basic issues in the language and analysis of biblical texts. ** Prereq: 421 or 422. Repeatable to a maximum of 20 cr hrs.</td>
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<tr>
<td>623</td>
<td>Readings in Rabbinic Literature UGRD 5</td>
<td>Study of selected texts and issues in Rabbinic literature, and discussions of the methods by which they are studied. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.</td>
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<tr>
<td>671</td>
<td>The Problem of Evil in Biblical and Post-Biblical Literature UGRD 5</td>
<td>Study of the vexing problem of evil; the seeming contradiction between tradition and experience; extensive readings and discussions of appropriate biblical and post-biblical materials. Prereq: 273 or 274 or equiv or permission of instructor. Given in English, but grad students and undergrad Hebrew majors will read the texts in the original Hebrew.</td>
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<tr>
<td>676</td>
<td>Studies in Biblical Law UGRD 5</td>
<td>Examination of the various biblical corpora of laws within the context of a great body of legal collections which extended throughout the ancient Near East. Prereq: 370, grad standing, or permission of instructor. Taught in English.</td>
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<td>693</td>
<td>Individual Studies UGRD 1-5</td>
<td>Individual Studies. Su, Au, Wi, Sp Qtr. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.</td>
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<tr>
<td>697</td>
<td>Study at a Foreign Institution UGRD 1-15</td>
<td>An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Su, Au, Wi, Sp Qtr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (‘P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.</td>
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<tr>
<td>721</td>
<td>Studies in Hebrew Poetry UGRD 5</td>
<td>Advanced study of specific poetic periods, figures, and/or topics involving extensive readings and discussions of appropriate primary and secondary materials. Prereq: 10 hrs of Hebrew at the 400 level and above, or equiv. Repeatable to a maximum of 15 cr hrs.</td>
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<tr>
<td>722</td>
<td>Studies in Hebrew Prose UGRD 5</td>
<td>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. Su, Au, Wi, Sp Qtr. Prereq: 10 hrs of Hebrew at the 400 level or above, or equiv. Repeatable to a maximum of 15 cr hrs.</td>
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<td>783H</td>
<td>Honors Research UGRD 3-5</td>
<td>Offers students with special aptitudes a greater opportunity to do independent study than is possible in the ordinary course; work in conference, library, or phonetics laboratory. Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing with a grade of A in at least half of the Hebrew courses 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. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.</td>
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<td>801</td>
<td>Teaching Hebrew at the College Level GRAD 5</td>
<td>Methods and techniques for teaching Hebrew at the college level. ** Au Qtr. 2 wk intensive workshop followed by 1 2-hr wkly cl. Prereq: Teaching assoc in NELC or permission of instructor. For students enrolled in this course, the minimum number of hrs required for graduation is increased by 5 cr hrs.</td>
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<td>811</td>
<td>Seminar in Hebrew Studies GRAD 5</td>
<td>Intensive investigation of a selected topic or problem in Hebrew linguistics, philology, literature, or literary culture. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.</td>
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<td>111</td>
<td>Western Civilization: Antiquity to the Seventeenth Century</td>
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<td>Western Civilization: Seventeenth Century through Modern Times</td>
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<td>African Civilizations to 1870</td>
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<td>African Civilizations, 1870 to the Present</td>
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<td>141</td>
<td>History of East Asia in the Pre-modern Era</td>
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<td>History of East Asia in the Modern Era</td>
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<td>American Civilization to 1877</td>
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<td>Latin American Civilizations to 1825</td>
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<td>Latin American Civilizations since 1825</td>
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<td>World History to 1500</td>
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<td>Introduction to Ancient Mediterranean Civilizations</td>
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<td>Classical Archaeology</td>
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<td>310</td>
<td>History of Ohio</td>
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<td>311</td>
<td>World War I, 1914-1918</td>
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312 Introduction to Modern Europe UGRD 5
Examination of selected major themes in European history from the French Revolution to the present.

322H Natives and Newcomers: U.S. Immigration and Migration UGRD 5
General survey of immigration history in the U.S. from precolonial times to the present. Topics include cultural contact, economic relations, citizenship, politics, family and sexuality.

323.01 History of African-Americans in the Age of Slavery UGRD 5
Origins of modern slavery; its development in the U.S.; the evolution of African-American life and culture from 1619 to the end of the Civil War.
Not open to students with credit for 223 or 260; or AFAm&AS 223 or 323.01. Cross-listed in African-American and African Studies.

323.02 History of African-Americans from Emancipation to the Present UGRD 5
The rise of debt peonage among blacks; the formation of the northern ghetto; the Civil Rights Movement and beyond.
Not open to students with credit for 224 or 260; or AFAm&AS 224, 238, or 323.02. Cross-listed in African-American and African Studies.

324 Introduction to U.S. Latina/Latino History UGRD 5
General survey of Latina/o history in the U.S. Topics include conquest and colonization, immigration, labor activism, education, politics, popular culture and social movements.
Prereq: English 110.01 or 110.02 or 110.03.

325 Introduction to Women's History: The American Experience UGRD 5
American women from pre-European-settlement to the present; experiences of Native American, African American, Mexican American, Puerto Rican, Asian American, Jewish, Appalachian, working-class; and lesbian women.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 237. SS Admins Cond course. GEC social diversity course.

325H Introduction to Women’s History: The American Experience UGRD 5
American women from pre-European-settlement to the present; experiences of Native American, African American, Mexican American, Puerto Rican, Asian American, Jewish, Appalachian, working-class; and lesbian women.
Prereq: English 110 or 111 or concurrently English 110 or 111; honors program or permission of department or instructor.
Not open to students with credit for 237. SS Admins Cond course. GEC social diversity course.

326 History of Modern Sexualities UGRD 5
Introduction to the major issues associated with the ways different cultures have identified, regulated, and thought about sexuality from the eighteenth century to the present.
Prereq: English 110 or 111 or concurrently English 110 or 111.

330.01 Introduction to Jewish Civilization: Ancient and Medieval Jewish Civilization UGRD 5
Jewry and Judaism from remote antiquity to the 15th century A.D.
Not open to students with credit for 251. SS Admins Cond course. GEC arts and hums, cultures and ideas course.
Prereq: English 110 or 111 or concurrently English 110 or 111.

330.02 Introduction to Jewish Civilization: Modern Jewish Civilization UGRD 5
Jewry and Judaism from the 15th century to the present.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 252. SS Admins Cond course.

331 The Holocaust UGRD 5
The historical background of the holocaust; dimensions of destruction; world response; post-war trials; moral and philosophical issues.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 254. SS Admins Cond course.

332 Jews in American Film UGRD 5
A study of how modern Jews appear in film compared with historical reality.
Prereq: English 110 or 111 or concurrently English 110 or 111.

333 History of Antisemitism: From the Enlightenment to the Present Day UGRD 5
Examines the role of antisemitism in history. Considers the comparative historical contexts that shaped intolerance and exclusionary violence towards Jews and minorities.
2 2-hr cl. Prereq: English 110 or 111 or concurrently English 110 or 111.

334 History of Zionism and Modern Israel UGRD 5
The history of the Zionist movement and social, religious, cultural, and political developments in the Israeli state.

336 Introduction to Russian Civilization UGRD 5
A survey of Russian civilization from earliest times to 1917; geography, peoples, culture, political, and religious institutions, and the impact of Westernization.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 220. SS Admins Cond course.

340 Islam, Politics, and Society in History UGRD 5
Elaboration of prophetic message of Islam into governing principles of Islamic polity and society; evolution of these principles over the centuries.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 258. SS Admins Cond course.

341 The Silk Road: Commerce and Culture in Eurasia 200 BCE-1498 CE UGRD 5
A study of the commercial and cultural relations among Chinese, Indian, Iranian, and Roman/Islamic civilizations.
Prereq or concur: English 110.xx.

342 Foundations of Chinese Civilization UGRD 5
A history of early China, this course surveys Confucian, Daoist, and Buddhist teachings and the foundational institutions of Imperial China through the Tang (618-907).
Prereq: English 110 or 111 or concurrently English 110 or 111.

343 Islamic Central Asia UGRD 5
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: English 110 or 111 or concurrently English 110 or 111.

346 Introduction to Asian American History UGRD 5
A survey of the Asian American experience in the United States, from the mid-19th century to the present.
Prereq: English 110 or 111 or concurrently English 110 or 111. GEC arts and hums cultures and ideas, and social diversity course.

350 History of Modern Africa UGRD 5
General survey of political, economic, and social developments in colonial and post-independence Africa.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for AFAm&AS 350. Cross-listed in African-American and African Studies.

355 History of Afghanistan UGRD 5
This course will introduce students to Afghan society, its historical foundations, and the challenges that confront it.
Prereq: English 110.

360 Scientific Revolutions in Their Social Context UGRD 5
Models of scientific innovation and study of selected examples of the great scientific revolutions: Copernican, Chemical, Darwinian, Quantum, Genetic, and others.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 233. SS Admins Cond course.

362 History of Technology UGRD 5
Provides an introduction to the history of technology, by examining critical technological developments which have shaped the modern world, from railways to biotechnology.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 236 or 366. GEC soc sci hum, nat, econ resources and international issues course.

366.01 Global Environmental History UGRD 5
Global overview of the ecological circumstances of the human condition in past time, stressing the relationships among climate change, earth systems, technology, demography, and human cultural-economic revolutions.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 236 or 366. GEC soc sci hum, nat, econ resources and international issues course.

366.02 American Environmental History UGRD 5
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: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 236. GEC soc sci hum, nat, econ resources and international issues course.

368.01 Introduction to Native American History UGRD 5
An examination of selected events and issues in Native American history.
Prereq: English 110 or 111 or concurrently English 110 or 111. Not open to students with credit for 368.

368.02 Native American Peoples of the Andes UGRD 5
Introductory survey of the history of the Native American peoples of the Andes from the Pre-Columbian period to the present.
2 2-hr cl. Prereq: English 110 or 111 or concurrently English 110 or 111.
509.02 Italian Renaissance: High Renaissance and Beyond
The literary, artistic, and intellectual achievements primarily of Renaissance Italy against the background of economic, political, and social developments in western Europe. Climax of the Italian Renaissance in the era of Michelangelo and Machiavelli and its eventual decline during the sixteenth century.
Prereq: 10 cr hrs of history.

511 The Reformation
The rise and growth of Protestantism and the Catholic Reformation of the 16th century; against the background of economic, political, and social developments in western Europe.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 610.

512.01 European History: Early Modern Europe, 1600-1775
A study of the rise of the absolute state, the changing diplomatic alignments, and the Enlightenment.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 612.

512.02 European History: French Revolution and Napoleon
The background of the Revolution; the social bases and political schisms of the first three Revolutionary governments, 1789-1795; the program and role of Napoleon.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 613.

512.03 European History: Europe, 1815-1900
Nationalism, the democratic movement, economic growth, imperialism, and cultural advance from the Congress of Vienna to World War I.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 614.

512.04 European History: Europe 1900-1950
The important events and issues in European history from 1900-1950. Wi Qtr. 2 2-hr cl. Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.

512.05 European History: Europe since 1950
Europe since the disaster of the Second World War; recovery, decolonization, integration, creation of a new society, and search for identity.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 634.

513.01 European Intellectual and Cultural History: The Age of Modernity in the 19th Century
Intellectual and cultural history in Europe in the 19th century with emphasis on historic events which marked the formation of historical consciousness in the 19th century.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 622.01, or Comp Std 513.01 or 622.01.

513.02 European Intellectual and Cultural History: The Age of Modernity in the 20th Century
Intellectual and cultural history in Europe in the 20th century with emphasis on historic events which marked the formation of historical consciousness in the 20th century.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 622.02, or Comp Std 513.02 or 622.02.

514.01 English History: Tudor and Stuart Britain, 1500-1700
The religious, political, economic, imperial, and intellectual development of the English people from 1485 to 1714, with special attention to the constitutional struggle of the 17th century.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 631.

514.02 English History: Britain in the 18th and 19th Centuries
An introduction to the political, economic and social history of Britain and the British empire from the eighteenth to early twentieth century.
Prereq: English 110 or 111 and junior or senior standing or Honors and Scholars or permission of instructor. Not open to students with credit for 632.

514.03 English History: England in the 20th Century
A study of Britain since 1900 with special emphasis on the rise of the Labour party and the development of the social welfare state.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 633.

515.01 French History: France, 1815-1914
France's transformation from a rural, traditional society to a modern, industrial society and the relation of this transformation to 19th-century political and intellectual movements.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 615.

515.02 French History: France in the 20th Century
The impact on France of two world wars, the depression and decolonization, with emphasis on the breakdown of the political system and the emergence of a new society from the wreckage of the old.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 616.

516 Modern Italy, 1848-Present
Introduction to the history of Italy from the Risorgimento to the present.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.

517 Modern Greece
Greece from 1453 to the present; Turkish rule, War of Independence, emergence of the modern state; focus on political, social, and cultural developments.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 529.

518.01 German History: Germany in the 19th Century
Political, social, economic, and cultural developments from the Prussian reform movement to World War I, with emphasis on German unification and the origins of the war.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 618.01.

518.02 German History: Germany in the 20th Century
World War I; the Weimar period; Hitler and the Third Reich; and the two Germanies after 1945.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 618.02.

518.03 German History: Eastern Europe in the Nineteenth Century
A survey of the rise of nationalism and the emergence of nation-states in Eastern Europe from the early nineteenth century through World War One.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 626.01.

518.04 German History: Eastern Europe since 1919
Advanced survey of East European history from World War I to the post-communist era.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 626.03.

519.01 East Central Europe: Eastern Europe in the Ottoman Conquest until World War I
An historical survey of southeast European history from the Battle of Kosovo; the assassination of Archduke Franz-Ferdinand; political, social, economic, and cultural development; emphasis on Balkan peoples.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 626.02.

520.01 Science and Society: Early Modern Europe
Prereq: English 110.01 or 110.02 or 110.03 and rank 3 or permission of instructor.

520.02 Science and Society: Modern Europe
A survey of the history of science and its place and relationship to European society. Europe from the 18th and 20th centuries.
Prereq: English 110.01 or 110.02 or 110.03 and rank 3 or permission of instructor.

523 Women in the Western World: Ancient Civilization to the Industrial Revolution
Women and the economic, social, and political factors responsible for their status in society.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.

524 Women in the Western World: The Industrial Revolution to the Present
A continuation of 523.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.

525 Topics in Women's History
In-depth analysis of selected topics in American, European, and/or Third World women's history; topic varies by quarter. Repeatable to a maximum of 15 cr hrs.
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.
530.01 **History of Latin American Regions: Central America and the Caribbean since Independence**  
Political, economic, and cultural history of West Indies (Cuba, Haiti, Dominican Republic, etc.) and Central America (Panama, Guatemala, Nicaragua, etc.) and relations with United States.  
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.  
Not open to students with credit for 533.03 or 651.03.

530.02 **History of Latin American Countries and Regions: Brazil**  
History of Brazil during colonial and independence periods with major emphasis on the 19th and 20th centuries.  
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.  
Not open to students with credit for 533.04 or 651.06.

530.03 **History of Latin American Countries and Regions: Mexico**  
History of Mexico during precolonial, colonial, and independence periods with emphasis on the 19th and 20th centuries.  
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.  
Not open to students with credit for 533.05 or 651.07.

530.04 **History of Latin American Countries and Regions: Argentina**  
Introduction of the history and problems of contemporary Argentina.  
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.

530.08 **History of Latin American Countries and Regions: The Jewish Experience in Latin America**  
Introduction to issues in the history of Jews in Latin America, including the role of the region as a refuge from source of anti-Semitism.  
Prereq: English 110.01, 110.02, 110.03, 110 or 111 and jr or sr standing or honors or scholars or permission of instructor.

536 **History of Russia to 1725**  
A survey from the origins of the Russian state to the end of the reign of Peter the Great.  
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 635.

537.01 **History of Russia: Imperial Russia, 1725-1914**  
A survey from the end of the reign of Peter the Great to the outbreak of World War I.  
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 636.

538 **History of the Soviet Union**  
Beginning with the background and events of the revolution of 1917, analysis of developments in Russian history from World War I to the present.  
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 637.

539 **Siberia in World History**  
Introduction to the history, geography, culture, ethnic diversity, inter-communal relations, economy and strategic importance of Siberia in Eurasia's past and present.  
Prereq: English 110 or 110.01 or 110.02 or 110.03 or 111 and jr or sr standing or honors or scholars or permission of instructor.

540.01 **Core Regions of Islamic Worlds: Islamic Society, 610-1258**  
Origins and early development of selected fundamental Islamic institutions in their historical and cultural context.  
Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 641.

540.02 **Core Regions of Islamic Worlds: History of Iran**  
A history of Iran in the Islamic period, focusing on nomadic-urban interaction and Iranian culture.  
2-3 cr. Prereq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.  
Prior course work on Middle Eastern history or Islamic culture is strongly recommended.  
Not open to students with credit for 642.
540.01 History of Africa: Ancient Africa
UGRD 5
A history of Africa from 2500 B.C.E. to the Muslim invasion of the 10th and 11th centuries C.E.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor.
Not open to students with credit for 645.

540.02 History of Africa: Colonial Africa
UGRD 5
A history of South Africa during the colonial period, from the arrival of Vasco da Gama in 1498 until independence and partition in 1947.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 450.

540.03 History of Africa: Independence and Beyond
UGRD 5
A history of the political, social, economic, and cultural history of independent African states from the mid-20th century to the present.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor.
Not open to students with credit for 645.

541.01 Wider Islamic World: Islamic Spain and North Africa
UGRD 5
Major problems in history and culture of Islamic Spain (712-1492) and North Africa (641-present), including Egypt; special emphasis on nomadism and revivalism.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 640.

541.02 Wider Islamic World: History in Islam in Africa
UGRD 5
Examination of the history and spread of Islam in Africa and its impact on African social, economic, and political institutions.
Prereq: 121 or 122, or AfAm&ASt 121 or 122; or grad standing. Not open to students with credit for 643 or AfAm&ASt 643 or 541. Cross-listed with AfAm&ASt 541.

542.01 Intellectual and Social Movements in the Muslim World
UGRD 5
Examination of significant Muslim intellectual and social movements from the advent of Islam until the present.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Background courses in Middle Eastern history, culture, or politics are recommended but not required. Not open to students with credit for 645.

543.01 History of India: Ancient India
UGRD 5
A history of India from 2500 B.C.E. to the Muslim invasion of the 10th and 11th centuries C.E.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor.

543.02 History of India: Colonial India
UGRD 5
The Sultanate and Mughal Empires (1000-1707 A.D.); emphasis on imperial institutions and the interaction of Hindu and Muslim societies.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 645.

543.03 History of India: Colonial India
UGRD 5
A history of the political, social, economic, and cultural history of independent India from the mid-20th century to the present.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor.

544.01 The Mongol World Empire: Central Eurasia, 1000-1500
UGRD 5
An introduction to the social, cultural, and political history of medieval Central Eurasia, focusing on the interaction between nomadic and sedentary populations.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor.

544.02 The Mongol World Empire: Central Eurasia, 1000-1500
UGRD 5
A survey of the history of the Chinese Empire, from the Song to the Yuan dynasty.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor.

545.01 Chinese History: The Chinese Empire, Tenth-Fourteenth Centuries
UGRD 5
History of China from the T'ang dynasty to the Yuan dynasty, with emphasis on the development of Chinese statecraft and culture.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor.

545.02 Chinese History: China in the Early Modern Era: The Ming and Qing Dynasties
UGRD 5
The major topics in Ming and Qing history.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor.

545.03 Chinese History: Modern China, 1800-1949
UGRD 5
History of modern China with emphasis on cultural contact between China and the West.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 547.03 or 646.

545.04 Chinese History: History of Contemporary China, 1949-Present
UGRD 5
A general but analytic introduction to the social, political, and intellectual history of contemporary China, 1949-present.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 344.

546 Topics in Chinese History
UGRD 5
Selected thematic topics in Chinese history.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 691. Repeatable to a maximum of 10 cr hrs.

548.01 History of Japan: History of Japan before 1800
UGRD 5
History of Japan to 19th century; emphasis on religion, politics, economic development, social structure and culture.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 647.

548.02 History of Japan: Modern Japan
UGRD 5
Political, social, and intellectual history of Japan from the beginning of the Meiji Period (1868) to the present.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 648.

551 Africa before Colonial Rule
UGRD 5
Examination of pre-colonial political, economic, and social systems, including political culture and agriculture.
Prereq: 122 or AfAm&ASt 122; or grad standing. Not open to students with credit for 674, or AfAm&ASt 671 or 675.

552 History of South Africa
UGRD 5
An examination of the political and social developments in South Africa from the nineteenth century to the present.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 675, or AfAm&ASt 573 or 675 or 575. Cross-listed with AfAm&ASt 575.

555.01 Topics in African-American History I
UGRD 5
Selected topics in African-American history from the origins of African-American culture and slavery to emancipation.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs. Cross-listed in African-American and African Studies.

555.02 Topics in African-American History II
UGRD 5
Selected topics in African-American history from emancipation through segregation, and the Civil Rights Movement to the present.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs. Cross-listed in African-American and African Studies.

556 Colonial North America to 1763
UGRD 5
The history of colonial and native societies in North America from first contacts to the eve of the imperial crisis.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 656.

557.01 Early U.S. History: American Revolution and New Nation, 1763-1800
UGRD 5
Analysis of social, economic, cultural, and political changes in 18th century America.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 658.

557.02 Early U.S. History: Jeffersonian and Jacksonian Democracy, 1800-1845
UGRD 5
A continuation of 557.01 but may be taken separately; primary emphasis on social and political history of postrevolutionary America.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 659.

557.03 Early U.S. History: Civil War and Reconstruction
UGRD 5
The causes, character, and consequences of America's intersectional war and the post-war settlement.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 662.

559 History of Slavery in North America from Colonial Times to 1860
UGRD 5
The social system of the Old South; the various aspects of secession and the impact of war.
Prereq: 5 or hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 661.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>560</td>
<td>Westward Movement in American History</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>The westward spread of settlement and the influence of the westward movement on American development.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>561</td>
<td>History of American Science</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Social and intellectual factors from colonial beginnings to professionalization; Darwinism; American preeminence; the modern scientific crisis.</td>
<td></td>
<td>PreReq: Jr standing. Not open to students with credit for 680.</td>
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<tr>
<td>562</td>
<td>History of American Medicine</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Disease, public health, and the profession and practice of medicine in America from colonial times to the present.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 684.</td>
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<tr>
<td>564</td>
<td>Gilded Age to Progressive Era, 1877-1920</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Intensive study of the U.S. from 1877 to 1920; subjects include industrialization, Populism, Progressivism, immigration, urbanization, and foreign policy through World War I.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 563.</td>
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<tr>
<td>565</td>
<td>From the New Era to the New Frontier, 1921-1963</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>U.S. domestic and foreign policy history, 1921 to 1963 covering New Era, New Deal, World War II, Cold War, Fair Deal, Eisenhower Republicanism, New Frontier.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>566</td>
<td>The Contemporary United States since 1963</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Political, economic, social and cultural change since 1963; emphasis on political polarization, post-industrial economy, civil rights movement, feminism, environmentalism, Vietnam War, detente and globalization.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>568.01</td>
<td>Native American History from European Contact to Removal, 1560-1820</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Major issues and events in Native American history from before the European invasion and colonization through the early 1820s.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
</tr>
<tr>
<td>568.02</td>
<td>Native American History from Removal to Present</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Major issues and events in American Indian history from the 1820s to the twenty-first century.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>569</td>
<td>American Labor History</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Evolution of working-class life, culture, politics, and trade unionism in America from the late 18th century to the present.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 689.01.</td>
</tr>
<tr>
<td>570.01</td>
<td>The United States Constitution and American Society from 1877</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>The history of the interaction between American principles of government, equality, liberty, and American society through the Civil War era.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>570.02</td>
<td>The United States Constitution and American Society since 1877</td>
<td>5</td>
<td>UGRD 5</td>
</tr>
<tr>
<td></td>
<td>The history of the interaction between American principles of government, equality, liberty, and American society from 1877 to the present.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>577.01</td>
<td>Chicano History, From the Spanish Colonial Period to 1900</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Chicano experience from the late 16th century to 1900, with a special emphasis on race, class, and gender relations.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>577.02</td>
<td>Chicano History, From 1900 to the Present</td>
<td>5</td>
<td>UGRD 5</td>
</tr>
<tr>
<td></td>
<td>Chicano experience from 1900 to the present era, with a special emphasis on race, class, and gender relations.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>578</td>
<td>American Religious History</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Survey of religious history of the United States from colonial times to the present.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>579.01</td>
<td>American Cultural and Intellectual History</td>
<td>5</td>
<td>UGRD 5</td>
</tr>
<tr>
<td></td>
<td>Major currents in American thought of the 19th century.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>579.02</td>
<td>American Cultural and Intellectual History in the 20th Century</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Major currents in American thought and culture, 1900-present.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 290.</td>
</tr>
<tr>
<td>580.01</td>
<td>History of European Warfare from the Renaissance to 1870</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>An analysis of military affairs and of their interaction with political and diplomatic history.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 625.01.</td>
</tr>
<tr>
<td>580.02</td>
<td>History of European Warfare from 1870 through World War II</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>A continuation of 580.01; an analysis of the military and diplomatic events which shaped the world in the 20th century.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 625.02.</td>
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<tr>
<td>581.01</td>
<td>European International History: 19th Century</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>History of the international relations and diplomacy of Europe from the Congress of Vienna to the First World War.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 623.01.</td>
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<tr>
<td>581.02</td>
<td>European International History: 20th Century</td>
<td>5</td>
<td>UGRD 5</td>
</tr>
<tr>
<td></td>
<td>History of the international relations and diplomacy of Europe from the First World War to the present.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 668.01.</td>
</tr>
<tr>
<td>582.01</td>
<td>American Military Policy, 1607-1914</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>American military policy from the colonial period through World War I and America's emergence as a world power; emphasis on war-waging and military institutions.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 668.02.</td>
</tr>
<tr>
<td>582.02</td>
<td>American Military Policy, 1914-1995</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Emphasis on collective security, nuclear strategy, and the reciprocal impact of society and military institutions.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 668.02.</td>
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<tr>
<td>583.01</td>
<td>U.S. Diplomacy from Independence to 1920</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Domestic and international setting of U.S. diplomacy from the Revolutionary War to 1920.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 670.01.</td>
</tr>
<tr>
<td>583.02</td>
<td>U.S. Diplomacy, 1920-Present</td>
<td>5</td>
<td>UGRD 5</td>
</tr>
<tr>
<td></td>
<td>Domestic and international setting of U.S. diplomacy from 1920 to the present.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 670.02 or 670.03.</td>
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<tr>
<td>584</td>
<td>Modern Intelligence History</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>This course examines the role of diplomatic and military intelligence in the making of policy in modern history.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
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<tr>
<td>585</td>
<td>History of Literacy</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>This course seeks to understand the history of literacy by examining literacy's contributions to making the modern world, and social changes' impacts on literacy.</td>
<td></td>
<td>PreReq: 10-hour historical survey sequence. Not open to students with credit for English 585.02 or Comp Std 585.02. Cross-listed with English 585.02 and Comp Std 585.02.</td>
</tr>
<tr>
<td>587.01</td>
<td>History of Capitalism in Global and Comparative Perspective</td>
<td>5</td>
<td>UGRD 5</td>
</tr>
<tr>
<td></td>
<td>An historical comparison of the development of modern forms of business and business management in Great Britain, the United States, and Japan.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 586.</td>
</tr>
<tr>
<td>587.02</td>
<td>Science, Technology, and Business in Japan</td>
<td>5</td>
<td>UGRD 5</td>
</tr>
<tr>
<td></td>
<td>An examination of the historical development of business from the early 17th century to the present with attention to the interconnections between business, technology, and science.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor. Not open to students with credit for 649.</td>
</tr>
<tr>
<td>589</td>
<td>Marginal Groups in the Non-Western World</td>
<td>5</td>
<td>UGRD 5</td>
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<tr>
<td></td>
<td>Comparison of the experiences of several marginal and minority groups in the major non-western civilizations from roughly the 16th-20th centuries.</td>
<td></td>
<td>PreReq: 5 cr hrs of History and Jr or Sr standing, or permission of instructor.</td>
</tr>
</tbody>
</table>
593 Individual Studies UGRD 1-5
Individual study in some field of historical development; designed to allow the student to work on a problem of particular interest.
Su, Au, Wi, Sp Quarters. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

594 Group Studies UGRD 1-5
The investigation of particular problems in various fields of history.
Su, Au, Wi, Sp Quarters. Repeatable to a maximum of 30 cr hrs.

596 Introduction to Quantitative Methods in History UGRD 5
Prepares students to use quantitative methods in historical research and to take intermediate courses in statistics and data analysis. Not open to students with credit for 681.01 or 765.01.

597 Critical Issues of the 20th-Century World UGRD 5
Contemporary global problems in historical perspectives; war and threat of war; intercontinental, racial, ideological, and economic conflicts; the search for a new world order.
Prereq: Jr or sr standing. Not open to students with credit for 400. GEC contemporary world course.

598 Senior Seminar UGRD 5
The nature of historical judgment and interpretation: the roles of evidence, approach, and purpose.
Prereq: Sr history majors or written permission of instructor. Not open to students with credit for 598.01 or 598.02. GEC third writing courses.

598H Senior Seminar UGRD 5
Designed to give undergraduate majors experience in the analysis of historical problems through a reading and research program.
598H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq for 598: Sr standing in history or permission of instructor. Prereq for 598H: Honors history major or permission of instructor. Not open to students with credit for H598.02. GEC third writing courses.

692 Workshop UGRD 1-8
Workshop.
Arr. Repeatable.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different title study tours only.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different title study tours only.

699 Undergraduate Research in History UGRD 1-15
Undergraduate research in history.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

700 Studies in World History GRAD 5
Analysis of original works and concepts in the development of global-scaled integrative approaches to world history.
Prereq: Course work at the 600 level or above in history of more than one civilization and permission of instructor. Repeatable to a maximum of 15 cr hrs.

706.01 Studies in Medieval History: Advanced Readings in Medieval History GRAD 5
Advanced reading course in sources and monographs on the principal issues and problems in medieval history, with a stress on bibliography.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

706.02 Studies in Medieval History: Late Medieval Paleography and Diplomatics GRAD 3
Cursive hands in literature and diplomas, 1200-1500; the development of chanceries; notariats, secretariats, and the science of diplomatics; exercises with facsimiles, slides and microfilm.
Prereq: Permission of instructor.

708 Studies in Ancient History GRAD 5
An intensive study of selected problems and sources in ancient history (Near Eastern, Greek and/or Roman); readings in the primary and secondary materials.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

709 Methodology in Ancient History GRAD 5
Introduction to the methodologies and bibliographies fundamental to graduate study of ancient Greek and Roman history through written papers and oral class reports. Minimum of 2 hrs weekly in class; other time in library research. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

710 Studies in Renaissance or Reformation History GRAD 5
Principal issues in the history of the Renaissance or the Reformation.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

712 Studies in Early Modern European History GRAD 5
Selected topics in western European history of the 17th and 18th centuries.
Prereq: 612.01 or permission of instructor. Open only to grad students and by permission to srs majoring in history. Repeatable to a maximum of 15 cr hrs.

713 Colloquium in Early Modern Studies GRAD 5
Readings seminar in topics in early modern (1350-1800) studies; history, literature, arts, and music.
1-2 hr cl. Prereq: Grad standing in history, or permission of instructor. Repeatable to a maximum of 15 cr hrs. Required for grad students in early modern European history.

714 Studies in French History since 1815 GRAD 5
An intensive study, through reading and discussion of standard works and recent scholarship, of the chief interpretative problems of modern French history.
Prereq: Grad standing or by permission to srs majoring in history. Repeatable to a maximum of 10 cr hrs.

723 Studies in European International History GRAD 5
Readings in and discussion of the history of European international relations from the late 19th century.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

724.01 China and the Early Modern World GRAD 5
China's pivotal role in the evolution of the early modern world system and European colonialism.
1 3-hr seminar. Prereq: Graduate standing. Repeatable to a maximum of 10 cr hrs.

724.02 Imperialism, Anti-Imperialism, and War in Modern East Asia GRAD 5
An intensive study of selected issues in Jewish history; emphasis on problems posed by available source material and by current research in the area.
Prereq: Grad standing or by permission to srs majoring in history. Repeatable to a maximum of 15 cr hrs.

727 Studies in Islamic History GRAD 5
Selected topics in Islamic history and historiography.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 25 cr hrs.

730 Studies in 19th and 20th Century European Thought and Culture GRAD 5
Selected topics in Western European history of the 19th and 20th centuries.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

731 Studies in European History, 1914 to Present GRAD 5
Political, social, and economic developments; World Wars I and II; Communism, Nazism, present-day Europe; emphasis on methods of historical research and documentary analysis.
Open only to grad students and by permission to srs majoring in history. Repeatable to a maximum of 10 cr hrs.

732 Studies in German History GRAD 5
Exploration of selected topics of 19th and 20th century German history; emphasis on methods of historical research and documentary analysis.
Prereq: 618 or equiv. Open only to grad students and by permission to srs majoring in history.

738 Studies in British History GRAD 5
Selected problems in British history since 1485; emphasis on different approaches to British political, social, and economic history.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

739 Comparative Constitutional Politics GRAD 5
Compares constitutions and constitutionalism across cultures and through different political, social, and economic contexts. Prereq: Grad standing or permission of instructor. Not open to students with credit for Comp Std 739. Cross-listed in Comparative Studies.
740 Studies in Russian and Soviet History GRAD 5
An intensive study of problems in selected periods of Russian history. Open only to grad students and by permission to srs majoring in history. Repeatable to a maximum of 15 cr hrs.

741 Studies in Eastern European History GRAD 5
Selected topics in modern Eastern European political, social, cultural, and intellectual history and historiography; theoretical and comparative emphasis. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

742 African Historiography and Methodology GRAD 5
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 15 cr hrs. including cr hrs earned in AFAm&AS 742. Cross-listed in African-American and African Studies.

743 Studies in African History GRAD 5
The study of the historical literature of Africa and various aspects of African history; topics vary. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs. including cr hrs earned in AFAm&AS 743. Cross-listed in African-American and African Studies.

744 African Women: History and Socioeconomic Change GRAD 5
Focuses on African women's experiences: legal and socioeconomic status, religious and political roles, the impact of colonial and post-colonial developments, feminism and representation issues. 3-1 hr cl. Not open to students with credit for Wom Stds 623. Cross-listed with Wom Stds 623.

751 Studies in Latin American History GRAD 5
An intensive study of problems in selected periods of Latin American history. Prereq: Grad standing or permission of instructor for srs majoring in history or a cognate Latin American field. Repeatable to a maximum of 10 cr hrs.

752 Readings in African-American History GRAD 5
Readings in the evolution of black culture, economics and family life, race relations, and the emergence of class stratification within the black community. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs. including cr hrs in AFAm&AS 752. Cross-listed in African-American and African Studies.

753 Studies in the History of Religion GRAD 5
An intensive readings course in some aspect of the history of religion; specific topic to be announced. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

758.01 Comparative History of the African Diaspora: Enslavement and Emancipation GRAD 5
First of a two-part course on the history and evolution of the African Diaspora worldwide, from ancient times to the present. 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 or permission of instructor. Not open to students with credit for AFAm&AS 758.01. Cross-listed in African-American and African Studies.

758.02 Post-Emancipation, Colonial and Post-Colonial Realities GRAD 5
Second of a two-part course on the 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, from the period of the emancipation to the beginning of the 21st century. Prereq: Grad standing and 758.01 or History 758.01; or permission of instructor. Not open to students with credit for AFAm&AS 758.02. Cross-listed in African-American and African Studies.

759 Atlantic World History GRAD 5
Examinations of Atlantic World history in the early modern era, including imperialism and colonialism, the intercontinental exchange of people, ideas, and goods, and cultural development. Prereq: Grad standing.

761 Studies in Mid-19th Century American History GRAD 5
An intensive study of selected topics with emphasis on historiography and bibliography. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

764 An Introduction to Public History GRAD 5
To give students some exposure to the wide variety of intellectual activities that fall under "public history". Prereq: Grad standing.

765 Studies in Environmental History GRAD 5
Analysis of a range of studies in environmental history; chronological and geographical focus will be shaped by students' interests. Prereq: Grad standing or permission of instructor to students with credit for 567.

767 Studies in Military History GRAD 5
Selected topics and periods in military history; emphasis on recent scholarship. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

768 Studies in Military Thought and Strategy GRAD 5
Analysis and comparison of the most influential writers on the theory and practice of warfare including Thucydides, Machiavelli, Clausewitz, Mahan, Fuller, and Liddell Hart. Prereq: 668 or equiv, and grad standing; or permission of instructor.

770 Studies in the History of American Foreign Policy GRAD 5
Studies in the main problems of American foreign policy with primary emphasis on basic literatures and selected primary materials. Prereq: 670 and grad standing; or permission of instructor. Repeatable to a maximum of 15 cr hrs.

771 Themes in Recent United States History GRAD 5
Readings in selected topics in the history of the United States since 1877. Prereq: Grad standing. Repeatable to a maximum of 20 cr hrs.

772 Studies in Recent United States History GRAD 5
Readings in selected topics in American history since 1898. Prereq: Undergrads by permission of instructor. Repeatable to a maximum of 20 cr hrs.

773 Studies in Business History GRAD 5
Readings in the growth of capitalism, the rise of the modern corporation, government-business relations, business and society, and comparative business history. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

774 History of American Law and Society GRAD 5
The history of American law and legal institutions, and their relationship to society, from colonial times to the present. Wi Qtr. Prereq: Not open to students with credit for 585 or 687. Cross-listed in Law 796.17.

775 History of Literacy GRAD 5
From the invention of alphabets to the electronic age: literacy's relationships with social, cultural, political, and economic changes; impacts and significance for individuals and collectives. 2-3 hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs. Cross-listed with English 884.

780 Topics in the History of Sexuality GRAD 5
Designed to give graduate students an interdisciplinary, international background to sexuality history. Prereq: Grad standing.

781 Studies in Women’s History GRAD 5
An intensive reading course designed to prepare graduate students in women's history in a comparative framework. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs. including cr hrs earned in Comp Std 781. Cross-listed in Comparative Studies.

783H Honors Research UGRD 3-5
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: 4th yr standing and 40 cr hrs in history courses with a grade of A in at least half of the history courses and an average of B in the remainder; permission of the instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee. At least 2 qtrs are required of candidates for the degree BA with distinction in history. Failure to receive a mark of S in this course is a disqualification for special honors. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

784 Readings in American Constitutional and Legal History GRAD 5
An intensive investigation of standard works as well as influential and seminal article in American constitutional and legal history. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.

785.01 Readings in American Colonial History and the American Revolution GRAD 5
Readings in the basic historical literature of colonial and revolutionary America through 1783. Prereq: Grad standing or permission of instructor.

785.02 Readings in the History of the Early Republic GRAD 5
Readings in the basic historical literature of the early Republic, the Jacksonian era, and the market revolution from 1776 to 1850. Prereq: Grad standing or permission of instructor.
785.03 Readings in the History of the United States in the Civil War Era
Readings in the basic historical literature of the United States during the era of the Civil War and Reconstruction, from 1845 to 1877.
Prereq: Grad standing or permission of instructor.

786 Colloquium in the Philosophy of History, Historiography, and the Historian's Skills I
Colloquium on the principles of historical thought, historiography, and methods of historical research.
Prereq: Grad standing in history or permission of instructor. Required of MA and PhD candidates in history.

807 Colloquium in the Philosophy of History, Historiography, and the Historian's Skills II
Continuation of 786 with emphasis on research methods.
Prereq: 786 or permission of instructor. Required at the discretion of the adviser.

878 Studies in American Urban History
A detailed examination of several themes in the growth of urban America.
Prereq: 688 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

789 Topics in American History to 1877
Readings in selected topics in American history to 1877.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

790 Graduate Colloquium on Historical Writing
Designed to develop skills in historical writing.
Prereq: Grad standing or permission of instructor.

791 Topics in History
The investigation of particular problems in various fields of history through individua studies.

792 Interdepartmental Studies in the Humanities
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 15 cr hrs.

795.01 Professional Development: Introduction to Teaching College History
Basic ideas and techniques for effective teaching of college history; emphasis on classroom application.
Prereq: Grad standing in history. Required for history grad associates. Not open to students with credit for 795. This course is graded S/U.

795.02 Professional Development: Pre-Professional Colloquium for Historians
This professional development colloquium is designed to help graduate students locate funding sources for their study, research, conferences and other professional activities.
Prereq: Grad standing. This S/U elective can be taken in lieu of History 999 credit only. It does not replace other 700-level requirements for the MA or PhD degree. This course is graded S/U.

796 Studies in Japanese History
An intensive study, through reading and discussion, of major issues and recent scholarship in Japanese history.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

797 Introduction to Graduate-level East Asian Studies
We explore the origin, 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 EALL 797 or Hist Art 797. Cross-listed in East Asian Languages and Literatures and History of Art.

798 Studies in Chinese History
Research topic to be announced.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs. Knowledge of Chinese desirable but not required.

800.01 Seminar in Renaissance or Reformation History I
Research topic to be announced.
This course is Progress (P) graded. Credit will be awarded upon completion of 800.02. Repeatable to a maximum of 20 cr hrs.

800.02 Seminar in Renaissance or Reformation History II
Research topic to be announced. Continuation of 800.01.
This course is Progress (P) graded. Repeatable to a maximum of 20 cr hrs.

801.01 Seminar in German History I
Research topic to be announced.
This course is Progress (P) graded. Credit will be awarded upon completion of 801.02. Repeatable to a maximum of 10 cr hrs.

801.02 Seminar in German History II
Research topic to be announced.
This course is Progress (P) graded. Repeatable to a maximum of 10 cr hrs.

802.01 Seminar in Russian and East European History I
Research topics to be announced.
This course is Progress (P) graded. Repeatable to a maximum of 10 cr hrs.

802.02 Seminar in Russian and East European History II
Research topics to be announced. Continuation of 802.01.
This course is Progress (P) graded. Repeatable to a maximum of 10 cr hrs.

803.01 Seminar in British History I
Research topic to be announced.
This course is Progress (P) graded. Credit will be awarded upon completion of 803.02. Repeatable to a maximum of 10 cr hrs.

803.02 Seminar in British History II
Research topic to be announced. Continuation of 803.01.
This course is Progress (P) graded. Repeatable to a maximum of 10 cr hrs.

804.01 Seminar in East Central European History I
Research topic to be announced.
This course is Progress (P) graded. Repeatable to a maximum of 10 cr hrs.

804.02 Seminar in East Central European History II
Research topic to be announced. Continuation of 804.01.
This course is Progress (P) graded. Repeatable to a maximum of 10 cr hrs.

805.01 Seminar in French History I
Research topic to be announced.
This course is Progress (P) graded. Credit will be awarded upon completion of 805.02. Repeatable to a maximum of 10 cr hrs.

805.02 Seminar in French History II
Research topic to be announced. Continuation of 805.01.
This course is Progress (P) graded. Repeatable to a maximum of 10 cr hrs.

807.01 Seminar in Medieval History I
Research topic to be announced.
This course is Progress (P) graded. Credit will be awarded upon completion of 807.02. Repeatable to a maximum of 10 cr hrs.

807.02 Seminar in Medieval History II
Research topic to be announced. Continuation of 807.01.
This course is Progress (P) graded. Repeatable to a maximum of 10 cr hrs.

808.01 Seminar in Ancient History I
Topic to be announced.
Prereq: Permission of instructor. This course is Progress (P) graded. Credit will be awarded upon completion of 808.02. Repeatable to a maximum of 30 cr hrs.

808.02 Seminar in Ancient History II
Topic to be announced. Continuation of 808.01.
Prereq: Permission of instructor. This course is Progress (P) graded. Repeatable to a maximum of 30 cr hrs.

810.01 Seminar in World History I
Research topics to be announced.
Prereq: 700 or permission of instructor. This course is Progress (P) graded. Credit will be awarded upon completion of 810.02. Repeatable to a maximum of 10 cr hrs.

810.02 Seminar in World History II
Research topics to be announced. Continuation of 810.01.
Prereq: 700 or permission of instructor. This course is Progress (P) graded. Repeatable to a maximum of 10 cr hrs.

811.01 Seminar in Atlantic World History I
A two-quarter seminar in Atlantic World History designed to sharpen research, writing, and analytical skills towards the production of a publishable paper.
Prereq: Grad standing. Repeatable to a maximum of 10 cr hrs.

811.02 Seminar in Atlantic World History II
A two-quarter seminar in Atlantic World History designed to sharpen research, writing, and analytical skills towards the production of a publishable paper.
Prereq: Grad standing. Repeatable to a maximum of 10 cr hrs.

823.01 Seminar in European International History I
Seminars in European International History I.
This course is Progress (P) graded. Credit will be awarded upon completion of 823.02. Repeatable to a maximum of 10 cr hrs.
This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

823.02 Seminar in European International History \textit{GRAD 5}

II

Continuation of 823.01.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

824.01 Seminar in Modern European History \textit{GRAD 5}

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

824.02 Seminar in Modern European History \textit{GRAD 5}

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

827.01 Seminar in the History of the Islamic World \textit{GRAD 5}

I

Research topic to be announced.

This course is Progress ('P') graded. Credit will be awarded upon completion of 827.02. Repeatable to a maximum of 10 cr hrs.

827.02 Seminar in the History of the Islamic World \textit{GRAD 5}

II

Research topic to be announced. Continuation of 827.01.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

845.01 Seminar in East Asian History \textit{GRAD 5}

Research topic to be announced.

Prereq: Permission of instructor. This course is Progress ('P') graded. Credit will be awarded upon completion of 845.02. Repeatable to a maximum of 10 cr hrs.

845.02 Seminar in East Asian History \textit{GRAD 5}

Research topic to be announced. Continuation of 845.01.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

850 Seminar in History \textit{GRAD 1-5}

Research topic to be announced.

Prereq: Written permission of grad chairperson. Repeatable to a maximum of 15 cr hrs.

851.01 Seminar in Latin American History \textit{GRAD 5}

Research topic to be announced.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

851.02 Seminar in Latin American History \textit{GRAD 5}

Research topic to be announced. Continuation of 851.01.

Prereq: Permission of instructor. This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

860.01 Seminar in Jewish History \textit{GRAD 5}

I

Research topic to be announced.

This course is Progress ('P') graded. Credit will be awarded upon completion of 860.02. Repeatable to a maximum of 10 cr hrs.

861.02 Seminar in Jewish History \textit{GRAD 5}

II

Research topic to be announced.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

867.01 Seminar in Early American History \textit{GRAD 5}

Research topic to be announced.

This course is Progress ('P') graded. Credit will be awarded upon completion of 867.02. Repeatable to a maximum of 10 cr hrs.

867.02 Seminar in Early American History \textit{GRAD 5}

II

Research topic to be announced. Continuation of 867.01.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

868.01 Seminar in 19th Century American History \textit{GRAD 5}

I

Research topic to be announced.

This course is Progress ('P') graded. Credit will be awarded upon completion of 868.02. Repeatable to a maximum of 10 cr hrs.

868.02 Seminar in 19th Century American History \textit{GRAD 5}

II

Research topic to be announced. Continuation of 868.01.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

869.01 Seminar in 20th Century American History \textit{GRAD 5}

I

Research topic to be announced.

This course is Progress ('P') graded. Credit will be awarded upon completion of 869.02. Repeatable to a maximum of 10 cr hrs.

869.02 Seminar in 20th Century American History \textit{GRAD 5}

II

Research topic to be announced. Continuation of 869.01.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

870.01 Seminar in Selected Topics in American History \textit{GRAD 5}

I

Topics will include business, institutional, and public policy, constitutional, cultural, African-American, women, and labor history.

This course is Progress ('P') graded. Credit will be awarded upon completion of 870.02. Repeatable to a maximum of 10 cr hrs.

870.02 Seminar in Selected Topics in American History \textit{GRAD 5}

II

Research topic to be announced. Continuation of 870.01.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

871.01 Seminar in American Diplomatic History \textit{GRAD 5}

I

Seminar in American Diplomatic History I.

Prereq: Permission of instructor. This course is Progress ('P') graded. Credit will be awarded upon completion of 871.02. Repeatable to a maximum of 10 cr hrs.

871.02 Seminar in American Diplomatic History \textit{GRAD 5}

II

Continuation of 871.01.

Prereq: Permission of instructor. This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

873.01 Seminar in United States Military History \textit{GRAD 5}

I

Research topic to be announced.

Prereq: 688 or equiv. This course is Progress ('P') graded. Credit will be awarded upon completion of 873.02. Repeatable to a maximum of 10 cr hrs.

873.02 Seminar in United States Military History \textit{GRAD 5}

II

Research topic to be announced. Continuation of 873.01.

This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

875.01 Seminar in African-American History \textit{GRAD 5}

I

First of a two-quarter seminar designed to provide experience in the research and writing of a scholarly paper based on primary source material in African-American history.

1 3-hr cl. Prereq: Grad standing or permission of instructor. This course is Progress ('P') graded. Credit will be awarded upon completion of 875.02. Repeatable to a maximum of 10 cr hrs.

875.02 Seminar in African-American History \textit{GRAD 5}

II

Second of a two-quarter seminar designed to provide experience in the research and writing of a scholarly paper based on primary source material in African-American history. Continuation of 875.01.

1 3-hr cl. Prereq: Grad standing or permission of instructor. This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

881.01 Seminar in Women's History \textit{GRAD 5}

I

Research topic to be announced.

Prereq: Permission of instructor. This course is Progress ('P') graded. Credit will be awarded upon completion of 881.02. Repeatable to a maximum of 10 cr hrs.

881.02 Seminar in Women's History \textit{GRAD 5}

II

Research topic to be announced. Continuation of 881.01.

Prereq: Permission of instructor. This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

890.01 Topical Research Seminar \textit{GRAD 5}

I

Research topic to be announced. First of a two-quarter seminar on topical themes.

Prereq: PhD standing or permission of instructor. This course is Progress ('P') graded. Credit will be awarded upon completion of 890.02. Repeatable to a maximum of 10 cr hrs.

890.02 Topical Research Seminar \textit{GRAD 5}

II

Research topic to be announced. Continuation of 890.01.

Prereq: PhD standing or permission of instructor. This course is Progress ('P') graded. Repeatable to a maximum of 10 cr hrs.

891 Topical Research Seminar \textit{GRAD 5}

A one-quarter seminar on topical themes.

Prereq: Permission of instructor. This course is Progress ('P') graded.

898 Master's Thesis \textit{GRAD 1-10}

Research for master's thesis.

Su, Au, Wi, Sp Qtrs. Arr. Prereq: Grad standing. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

899 Interdepartmental Seminar \textit{GRAD 1-5}

Two or more departments may collaborate in pressing seminars on subjects of mutual interest; topics to be announced. Repeatable by permission.

999 Research in History \textit{GRAD 1-18}

Research for thesis or dissertation purposes only. Repeatable. This course is graded S/U.

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**History of Art**

249
201 History of Western Art I: The Ancient and Medieval Periods
Examination of the history of Western art from the third millennium BC to the fifteenth century AD.
Not open to students with credit for 210. GEC arts and hums VPA course and historical studies.

201H History of Western Art I: The Ancient and Medieval Periods
Examination of the history of Western art from the third millennium BC to the fifteenth century AD.
Su, Au, Wi, Sp Qtrs. 5 cl. Open to students enrolled in an honors program or by permission of dept or instructor. Not open to students with credit for 210H. GEC arts and hums VPA course. VPA Admis Cond course.

202 History of Western Art II: Europe and the United States, Renaissance to Modern
Examination of the history of art in Europe and the United States, from about 1450 to the present.
Not open to students with credit for 212. GEC arts and hums VPA course and historical studies.

202H History of Western Art II: Europe and the United States, Renaissance to Modern
Examination of the history of art in Europe and the United States, from about 1500 to the present.
Su, Au, Wi, Sp Qtrs. 5 cl. GEC arts and hums VPA course.

213 Asian Art
Art of Asian cultures from ancient through contemporary times.
Su, Au, Wi, Sp Qtrs. 5 cl. GEC arts and hums VPA course.

216 Introduction to African Art and Archaeology
The art and archaeology of Africa with emphasis on the historic cultures of the Rock Art (8,000 B.C.), Egypt (3000 B.C.), Nok (900 B.C.), Igbo-Ukwu (695 A.D.), Ife (1200 A.D.), and Benin (1400-1900 A.D.).
5 cl. GEC arts and hums VPA course. VPA Admis Cond course.

260 Introduction to World Cinema
Chronological survey of the most influential and recognized film artists and film movements of the world.
5 cl. GEC arts and hums VPA course.

294 Group Studies
The investigation of particular problems in various fields of the history of art.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

300 Great Monuments of Western Civilization
Major buildings of Western civilization from antiquity to the present in their historical and cultural contexts.
Not open to students with credit for 250, Arch 201, or any course from Arch 600-602 sequence, or more than one course from Hist Art 201-202 or from Hist Art 210-212 sequences. GEC arts and hums VPA course and social diversity int issues (western) course.

301 Christian Art
An introduction to the wide range of forms and functions of Christian images and spaces from their origin until 1700.
4 cl. Prereq: 2nd yr standing. GEC arts and hums VPA course.

305 Art and Civilization in the Near East
An examination of the development of the visual arts and architecture of the Near East from the Neolithic Revolution to the Islamic period.
5 cl. Prereq: 2nd yr standing. GEC arts and hums VPA course.

306 Classical Archaeology
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.
5 cl. Not open to students with credit for 240, Classics 240 or History 240 or 306. Cross-listed in Classics as 240 and in History as 306. GEC arts and hums cultures and ideas course.

315 Renaissance Art in Italy
Art and society in Renaissance Italy.
2 2-3 hr. Prereq: 2nd yr standing. Not open to students with credit for 515, 529, or 536. GEC arts and hums VPA course.

316 Dante's Divine Comedy and its Visualizations
An interdisciplinary look at Dante's Divine Comedy and visual responses to it from th 14th century to the present.
2 2-3 cl. Prereq: English 110 and 2nd year standing. GEC arts and hums VPA course.

335 Survey of African American Art
This course covers selected styles, subject matter, and movements in African American art from the late eighteenth century to the present.
Su, Au, Wi, Sp Qtrs. Prereq: 2nd yr standing or permission of instructor.

340 Aspects of Modernity
Examines questions of the distinctively "modern" in relation both to particular works of art and to various explicit reflections on broader cultural notions of modernity.
Prereq: English 110 and 2nd yr standing. GEC arts and hums VPA course.

345 History of Photography
A thematic overview and critical introduction to the main debates and achievements in the history of photography.
Prereq: 2nd yr standing. GEC arts and hums VPA course.

350 World Cinema Today
An introduction to the art of international cinema today, including its forms and varied content.
Prereq: 2nd yr standing. GEC arts and hums VPA course.

360 Philosophy of African Art
A thematic examination of theoretical bases of African art and culture.
Prereq: 2nd yr standing. GEC arts and hums VPA course.

367 Cultural History of the Midwest in the 20th Century
An exploration of the meaning of the "Midwest" through a range of cultural productions and cultural histories.
Wi Qtr. 2 2-3 hr. Prereq: English 110.01 or 110.02 or 110.03 and rank 2 or 3. Not open to students with credit for H542 or History H598.02. GEC second writing and arts and hums VPA course.

415 Writing Seminar in the History of Art
Training in writing a variety of assignments commonly undertaken by art historians.
5 cl. Prereq: History of Art Major. GEC third writing course.

430 Museum Studies Seminar
This seminar will provide a hands-on exploration of museum exhibitions and how the shape knowledge in the field.
Prereq: Permission of instructor.

450 An Introduction to Artistic Media and Techniques
A survey of the major historical and contemporary artistic media and techniques.
2 2-3 hr. Prereq: Hist art major or permission of instructor.

489 Internship in Art History
A cooperative education or internship assignment conducted under the supervision of a faculty member.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

493 Individual Studies
Individual study in some field of historical development; designed to allow the student to work on a problem of particular interest.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

500 Wexner Center Seminar
Seminar offered in conjunction with Wexner Center exhibitions, performance series, media series, or symposia; may be taught by visiting artists, performers, or critics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

503 Architecture of the Middle Ages
Cities, monasteries, churches and secular architecture of the Early Christian, Carolingian, Romanesque and Gothic periods in Western Europe within their historical context.
Su, Au, Wi, Sp Qtrs. Prereq: 2nd yr standing. GEC arts and hums VPA course.

512H Abstract Art
A study of the underlying principles of abstraction in modern European art.
5 cl. Prereq: 201 or 202, and enrollment in an honors program; or permission of instructor.

514H Art as Historical Document: Evaluating the Evidence in Early Modern Europe
An investigation of the functions of art and its role as evidence in historical interpretations of early modern Europe.
Prereq: Enrollment in honors program or permission of instructor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>519</td>
<td>Great Masters of the 17th and 18th Centuries</td>
<td>UGRD 5</td>
<td>A study concentrating upon the individual careers of Caravaggio, Bernini, Rubens, Rembrandt, Velazquez, Poussin, Watteau, Tiepole, and David. 2 2-hr cl. 519H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 2nd yr standing. Not open to hist art majors or to students with credit for 631, 632, or 634. GEC arts and hums VPA course.</td>
</tr>
<tr>
<td>520</td>
<td>19th- and 20th-Century European Art</td>
<td>UGRD 5</td>
<td>European art from about 1800 to the present, with emphasis on the outstanding masters of painting and sculpture. 5 cl. Prereq: 2nd yr standing. GEC arts and hums VPA and social diversity int issues (western) course.</td>
</tr>
<tr>
<td>521</td>
<td>Egyptian Art and Archaeology</td>
<td>UGRD 5</td>
<td>A specialized study of the architecture, sculpture, painting, and minor arts of ancient Egypt. 5 cl. Prereq: 201 or equiv with permission of instructor. Not open to students with credit for 621.</td>
</tr>
<tr>
<td>522</td>
<td>Art and Archaeology of Ancient Greece</td>
<td>UGRD 5</td>
<td>Survey of art and architecture of Ancient Greece from the early Bronze Age (c.3000 B.C.) through the Hellenistic period (31 B.C.). 5 cl. Not open to students with credit for 622.</td>
</tr>
<tr>
<td>523</td>
<td>Art and Archaeology of Ancient Rome</td>
<td>UGRD 5</td>
<td>Survey of the art and architecture of the Roman Empire, including their Halic and Hellenistic origins. 5 cl. Not open to students with credit for 623.</td>
</tr>
<tr>
<td>524</td>
<td>Early Christian and Byzantine Art</td>
<td>UGRD 5</td>
<td>Art and architecture of the early Christian and Byzantine world from the 3rd through the 15th centuries with special emphasis on the Mediterranean region. 5 cl. Prereq: 201 or permission of instructor. Not open to students with credit for 624.</td>
</tr>
<tr>
<td>525</td>
<td>Medieval Art</td>
<td>UGRD 5</td>
<td>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. 5 cl. Prereq: 2nd yr standing. Not open to students with credit for 603, 625, or 651. GEC arts and hums VPA course.</td>
</tr>
<tr>
<td>527</td>
<td>Northern Renaissance Art</td>
<td>UGRD 5</td>
<td>Art of Northern Europe from the late 14th to the mid 16th century, with emphasis on the major masters. 5 cl. Prereq: 201 or 202 or permission of instructor. Not open to students with credit for 627.</td>
</tr>
<tr>
<td>529</td>
<td>Early Renaissance Art in Italy</td>
<td>UGRD 5</td>
<td>An introduction to the art and architecture of 15th century Italy. 2 2-hr cl. Prereq: 201 or equiv with permission of instructor. Not open to students with credit for 629.</td>
</tr>
<tr>
<td>530</td>
<td>American Art</td>
<td>UGRD 5</td>
<td>A study of architecture, painting, and sculpture in America. 2 2-hr cl. 530H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 202, English 110 or 110.01 and 2nd yr standing. Not open to students with credit for 330. GEC arts and hums VPA course.</td>
</tr>
<tr>
<td>531</td>
<td>High Renaissance and Mannerist Art in Italy</td>
<td>UGRD 5</td>
<td>An introduction to the art and architecture of 16th century Italy. 2 2-hr cl. Prereq: 202 or permission of instructor. Not open to students with credit for 630.01 or 630.02.</td>
</tr>
<tr>
<td>532</td>
<td>Baroque Art in Italy and Spain</td>
<td>UGRD 5</td>
<td>17th century Italian and Spanish art and architecture: focuses on major artists and various functions of art and architecture. 2 2-hr cl. Prereq: 201 or 202 or permission of instructor. Not open to students with credit for 631.</td>
</tr>
<tr>
<td>533</td>
<td>Northern Baroque Art</td>
<td>UGRD 5</td>
<td>17th Century Dutch and Belgium art: focuses on major artists and various functions of art (propagating religious beliefs, shaping values, defining identities, etc). Prereq: 201 or 202 or permission of instructor.</td>
</tr>
<tr>
<td>534</td>
<td>18th Century European Art</td>
<td>UGRD 5</td>
<td>Artistic trends in eighteenth century Venice, Rome, Paris and London. 5 cl. Prereq: 202 or permission of instructor. Not open to students with credit for 634.</td>
</tr>
<tr>
<td>535</td>
<td>Nineteenth-Century European Art</td>
<td>UGRD 5</td>
<td>A survey of the major developments in European art from the French Revolution until the end of the nineteenth century. Prereq: 202 or permission of instructor.</td>
</tr>
<tr>
<td>540</td>
<td>Twentieth-Century European Art</td>
<td>UGRD 5</td>
<td>Historical/conceptual survey of European art of the twentieth century. Prereq: 202, 340 or permission of instructor.</td>
</tr>
<tr>
<td>541</td>
<td>Contemporary Art since 1945</td>
<td>UGRD 5</td>
<td>Visual arts of Europe and the United States from 1945 to the present. Prereq: 202 or permission of instructor. Not open to students with credit for 640.</td>
</tr>
<tr>
<td>545</td>
<td>Russian Art</td>
<td>UGRD 5</td>
<td>A millennium of art and architecture, from the period of Kyiv-Rus through the dissolution of the Soviet Union. 5 cl. Prereq: Not open to students with credit for 644 or 645.</td>
</tr>
<tr>
<td>556</td>
<td>Classic Film Theories</td>
<td>UGRD 5</td>
<td>Study of historically important theories of film art. 5 cl. Prereq: 2nd yr standing. Not open to students with credit for 646.</td>
</tr>
<tr>
<td>550</td>
<td>Art of Paris</td>
<td>UGRD 5</td>
<td>Study of the painting, sculpture, buildings, and public and private spaces created in and for the people and the city of Paris. 5 cl. Prereq: 2nd yr standing.</td>
</tr>
<tr>
<td>558</td>
<td>19th-Century European Architecture</td>
<td>UGRD 5</td>
<td>An investigation of architecture from the late 18th century to the end of the 19th century, focusing on issues of Modernism. 5 cl. Prereq: 202 or permission of instructor. Not open to students with credit for 607.</td>
</tr>
<tr>
<td>559</td>
<td>Twentieth-Century Architecture</td>
<td>UGRD 5</td>
<td>A historical and conceptual survey of architecture from the late 19th century to the beginning of the 21st. Prereq: 202 or permission of instructor.</td>
</tr>
<tr>
<td>561</td>
<td>Art and Architecture of the Ancient Near East</td>
<td>UGRD 5</td>
<td>A specialized study of the art and archaeology of the ancient Near East focusing on the cultures of the Mesopotamian valley and surrounding areas. 5 cl. Prereq: 201 or permission of instructor. Not open to students with credit for 661.</td>
</tr>
<tr>
<td>570</td>
<td>An Introduction to Buddhist Art and Iconography</td>
<td>UGRD 5</td>
<td>Examines how Buddhist art conveys the ideal of human perfection as the ultimate attainment of Buddhist practice. GEC arts and hums cultures and ideas course.</td>
</tr>
<tr>
<td>576</td>
<td>The Arts of China</td>
<td>UGRD 5</td>
<td>An overview of the visual arts of China and their cultural context from prehistoric times to the modern era. 5 cl. Prereq: Soph standing or permission of instructor. GEC arts and hums VPA course.</td>
</tr>
<tr>
<td>582</td>
<td>Arts of Japan</td>
<td>UGRD 5</td>
<td>Major trends in the visual arts of Japan, from prehistory through the 19th century. Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 2nd yr standing or permission of instructor. GEC arts and hums vpa and non-western or global diversity course.</td>
</tr>
<tr>
<td>600</td>
<td>Introduction to Contemporary Art Historical Theory</td>
<td>UGRD 5</td>
<td>Exploration of new/theoretical paradigms in art history. 5 cl.</td>
</tr>
<tr>
<td>601</td>
<td>Architecture of the Ancient Orient</td>
<td>UGRD 5</td>
<td>Survey of architecture of southwest Asia and the Nile Valley from the fourth millennium B.C. to the fourth century B.C. 5 cl. Prereq: 201 or permission of instructor. Not open to students with credit for 621 or 661.</td>
</tr>
<tr>
<td>602</td>
<td>Ancient Greek and Roman Architecture</td>
<td>UGRD 5</td>
<td>Survey of architecture and architectural decoration in the ancient Greek and Roman worlds (ca. 1000 B.C.-A.D. 350). 5 cl. Prereq: 201 or 10 cr hrs of ancient history or classics, or permission of instructor. Not open to students with credit for Arch 600.</td>
</tr>
<tr>
<td>604</td>
<td>Renaissance Architecture</td>
<td>UGRD 5</td>
<td>Survey of 15th- and 16th-century architecture in western Europe. 5 cl. Prereq: 201 or 202 or permission of instructor.</td>
</tr>
<tr>
<td>605</td>
<td>Baroque Architecture</td>
<td>UGRD 5</td>
<td>Survey of late 16th-, 17th-, and early 18th-century architecture in western Europe. 5 cl. Prereq: 202 or permission of instructor.</td>
</tr>
<tr>
<td>606</td>
<td>American Architecture</td>
<td>UGRD 5</td>
<td>Survey of American architecture from the pre-colonial era to the present day. 5 cl. Prereq: 202 or permission of instructor.</td>
</tr>
<tr>
<td>610</td>
<td>African Art and Archaeology I</td>
<td>UGRD 5</td>
<td>A study of the art and culture of west Africa with emphasis on stylistic, historic, and archaeological implications. 5 cl. Prereq: 216 or permission of instructor.</td>
</tr>
<tr>
<td>611</td>
<td>African Art and Archaeology II</td>
<td>UGRD 5</td>
<td>The study of the art and culture of central and southern Africa with emphasis on stylistic, historic, and archaeological implications. 5 cl. Prereq: 216 or permission of instructor.</td>
</tr>
</tbody>
</table>
614 Comparative Study of African and European Art
A study of the relationships between African and European art involving theory and practice.
5 cl. Prereq: Permission of instructor or jr standing.

615 Contemporary Art of West Africa
Painting and sculpture of Senegal, Sierra Leone, Liberia, Ivory Coast, Ghana, Dahomey, Nigeria, etc., focusing on history, style, and culture.
5 cl. Prereq: 216 or 505 or 610 or 614 or permission of instructor.

616 Contemporary Art of Central Africa
Painting and sculpture of Cameroon, Gabon, Republic of Congo, Democratic Republic of the Congo, Zambia, Sudan, Uganda, etc., focusing on history, style, and culture.
5 cl. Prereq: 216 or 505 or 610 or 614 or permission of instructor.

617 Contemporary Art of East and Southern Africa
Painting and sculpture of Ethiopia, Kenya, Tanzania, Mozambique, Zambia, Zimbabwe, Malawi, South Africa, etc., focusing on history of style and culture.
5 cl. Prereq: 216 or 505 or 611 or 614 or permission of instructor.

618 Contemporary Art of North Africa
20th-century painting, sculpture, and tapestries of Morocco, Algeria, Libya, United Arab Republic, Mauritania, Mali, Niger, and Chad, focusing on history, style, and culture.
5 cl. Prereq: 216 or 505 or 611 or 614 or permission of instructor.

619 Ancient Greek Sculpture
A study of sculpture in the ancient Greek world during the Archaic and Classical periods (ca. 700-323 B.C.).
Prereq: 201 or 522 or equivalent preparation in Classical Studies.

620 Ancient Roman Sculpture
A study of sculpture in the ancient Roman world from earliest times to the era of Constantine (c. 600 B.C.-A.D. 315).
Prereq: 201 or 523 or equivalent preparation in Classical Studies.

625 Romanesque and Gothic Art
The art of Western Europe from the Carolingian period to the 14th century.
5 cl. Prereq: 201 or permission of instructor.

628 Gothic towards Renaissance: The Fourteenth Century
Art of the Late Middle Ages in Western Europe in its social context, with new developments and major artists (Giotto, Duccio, Puccelle, Sluter, Parler) emphasized.
5 cl. Prereq: 201 or permission of instructor.

632 Dutch Art of the Golden Age
Major artists, including Rembrandt and Vermeer, and developments of 17th century Dutch art examined with a focus on modes of representation and interpretation.
5 cl. Prereq: 202 or 533 or permission of instructor. Not open to students with credit for 633 prior to Au Qtr 1998.

635 Neo-Classicism 1760-1815
An examination of antiquarian and progressive impulses that spurred the classical revival of the late 18th and early 19th centuries in architecture, painting and sculpture 2 2 hr cl. Prereq: 212 or permission of instructor. Not open to students with credit for 635.01.

636.01 20th-Century European Art, 1896-1914
Matisse, Picasso, Art Nouveau, and the Style Moderne; a survey of the foundations of modern art (Expressionism, Cubism, Futurism, and Non-representational).
Prereq: 202 or permission of instructor. Not open to students with credit for 636.

636.02 20th-Century European Art, 1914-1945
European art between the World Wars: Post-Cubism, Dada and Surrealism, Bauhaus and Constructivism, and Abstraction.
Prereq: 202 or permission of instructor. Not open to students with credit for 636.

637 American Painting and Sculpture to 1900
History of painting and sculpture in America from colonial times to the end of the 19th century.
5 cl. Prereq: 202 or permission of instructor, and English 110 or 111 or equiv.

638 20th-Century American Art
American painting and sculpture in the 20th century.
5 cl. Prereq: 202 or permission of instructor, and English 110 or 111 or equiv.

640 Video Art
This course will introduce students to video as an artistic medium by studying its contentious past, multiple forms, and the trajectories of this expanding field.
Su, Au, Wi, Sp Qtrs. Prereq: 202, 340 or permission of instructor.

641 Postmodernism
Exploration of the central issues in the claim to the emergence of a distinctly "postmodern" art in the last part of the 20th century.
2 2-hr cl. Prereq: 540 or 541 or permission of instructor.

645.01 Nineteenth-Century Russian Art
A study of the romantic, realist, and symbolist aesthetics of Russian 19th century painting and sculpture.
Not open to students with credit for 645.

645.02 Twentieth-Century Russian Art
A study of the theories and practice of the avant-garde, socialist realism, and post-Soviet trends.
Not open to students with credit for 645.

647 Silent Cinema: 1895-1927
A study of development of silent film as an international art form.
5-hr cl. Prereq: 2nd yr standing.

648 Classical Sound Cinema: 1927-1948
A study of the development of film as an art form from the advent of sound to WW II.
5 cl. Prereq: 2nd yr standing.

649 Recent Cinema: 1948-Present
A study of film as an art form since WW II.
5 cl. Prereq: 2nd yr standing.

650 Avant-Garde Cinema
A survey of significant historical contributions to avant-garde cinema.
2 2-hr cl. Prereq: 3rd year studying.

651 Romanesque and Gothic Sculpture
Development of sculpture from the 11th through the 13th centuries, with emphasis on architectural programs, their contexts, iconography, and style.
5 cl. Prereq: 201 or permission of instructor.

652 Medieval and Renaissance Manuscript Illumination
A chronological survey of medieval and Renaissance illuminated manuscripts in the West.
5 cl. Prereq: 201 or permission of instructor.

653 History of Documentary Cinema
Historical, chronological survey of significant ideas about and contributions to documentary cinema.
5 cl. Prereq: 3rd yr standing.

654 Representations of Power and the Power of Representation in 17th Century European Art
Examination of art and architecture as instruments of power and persuasion and vehicles for shaping identity and fostering cohesion in 17th century Europe.
Prereq: 532, 533, or sr or grad standing, or permission of instructor.

655 Modern Art in Eastern Europe
Late 19th and early 20th century art in Czechoslovakia, Poland, Romania, Hungary, and Yugoslavia.
Prereq: 2nd yr standing or permission of instructor.

656 French Art: The Ancien Regime, 1620-1775
The evolution of French classicism, which peaked during the reign of Louis XIV and faded when the sustaining political order collapsed in the 18th century.
2 2-hr cl. Prereq: 202, 534 or permission of instructor.

657 European Art in the Age of Revolution, 1789-1848
Survey of major trends in European art from the French Revolution until the middle of the nineteenth century.
Prereq: 202, 535, or permission of instructor.

658 Realism and Impressionism, 1848-1886
Survey of major trends in European art from the 1848 Revolution until the last Impressionist exhibition (1886).
Prereq: 202, 535, or permission of instructor.

659 Post-Impressionism: Art and Culture in fin-de-siecle France (1880-1900).
Survey of artistic developments in France during the last two decades of the nineteenth century.
Prereq: 202, 535, or permission of instructor.

663 Early Islamic Art
Introduction to the history of Islamic art and architecture from its formation through the classical age (i.e. from the 7th through the 13th centuries).
5 cl. Prereq: 201 or 213 or permission of instructor.

664 Later Islamic Art
Introduction to the history of Islamic art and architecture in the later period (14th through 18th centuries) including the Mongol, Timurid, Mamluk, Ottoman, Safavid, and Indo-Muslim art.
5 cl. Prereq: 201 or 202 or 213 or permission of instructor.
668 The Buddhist Art of Gandhara and Kashmir
Explores the Buddhist art of greater Gandhara and Kashmir, examining in particular its influence on both East Asian and South Asian art. Wi Qtr. 2-3 hr cl. Prereq: 213 or permission of instructor.

669 The Art of Newar Buddhism
A study of the art of the Newar Buddhist community of Nepal and its contribution to the rest of north Asia. 2-2 hr cl. Prereq: 213 or permission of instructor.

670 Buddhist Art: Theory and History
An analysis of Buddhism and its bearing on the art of India, Nepal, Tibet, China, and Japan. 5 cl.

671 Art of India I
Art and architecture of India from prehistoric times through the Gupta period, ca. 500 C.E. stressing relationship to religious and cultural developments. 5 cl.

672 Art of India II
Art and architecture of India from the Gupta period, ca. 500 C.E. to the Muslim period, stressing relationship to religious and cultural developments. 5 cl.

673 Art of Central Asia
An analysis of the cross currents of style and iconography that constitute the pre-Muslim art of Central Asia. 5 cl.

674 Art of Nepal and Tibet
A study and analysis of the major aspects of style, iconography, and historical sequence as found in the arts of Nepal and Tibet. 5 cl.

675 Art of India III
Art and architecture of India in the Islamic, colonial, and contemporary periods. 5 cl.

676 Hindu Iconography
A survey of Hindu iconography emphasizing the development and meaning of specific deities. 5 cl.

677.01 Chinese: Pre-Buddhist
Examination of archaeological finds in China, ca. 4000 B.C. to the beginning of the 10th century A.D., with emphasis on recent discoveries. Prereq: English 110 or 111 or equiv.

677.02 Chinese: Buddhist
Examination of the Buddhist arts of China; with emphasis on religious expression and content. Prereq: English 110 or 111 or equiv.

678.01 Chinese Painting to 1368
A survey of Chinese painting from the Han period through the Yuan dynasty, with emphasis on style, subject matter, and cultural context. Prereq: 213 or permission of instructor.

678.02 Chinese Painting from 1368 to the Present
A survey of Chinese painting from the Ming dynasty to the present, with emphasis on style, subject matter, and cultural context. Prereq: 213 or permission of instructor.

679 Modern and Contemporary Chinese Art
Modern Chinese art (mid-19th century to today) with emphasis on artists, artworks, and their social, artistic, institutional, and theoretical contexts. Prereq: 213, 576 or permission of instructor.

681 Japanese Art: Proto-Historic and Buddhist
Selected topics in the history of Japanese arts of the Proto-Historic period and the Buddhist religion. Prereq: English 110 or 111 or equiv.

682 Japanese Art: Painting and Prints
Selected topics in the history of Japanese pictorial art and related subjects. Prereq: English 110 or 111 or equiv.

690.01 Topics: Western Art
Topics to be announced. Repeatable to a maximum of 15 cr hrs.

690.02 Topics: Asian and Non-Western Art
Topics to be announced. Repeatable to a maximum of 15 cr hrs.

693 Individual Studies
Advanced study for students in specialized programs. Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies
Group studies for students in specialized programs. Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress ('P') graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.

699 Undergraduate Scholarship: Research and Creative Activity in History of Art
Undergraduate research or creative activities in varying topics. Su, Au, Wi, Sp Qtrs. Arr. 699H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Repeatable to a maximum of 15 cr hrs. Prereq: Permission of instructor. H699 is letter graded. This course is graded S/U.

704 Studies in African Art and Archaeology
Studies in African art emphasizing problem identification, concept organization, library research, and individual criticism. 3-5 cl. Prereq: 610 or 611 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

705 Studies in Contemporary African Art
Introduction to research in 20th-century African art. Arr cl. Prereq: 505 or 615 or 616 or 617 or 618 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

710 Studies in Art Theory and Criticism
Investigations of theories of art and their applications. Prereq: 400. Not open to students with credit for 839. Repeatable to a maximum of 15 cr hrs.

715 Historical and Conceptual Bases of Art
Investigation of intellectual and historical foundations of modern art history. 5-hr cl. Prereq: 50 cr hrs in hist art.

717 Studies in Medieval Art
Selected problems in architecture, painting, sculpture, and the minor arts from the Early Christian through the Byzantine and Gothic periods. Prereq: 624 or 625 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

718 Studies in Italian Renaissance Art
Selected problems in painting, sculpture, and architecture of Italy in the 14th, 15th, and 16th centuries. 3-5 cl. Prereq: 315, 529, 531, or permission of instructor. Repeatable to a maximum of 15 cr hrs.

720 Studies in Near Eastern Art and Archaeology
Selected problems in the art and archaeology of the Near East. Prereq: 521 or 561 or 663, or equiv with permission of instructor. Repeatable to a maximum of 15 cr hrs.

722 Studies in Ancient Greek and Roman Art
Selected problems in the art of Ancient Greece and Rome, 11th century B.C. to 4th century A.D. 3-5 cl. Prereq: 619 or 620 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

724 Studies in Northern Baroque Art
Selected problems in the painting, sculpture, and architecture of Belgium, the Netherlands, Germany, and France in the 17th and 18th centuries. 3-5 cl. Prereq: 632. Repeatable to a maximum of 15 cr hrs.

725 Studies in Italian Baroque Art
Selected problems in the painting, sculpture, and architecture of the 17th century. 3-5 cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

726 Studies in Spanish Art
Selected studies in the architecture, sculpture, painting, and minor arts of Spain. 3-5 cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.
734 Studies in 18th Century European Art UGRD 5
Selected problems in the painting, sculpture, architecture, graphic, and decorative arts of the 18th century in Europe.
1 4-hr cl or 2 2-hr cl. Prereq: 558 or 559 or Arch 600-603 or Arch 501-803 permission of instructor. Repeatable to a maximum of 15 cr hrs.

736 Studies in the History and Theory of Architecture UGRD 5
Selected studies in the history and theory of architecture.
1 4-hr cl or 2 2-hr cl. Prereq: 558 or 559 or Arch 600-603 or Arch 501-803 permission of instructor. Repeatable to a maximum of 15 cr hrs.

737 Studies in Modern Art UGRD 3-5
Selected studies in the art of the United States or modern Europe.
3-5 cl. Prereq: 600 level course in modern art, or permission of instructor. Repeatable to a maximum of 15 cr hrs.

745 Studies in Russian Art UGRD 3-5
Selected problems in the painting, sculpture, and architecture of Russia.
Prereq: 645 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

747 Studies in Late Gothic and Northern Renaissance Art UGRD 3-5
Selected problems in the art of the Low Countries, Germany, and France from the 14th through the 16th centuries.
3-5 cl. Prereq: 527 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

750 Selected Topics in Cinema Studies UGRD 5
Intensive studies of specific movements, artists, periods and theories of cinema.
2 2-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

770 Studies in Buddhist Art UGRD 3-5
Introduction to research in Buddhist art and iconography.
3-5 cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

771 Studies in the Art of India UGRD 3-5
Research problems in the art of India.
Repeatable to a maximum of 35 cr hrs.

774 Studies in Inner Asian Art UGRD 3-5
Introduction to research in Inner Asian history of art.
Prereq: 673 or 674 or 677 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

776 Studies in Chinese Art UGRD 3-5
Introduction to research in Chinese art historical problems.
Prereq: 677 or 678 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

780 Studies in Japanese Art UGRD 3-5
Introduction to research in Japanese art historical problems.
Prereq: 681 or 682 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

783H Honors Research UGRD 3-5
A program of study arranged for each student, with individual conferences, reports, and honors thesis.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

793 Individual Studies UGRD 2-5
Advanced study for students in specialized programs.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

797 Introduction to Graduate-level East Asian Studies UGRD 5
Studies in the history of East Asian Area Studies in the U.S., including its relationship to the state and other intellectual disciplines.
Prereq: Grad standing or permission of instructor. Not open to students with credit for EALL 797 or History 797. Cross-listed in East Asian Languages and Literatures and History.

800 Wexner Center Seminar GRAD 1-5
Graduate seminar offered in conjunction with Wexner Center exhibitions, performance series, media series, or symposia; may be taught by visiting artists, performers, or critics.
Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 15 cr hrs. including cr hrs earned in Comp Std 850. Cross-listed in Comparative Studies as 850.

804 Problems in African Art and Archaeology GRAD 5
Research techniques with emphasis on scholarly methods involving extensive search for available source materials on African art.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

805 Problems in Contemporary African Art GRAD 5
Advanced study and specialized research on major topical problems in 20th-century African art.
5 cl. Prereq: Two 600-level courses in contemporary African art or permission of instructor. Repeatable to a maximum of 15 cr hrs.

815 Practicum for Graduate Teaching Associates in the History of Art GRAD 2
A teacher-training and professional development workshop for new Graduate Teaching Associates in art history.
Au, Wi Qtrs. 2 hr cl, 5 times a quarter. Open only to students with a GTA appointment in the department of history of art. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

816 Museum Problems GRAD 3-5
An introduction to professional work in museums.
Repeatable to a maximum of 15 cr hrs.

822 Problems in Ancient Art GRAD 3-5
Advanced study and specialized research on major topical problems in ancient art.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

824 Problems in Northern Baroque Art GRAD 3-5
Advanced study and specialized research on major topical problems in Northern Baroque Art.
3-5 cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

832 Problems in American Art GRAD 2-5
Problems in American Art.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

837 Problems in Modern European Art GRAD 5
Specialized topics in European art of the modern era.
Prereq: permission of instructor. Repeatable to a maximum of 15 cr hrs.

845 Seminar in Russian, Soviet, and Eastern European Art GRAD 5
Advanced research on specialized topics on the art of the region.
Prereq: 644, or 645.01, or 645.02, or 655, or 737, or 745, or permission of instructor. Repeatable to a maximum of 15 cr hrs.

890 Topics in Art History GRAD 3-5
A graduate-level equivalent of a course being offered at the 500-level.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing in hist art. Repeatable to a maximum of 20 cr hrs.

893 Individual Studies GRAD 1-5
Doctoral students may register for individual study in areas not normally covered by courses.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

894 Group Studies GRAD 1-5
Group studies for students in specialized programs.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

917 Seminar in Medieval Art GRAD 2-5
Seminar in Medieval Art.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

920 Seminar in Italian Renaissance Art GRAD 2-5
Seminar in Italian Renaissance Art.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

930 Seminar in Modern Art GRAD 2-5
Seminar in Modern Art.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

970 Seminar in Buddhist Art GRAD 3-5
Advanced research in Buddhist iconographic problems.
Prereq: Two of the following: 670, 671, 673, 677, 681, and 770; or permission of instructor. Repeatable to a maximum of 15 cr hrs.

971 Seminar in the Art of India GRAD 2-5
Research problems in the art of India.
Repeatable to a maximum of 35 cr hrs.

976 Seminar in Chinese Art GRAD 3-5
Advanced studies in the history of Chinese art.
Prereq: 677 or 678 or 776 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

980 Seminar in Japanese Art GRAD 3-5
Advanced studies in the history of Japanese art.
Prereq: 681 or 682 or 780 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

999 Research in History of Art GRAD 1-18
Research for thesis and dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.
### Honors, University

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
</table>
| 296H        | University Honors Proseminar                     | UGRD 3-5| Designed to foster an understanding of concepts, issues, and problems which transcend the boundaries of a single discipline; topic varies.  
  *Au, Wi, Sp Qtrs. Arr. Prereq: Fresh or soph standing in an honors program and/or permission of instructor. Repeatable to a maximum of 15 cr hrs. |
| 596H        | University Honors Seminar                        | UGRD 2-5| Designed to foster appreciation, understanding and/or problem-solving skills related to concepts, issues, or problems that transcend the boundaries of a single discipline; topic varies.  
  *Su, Au, Wi, Sp Qtrs. Arr. Prereq: Jr or sr standing in an honors program. Repeatable with permission of University Honors director. |

### Horticulture and Crop Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
</table>
| 150         | Introduction to Horticulture                     | UGRD 4  | Guide to the applied practices associated with using and raising horticultural plants.  
  Wi Qtr. 3 cl, 1 2-hr lab. Not open to majors in landscape horticulture. Distance Education course - computer. |
| 200         | The Science of Growing Plants                    | UGRD 5  | Study of environmental, genetic, and cultural factors which influence the cultivation of plants for food, fiber, ornamental, and landscape uses.  
  Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: Biology 101 or 113 or H115 or PCMB 101 or Chem 101 or 121 or HZ201. This course is available for EM credit. NS Admins Cond course. BER/LAR course. GEC bio sci course. Wooster offering taught winter quarter. |
| 204         | Design of Gardens and Small Properties           | UGRD 5  | Design of small-scale residential projects; master planning, use of plants and architectural materials, graphics.  
  Au Qtr. 3 cl, 3 lab hrs. Not open to students with credit for Larch 204. Cross-listed in Landscape Architecture. VPA Admins Cond course. |
| 234.01      | Landscape Plants: Lecture                        | UGRD 3  | Overview of plants used in gardens and landscapes.  
  Wi, Sp Qtrs. 3 cl. Not open to students with credit for H&CS 435, 436. Not open to students with credit for 234. |
| 234.02      | Landscape Plants: Lab                            | UGRD 2  | Overview of plants used in gardens and landscapes.  
  Sp Qtr. 2 2-hr labs. Prereq: 234.01 or concurrent. Not open to students with credit for H&CS 435, 436. Not open to students with credit for 234. |
| 250         | Introduction to Professional Golf Management     | UGRD 2  | Acquaints students with the OSU Professional Golf Management Program which is accredited by the PGA of America. Topics include program overview, components, requirements and facilities/resources available to students.  
  Au Qtr. 1 1-hr cl, 1 2-hr discussion. |
| 260         | Data Analysis and Interpretation for Decision Making | UGRD 5  | Basic concepts of probability and statistics applied to the interpretation of quantitative data.  
  Au, Wi Qtrs. 4 cl, 1 2-hr rec/lab. Prereq: Math 130 or 148. Not open to students with credit for Anim Sci 260, Agr Econ 205 or AED Econ 205, Agr Educ 387 or AEE 387, Stat 125, 135, 145. GEC data analysis course. |
| 270         | Historical Perspectives on Golf Course           | UGRD 3  | A historical survey of golf course design and management and its affect on contemporary design and management.  
  Au, Wi, Sp Qtrs. 1 3-hr cl. |
| 294         | Group Studies                                    | UGRD 1-5| Special group studies in the areas of crop science, landscape horticulture, and turf science.  
  Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. |
| 300         | General Plant Biology                            | UGRD 5  | Plant structure and function; growth and development; diversity, reproduction, and evolution of lower and flowering plants; people, the biosphere, and plant diversity.  
  Au, Wi, Sp Qtrs. 3 cl, 2 2-hr labs. Prereq: Biology 101 or 113 or H115 or PCMB 101 or Plnt Bio 101. Not open to students with credit for Plnt Bio 300 or PCMB 300. |
| 300E        | General Plant Biology                            | UGRD 5  | Plant structure and function; growth and development; diversity, reproduction, and evolution of lower and flowering plants; people, the biosphere, and plant diversity.  
  Au, Wi, Sp Qtrs. Prereq: Biology 101 or 113 or 155H or PCMB 101 or PLNT BIO 101. Not open to students with credit for PLNT BIO 300 or PCMB 300. |
| 305         | Organic Gardening                                | UGRD 2  | An overview and assessment of organic gardening practices for sustenance and recreation.  
  Sp Qtr. |
| 310         | Crop Responses to the Environment               | UGRD 5  | The physiological basis of crop responses to abiotic and biotic environmental factors.  
  Wi Qtr. 4 cl, 1 2-hr lab. Prereq: 300 or PlntBio 300. |
| 315         | Plant Diversity in Managed Ecosystems            | UGRD 5  | Origin, diversification, and biogeography of plants inhabiting managed ecosystems.  
  Sp Qtr. Prereq: 300 or Plnt Bio 300. |
| 320         | Plant Propagation: Manipulation of Plant Reproduction | UGRD 4  | Techniques, equipment, and facilities involved in sexual and asexual multiplication of plants.  
  Au Qtr. 3 cl, 1 2-hr lab. Prereq: 200 or 300. |
| 321         | Bedding Plant Production Techniques              | UGRD 3  | Study and application of commercial techniques for producing bedding plants.  
  Sp Qtr. |
| 325         | Crop Genetic Resources                           | UGRD 4  | Past, present, and future issues in germplasm conservation, ownership, and use for major food and ornamental crops. Includes practical uses of genetics in crop improvement.  
  Sp Qtr. 2-2 hr cl. Prereq: 200 or 300. |
| 350.01      | Professional Development: PGA/PGM Rules and Club Design | UGRD 1  | A series of seven courses which encompass learning objectives and work experience-related materials included in the PGA of America's Golf PGA Program.  
  Content associated with the PGA of America's level 1 Checkpoint including rules of golf and golf club design and repair.  
  Wi Qtr. 1 1-hr cl, 1 2-hr discussion. Prereq: Students in good standing in the PGA major. Subdivisions are not repeatable. |
| 350.02      | Professional Development: PGA/PGM Tournament Operations and Fleet Management | UGRD 1  | A series of seven courses which encompass learning objectives and work experience-related materials included in the PGA of America's Golf PGA Program.  
  Content associated with the PGA of America's level 1 Checkpoint including tournament operations and car fleet management.  
  Sp Qtr. 1 1-hr cl, 1 2-hr discussion. Prereq: 350.01 and good standing in the PGA major. Subdivisions are not repeatable. |
| 350.03      | Professional Development: PGA/PGM Introduction to Teaching Golf | UGRD 1  | A series of seven courses which encompass learning objectives and work experience-related materials included in the PGA of America's Golf PGA Program.  
  Content associated with the PGA of America's level 1 Checkpoint including introduction to teaching golf.  
  Wi Qtr. 1 1-hr cl, 1 2-hr discussion. Prereq: 350.02 and good standing in the PGA major. Subdivisions are not repeatable. |
| 350.04      | Professional Development: PGA/PGM Business Planning and Customer Relations | UGRD 1  | A series of seven courses which encompass learning objectives and work experience-related materials included in the PGA of America's Golf PGA Program.  
  Content associated with the PGA of America's level 2 Checkpoint including business planning operations and customer relations.  
  Au Qtr. 1 1-hr cl, 1 2-hr discussion. Prereq: 350.03; only students in good standing in the OSU Professional Golf Management program and who have passed all PGA of America Checkpoint 1 requirements may enroll. Subdivisions are not repeatable. |
| 350.05      | Professional Development: PGA/PGM Club Fitting and Swing Analysis | UGRD 1  | A series of seven courses which encompass learning objectives and work experience-related materials included in the PGA of America's Golf PGA Program.  
  Content associated with the PGA of America's level 2 Checkpoint including club fitting and analysis of the golf swing.  
  Wi Qtr. 1 1-hr cl, 1 2-hr discussion. Prereq: 350.04; only students in good standing in the OSU Professional Golf Management program and who have passed all PGA of America Checkpoint 1 requirements may enroll. Subdivisions are not repeatable. |
| 350.06      | Professional Development: PGA/PGM Teaching Swing Concepts | UGRD 1  | A series of seven courses which encompass learning objectives and work experience-related materials included in the PGA of America's Golf PGA Program.  
  Content associated with the PGA of America's level 3 Checkpoint including swing concepts and teaching.  
  Au Qtr. 1 1-hr cl, 1 2-hr discussion. Prereq: 350.05; only students in good standing in the OSU Professional Golf Management program and who have passed all PGA of America Checkpoint 2 requirements may enroll. Subdivisions are not repeatable. |
350.07 Professional Development: PGA/PGM Supervision, Marketing and Inventory Control UGRD 1
A series of seven courses which encompass learning objectives and work experience-
related materials included in the PGA of America's Golf PGM Program. Content associated with the PGA of America's level 3 Checkpoint including supervising and delegating, merchandising and inventory control. Sp Qtr. 1 hr-cl, 1-2 hr discussion. Prereq: 350.06; only students in good standing in the OSU Professional Golf Management program and who have passed all PGA of America Checkpoint 2 requirements may enroll. Subdivisions are not repeatable.

370 Sports Turf Management UGRD 3
Issues pertaining to sports facility management, field surface playing quality, field renovation and management practices. Sp Qtr. 1-2 cl, 1-2 hr-lab.

380 The Latino Workforce in Land Based Industries UGRD 3
Overview of issues faced by immigrant workers in Land Based Industries (involving plants/animals) and cultural, historical and legal context affecting work relations with American supervisors. Au Qtr. Students who take this course will become familiar with various aspects of the immigrant and migrant workforce and also gather resources that they can use when they need arise. They will learn some basic legal aspects of interacting with Latino workers, including important information regarding the organization of a temporary Latino workforce.

401.01 Industries and Organizations: The Floriculture Industry UGRD 1
Field visits to industries and organizations where theory associated with Horticulure and Crop Science is practiced. Prereq: Permission of instructor. This course is graded S/U. Repeatable to a maximum of 3 cr hrs.

401.02 Industries and Organizations: Environmental Horticulture Organizations in Ohio UGRD 1
Field visits to industries and organizations where theory associated with Horticulure and Crop Science is practiced. Environmental Horticulture Organizations in Ohio. Prereq: Permission of instructor. This course is graded S/U. Repeatable to a maximum of 3 cr hrs.

Introduction to Computer Assisted Design (CAD), drafting, estimating for landscape horticulture/garden design students. Provides hands-on exposure to methods used in project concept and installation communication. Wi Qtr. Prereq: 204.

411 Grain Crops UGRD 3
Study of grain crops; classification, distribution, variety selection and improvement, cultural practices, harvesting, and utilization. Wi Qtr. 3 cl. Prereq: 200 or 300.

412 Forage Crops UGRD 3
Growth characteristics, adaptation and utilization of different species for hay, pasture, silage, and land conservation. Sp Qtr. 3 cl. Prereq: 200 or 300.

414 Crop Science Laboratory UGRD 2
Experimental approach to forage and grain crop growth and development with emphasis on the relationship of crop characteristics to management, quality, and utilization. Sp Qtr. 1-3 hr-lab, 1 day field trip. Prereq: 411 or 412.

420 Seed Science UGRD 4
A study of the physiologic processes of seed formation, dormancy, and germination; the production and marketing of seed in commerce. Wi Qtr. 3 cl, 1-2 hr-lab. Prereq: 200 or 300.

422 Principles of Weed Science UGRD 4
A study of weeds, their identification, reproduction, and methods of control; emphasis on various aspects of chemical control measures. Au, Sp Qtrs. 3 cl, 1-2 hr-lab. Prereq: 200 or 300.

430 Indoor Gardening UGRD 4
The identification, maintenance, and use of plants for interior decoration in the home, office, public buildings, and related locations. Wi Qtr. 3 cl, 1-2 hr-lab. Prereq: Biology 101 or 113 or H115 or PCMB 101 or Pnt Bio 101.

431 Herbaceous Ornamental Plants for Spring and Early Summer UGRD 3
Identification, culture and use of herbaceous ornamental plants for spring and summer. Sp Qtr. 1.5-hr cl, 1 hr-lab. Prereq: 200 or 300 and 234.

432 Herbaceous Ornamental Plants for Summer and Fall UGRD 3
Identification, culture and use of herbaceous ornamental plants for mid- to late-season interest. Au Qtr. 1.5-hr cl, 1 hr-lab. Prereq: 200 or 300.

435 Deciduous Shade Trees and Narrowleaf Evergreens UGRD 6
Study of deciduous shade trees and narrow leaf evergreens including their identification, growth habits, ornamental features, environmental adaptation, utilization, and management in the landscape. Au Qtr. 2-2 hr-lab. Prereq: 200 or 300 and 234.

436 Deciduous Flowering Trees and Shrubs, Vines, and Broadleaf Evergreens UGRD 6
Study of deciduous flowering trees, flowering shrubs, vines, and broadleaf evergreens including their identification, growth habits, ornamental features, environmental adaptation, utilization, and management in the landscape. Sp Qtr. 4 cl, 2-2 hr-labs. Prereq: 200 or 300 and 234.

438 Theme and Specialty Gardens UGRD 2
Study of the principles and techniques of theme and specialty gardening. Wi Qtr. 1-3 hr-cl.

439 Design of Theme and Specialty Gardens UGRD 3
Theories introduced in HCS 438 are applied through research and creation of thematic buildable designs for specific sites. Students produce and present client quality designs. Wi Qtr. Prereq: 204 and 438.

450 Principles of Vegetable Crop Production UGRD 4
The production and utilization of vegetable crops with emphasis on environmental factors which influence growing and handling of these crops. * Sp Qtr. 3 cl, 1-2 hr-lab. Prereq: 200. Offered Odd years.

460 Fruit Crop Physiology and Production UGRD 5
Contemporary fruit crop production principles/practices and their physiological bases as affected by environmental and economic factors. ** Au Qtr. 2-2 hr-cl, 1-2 hr-lab. Prereq: 200 or 310 or permission instructor. Offered every years.

470 Principles of Turfgrass Selection and Management UGRD 4
Adaptation, identification, uses, growth characteristics, growth responses, and fundamental principles essential to the production of quality turf. Au, Sp Qtrs. 2 cl, 1-2 hr-cl. Prereq: 200 or 300.

488 Professional Development in Horticulture and Crop Science UGRD 1
Participation in structured co-curricular program leading to professional development (e.g. Weed, Turf, ALCA competition teams, etc.). Su, Au, Wi, Sp Qtrs. Arr. Prereq: 2.00 CPRH and permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

489 Internship Experience UGRD 1-5
Ten or more weeks of supervised practical experience in an approved enterprise. Seminar required. Su, Au, Wi, Sp Qtrs. 2 cl. Repeatable to a maximum of 10 cr hrs. Class time TBA quarterly. Each student must present a 25 min seminar.

494 Group Studies UGRD 1-5
Special group studies in the areas of crop science, landscape horticulture, and turf science. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

501 Landscape Plant Selection UGRD 5
Identifying the 'right plant for the right place' to develop ecologically appropriate landscapes. Sp Qtr. 2 cl, 2-4 hr-clab. Prereq: 234 or 431 or 435 or 436; 204 or Larch 204.

502 Management of Constructed Landscapes UGRD 5
Technical (weeds, pests) and business issues (labor, estimation, equipment) typical of landscape maintenance in Ohio, with emphasis on field experience. Au Qtr. 2 cl, 1-4 hr-clab. Prereq: Permission of instructor.

521 Greenhouse Crop Production UGRD 5
Principles and practices for the production of greenhouse crops. Wi Qtr. 2-2 hr-cl, 1-2 hr-lab. Prereq: 200 and 300 or Pnt Bio 300. Not open to students with credit for 522.

533 Management of Commercial Nursery Operations UGRD 5
Detailed consideration of factors involving commercial nursery site selection, production, harvesting, and marketing of woody ornamentals and related products. Wi Qtr. 4 cl, 3-4 hr-lab. Prereq: 320.
560  Computers in Horticulture Management UGRD 4
Develops an understanding of the applications of computer software to the areas of production planning, control, and electronic marketing for horticultural enterprises.
Wi Qtr. 2 2-hr cl, 1-hr lab.

570  Turfgrass Management and Science UGRD 4
A study of cultural practices and environmental factors affecting the maintenance of quality turf.
Wi Qtr. 2 cl, 1 2-hr cl, 1-hr lab.

593  Individual Studies UGRD 1-5
Special studies in the areas of crop science, landscape horticulture, and turf science.
Su, Au, Wi, Sp Qtr. Prereq: 2.50 CPRH and written permission of instructor. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.

597  Issues in Biotechnology UGRD 5
Issues pertaining to the means and methods, products, prospects, safety, regulation, ethics, and societal effects of biotechnology.
Sp Qtr. 5 cl. Prereq: Biology 101 or 113, or Plnt Bio or PCMB 101 or equiv; and Jr or sr standing. GEC/LAR course.

598  Turfgrass Science Seminar UGRD 1
Academic and industry experts present information and lead discussion on current issues facing the turfgrass industry.
Sp Qtr. 1 cl. Prereq: Jr or sr standing in turf science, crop science, landscape horticulture, or permission of instructor. Repeatable to a maximum of 2 cr hrs.

600  Issues in Horticulture and Crop Science UGRD 5
Examination of topical issues in H&CS to prepare students for transition from university to workplace.
Au, Wi, Sp Qtr. 2 2-hr lecture, 1 hr recitation. Prereq: Sr rank in any H&CS major, H&CS 200, 2nd writing course, H&CS 489. Not open to students with credit for 601.

602  Crop Ecology UGRD 3
A study of the agroecosystem; the ecology of managed agricultural systems; the interrelationships of climates, soils, and organisms in crop production.
Sp Qtr. 3 cl. Prereq: 10 cr hrs of courses and 5 cr hrs of soils courses at the 300 level or higher.

604.01  Whole Plant Research Methods UGRD 4
Introduction to scientific skills and modern research methods for the study of plants at the whole plant level.
Au Qtr. Prereq: 300 or Plnt Bio 300 or PCMB 300 or 436 or Biology 114 or 436 or grad standing or permission of instructor. Not open to students with credit for these courses in PCMB or Plnt Bio or Plnt Path. Cross-listed in Plant Biology and Plant Pathology.

604.02  Cell and Tissue Level Research Methods UGRD 4
Introduction to scientific skills and modern research methods for the study of plants at the cell and tissue level.
Wi Qtr. Prereq: 300 or Plnt Bio 300 or PCMB 300 or 436 or Biology 114 or 436 or grad standing or permission of instructor. Not open to students with credit for these courses in Plnt Bio or Plnt Path. Cross-listed in Plant Biology and Plant Pathology.

604.03  Molecular Level Research Methods UGRD 4
Introduction to scientific skills and modern research methods for the study of plants at the molecular level.
Sp Qtr. Prereq: 300 or Plnt Bio or PCMB 300 or 436 or Biology 114 or 436 or grad standing or permission of instructor. Not open to students with credit for these courses in PCMB or Plnt Bio or Plnt Path. Cross-listed in Plant Biology and Plant Pathology.

605  Advanced Vegetable Crops Production and Physiology UGRD 5
A physiological study of the principal vegetable crops used for processing and fresh market; cultural practices are also considered.
** Wi Qtr. 3 1.5-hr cl. Prereq: Permission of instructor. Offered even years.

610  Weed Control in Horticultural Crops UGRD 4
A study of environmental and cultural factors which influence weed development in horticultural crops and a review of the principles of chemical and mechanical weed control.
Sp Qtr. 3 cl, 1 2-hr lab. Prereq: 300 or PCMB 300 or Plnt Bio 300.

612  Principles of Grassland Management UGRD 5
Plant-animal requirements and correlations in the maintenance, management, and utilization of meadows, pastures, and ranges.
Au Qtr. 5 cl and 1 field trip per qtr.

621  Crop Physiology UGRD 5
A study of basic physiological processes in plants and how they impact crop production and productivity.
Au Qtr. 5 cl. Prereq: 300 or Plnt Bio 300 or PCMB 300 or grad standing.

625  Crop Breeding UGRD 4
Principles of genetics and methods of plant breeding applied to the improvement of crops and the ultimate development of superior varieties.
Au Qtr. 3 cl, 1 2-hr lab. Prereq: 200 or 300.

630  International Seed Production UGRD 3
The study of seed production principles (from flowering/fruit set through seed quality assessment and seedling establishment) from a physiological and ecological perspective.
^* Sp Qtr. 2 1.5-hr cl. Prereq: 420 or permission of instructor.

636  Mineral Nutrition of Plants UGRD 4
Process of uptake, transport, and metabolism of mineral nutrients, with emphasis on nitrogen, and on process at the tissue and cellular level.
^* Sp Qtr. 2 2-hr cl. Prereq: Plnt Bio 300 or H&CS 621 or equiv. Offered odd years.

665  Environmental Microbiology UGRD 3
The role of microorganisms and underlying biological principles in elemental cycles and degradation of natural and man-made compounds.
^* Au Qtr. 3 cl. Prereq: Chem 251 and Microbiol 509 or 520. Not open to students with credit for Microbiol 665. Cross-listed in Microbiology.

670  Golf Courses and Their Environments UGRD 3
Principles and practices of golf course design for sustainability.
Wi Qtr. 1 2-hr cl, 1 2-hr lab. Prereq: 270 or permission of instructor.

683H  Honors Project UGRD 1-10
Conducting and reporting the honors project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Agr H590.01, enrollment in honors program, and permission of honors supervisor. Repeatable to a maximum of 10 cr hrs as H603 or in combination with 293, 593, H599, 693, or H693. This course is graded S/U.

693  Individual Studies UGRD 1-5
Special problems in crop science, landscape horticulture and turf science, not included in regular courses and involving library, laboratory, or field studies.
Su, Au, Wi, Sp Qtrs. Prereq: 2.50 CPRH and written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694  Group Studies UGRD 1-5
Special group studies in the areas of crop science, landscape horticulture, and turf science.
Su, Au, Wi, Sp Qtrs. Prereq: Sr or grad standing. Repeatable to a maximum of 15 cr hrs.

697.01  Study at a Foreign Institution: The Constructed Landscape I: British and American Contrasts UGRD 5
An opportunity for students to study at a foreign institute and receive Ohio State credit for that work. Preparation for study of constructed landscapes in their geographic and social contexts at Myerscough College, England.
Su Qtr. 4 2-hr cl, 2 2-hr labs. Prereq: Written permission of program coordinator. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as, travel and subsistence costs.

697.02  Study at a Foreign Institution: The Constructed Landscape II: Evolution of English Landscapes UGRD 5
An opportunity for students to study at a foreign institute and receive Ohio State credit for that work. Study of the factors that have shaped landscape horticulture in Britain.
Sp Qtr. Arr. Prereq: Written permission of program coordinator. Prereq: 438, 593 (2 cr). Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as, travel and subsistence costs.

697.03  Study at a Foreign Inst: Constructed Landscape III: Landscape Industry and Operations in Britain UGRD 5
An opportunity for students to study at a foreign institute and receive Ohio State credit for that work. Study of the structure and operations of landscape industries in Britain.
Su Qtr. Arr. Prereq: Written permission of program coordinator. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as, travel and subsistence costs.

697.04  Study at a Foreign Institution: Agriculture and Agro-Ecosystems in Chile UGRD 3
An opportunity for students to study at a foreign institute and receive Ohio State credit for that work. 9-day study abroad to introduce students to Chile and the many facets of the agricultural phenomena that has transformed Chile's place in the global market, focusing on the structure of Chilean agricultural system.
Au Qtr. Arr. Prereq: Concurrent registration in 583 or 683, written permission of program coordinator, and permission of instructor. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as, travel and subsistence costs.

697.05  Study at a Foreign Institution: Latinos in Land Based Industries: Going to the Source UGRD 3
An opportunity for students to study at a foreign institute and receive Ohio State credit for that work. An 8-day study tour in Mexico. Participants encounter the Latino workforce on their home ground and embrace their culture, history and geography and the effects of immigration.
Au Qtr. Arr. Prereq: Concurrent registration in 294 or 693, and permission of program coordinator. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as, travel and subsistence costs.
730 Seed Physiology  UGRD 3
The study of seed development, maturation, storage, dormancy and germination from a physiological perspective.
* Sp Qtr. 3 1-hr cl. Prereq: 420 recommended or permission of instructor. Not open to students with credit for 631. Alternate every even years.

761 Crop Secondary Products for Survival,  UGRD 5
Health and Welfare
The synthesis, metabolism and agricultural, industrial, medicinal or aesthetic uses of crop secondary products affecting our daily lives.
Wi Qtr. 2 2.5-hr cl. Prereq: 300 or PCMB 300, Chem 231 or equiv course.

804 Seminar  GRAD 1
Seminar.
Au, Wi, Sp Qtrs. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

806 Methods in Plant Sciences  GRAD 2
Study and application of methods in plant science.
Su, Au, Wi, Sp Qtrs. 2 hrs. Prereq: Grad standing. Repeatable to a maximum of 10 cr hrs.

821 Advanced Crop Physiology  GRAD 5
An advanced study of the interaction of crops with their environment with special emphasis on the physiological basis for the responses to biotic and abiotic stress.
Wi Qtr. 5 cl. Prereq: 621 or equiv. Not open to students with credit for 622.

825 Advanced Plant Breeding  GRAD 3
Theory and methods of plant improvement; statistical genetics, methods for self- and cross-fertilizing crops, chromosomal manipulation.
Su, Au, Wi, Sp Qtr. 2 1.5-hr cl. Prereq: 625 or 887 or permission of instructor.

830 Current Topics in Horticulture and Crop Science  GRAD 2
Readings from the current literature will be examined in detail for both technical and conceptual content.

887 Techniques of Experimental Design  GRAD 5
A study of experimental designs and their application to agricultural research.
Sp Qtr. 5 cl. Prereq: Mol Gen 650 or Stat 528 or permission of instructor.

894 Group Studies  GRAD 1-5
Advanced topics in horticulture and crop science.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs.

993 Individual Studies  GRAD 1-5
Students may select special problems not included in regular courses.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

999 Research  GRAD 1-18
Research for thesis or dissertation research only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

### Human Development And Family Science

289.01 Introductory Early Education and Care  UGRD 3
Field Experience
Directed observation/participation in child care/pre school programs.
Su, Au, Wi, Sp Qtrs. 8-hrs per week practicum. Prereq: 2.00 CPRH, written permission of instructor. Open only to students in HDFS Pre-HDFS CAP code. Application must be filed in dept office the quarter preceding the experience. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

294 Group Studies  UGRD 2-5
Selected topics in human development and family science.
Prereq: Open to students who meet dept's stated prereqs. Repeatable to a maximum of 10 cr hrs.

334 Methods in Human Ecology Research  UGRD 5
Introduction to the fundamental elements of human ecology research, using qualitative quantitative, and historical perspectives.
Au, Wi, Sp Qtrs. 2 2.5-hr cl.

360 Family Development  UGRD 5
Dynamics of family interaction over the life cycle; emphasis on developmental, social and cultural influences on the family experience.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl, 1 hr arr. BER/GEC/LAR course.

361 Introduction to Child Development  UGRD 5
Study of the nature, nurture, and development of children from conception through the beginning school years.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl, 1 2-hr lab. BER/GEC/LAR course.

362 Middle Childhood and Adolescence  UGRD 4
Introduces students to the current theory and research on development during the middle childhood and adolescent years.
Su, Au, Wi, Sp Qtrs. 2 1.5-hr cl, 1 hr arr.

363 Infant-Toddler Development  UGRD 5
Examination of the behavior and development of children and issues of care throughout the periods of infancy and toddlerhood.
Sp Qtr. 2 2-hr cl, 2 hr arr. Prereq: 361 or 364.

364 Life Span Human Development  UGRD 5
Survey of human development across the life span directed toward an applied understanding of the individual and forces that shape development.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl, 1 hr arr. BER/GEC/LAR course.

365 Practicum in Infant-Toddler Education and Care  UGRD 5
Participation in infant-toddler laboratory as a student teacher.
Su, Au, Wi, Sp Qtrs. 8 hrs/wk practicum; 1 1.5-hr seminar. Prereq: 363. Open to Human Development and Family Science majors only.

367 American Family Issues  UGRD 5
Development of writing, presentation, and oral discussion skills while critically examining family and related community issues.
Au, Wi, Sp Qtrs. 2 2.5-hr cl. Prereq: English 110 or 111 or equiv; and soph standing. GEC/LAR course.

370 Human Sexuality in Context  UGRD 5
Examination of issues in human sexuality across the lifespan in the context of people's lived experiences within families, communities, and society, using film, texts, and narratives.
Au, Wi, Sp Qtrs. 2 2-hr cl, 1 hr arr.

461 Guidance of Young Children in Groups  UGRD 3
Application of principles of development to guidance of children in groups; modification of experiences for age level, ability, group, and individual needs.

462 Seminar: Human Service Organizations  UGRD 3
Application of principles of family development to program planning; discussion of family needs and design of techniques to assess needs and ways to provide services.

463 Practicum: Child and Family Studies  UGRD 3
Participation in the HDFS preschool laboratory classroom as a student teacher.

464 Constructing a Curriculum Model for Young Children  UGRD 3
In-depth examination of the HDFS Laboratory School curriculum model from theory to practice.

465.01 Preschool Practicum  UGRD 5
Participation in the HDFS preschool laboratory classroom as a student teacher.

465.02 Practicum: Child and Family Studies  UGRD 3
Participation in the HDFS preschool laboratory classroom as a student teacher.
Application of theory included in 461 and 464.

466 Seminar: Human Service Organizations  UGRD 3
Application of principles of family development to program planning; discussion of family needs and design of techniques to assess needs and ways to provide services.

467 Individual and Family Helping Skills  UGRD 3
The study of various strategies and techniques used in working with individuals and families in the context of family service organizations.

468 Advanced Family Development  UGRD 3
Explores family development and family relations across the lifespan, primarily from family systems perspective.

560 Supervised Infant-Toddler/Preschool Teaching  UGRD 10-15
Student teaching in infant-toddler or preschool classrooms.

570 Adolescent Development: A Biopsychosocial Perspective  UGRD 3
Comprehensive overview of the biological, psychological, and social development of the adolescent.
* Wi Qtr. 2 1.5-hr cl. Prereq: 364.
589.01 Introduction to Field Work UGRD 5-10
Planned professional experience with children, youth, or adults in a community agency/setting. First quarter planned participation in community agency learning roles and responsibilities.
Su, Wi Qtr. 12 hrs/wk at human service agency, 1 hr cl. Prereq: 466, 4th yr standing, 2.50 CPRH, and written permission of instructor. Repeatable to a maximum of 10 cr hrs. Dept application must be filed 2 qtr in advance. Students must enroll in 2 consecutive qtrs of field work. Open only to dept majors in family studies option.

589.02 Advanced Field Work UGRD 5
Planned professional experience with children, youth, or adults in a community agency/setting. Second quarter planned participation in community agency with increased responsibility for program development and evaluation.
Wi, Sp Qtrs. 12 hrs/week at human service agency, 1 hr cl. Prereq: 589.01. Repeatable to a maximum of 10 cr hrs. Students must enroll in 2 consecutive qtrs of field work. Open only to dept majors in family studies option.

590 Practicum in Human Development and Family Science Research UGRD 1-5
Provides students with opportunity to work individually with faculty member on research project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Jr or sr standing; Psych 220 or equivalent, and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

593 Individual Studies UGRD 1-5
Problems in various phases of human development and family science chosen for individual study.
Su, Au, Wi, Sp Qtrs. 1 or more conf. 593H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Written permission of instructor and completion of individual study plan form. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

595 Professional Development UGRD 2
The professional: performance, role in society, position securement, involvement in organizations, and continuing development.
Su, Au, Wi, Sp Qtrs. 1-5 hr cl. Prereq: 4th yr standing in HDFS and completion of a minimum of 20 cr hrs in major in dept.

597.01 International Family Issues: Middle East UGRD 5
A practical problem-solving approach to the study of perennial family issues within the context of a given region of the world.
Su, Wi, Au Qtrs. Prereq: Sr standing. Not open to students with credit for FCS Ed 597.01. GEC/LAR contemporary issues course.

597.02 International Family Issues: Sub-Saharan Africa UGRD 5
A practical problem-solving approach to the study of perennial family issues within the context of a given region of the world.
Su, Au, Wi, Sp Qtrs. Prereq: Sr standing. Not open to students with credit for FCS Ed 597.02. GEC/LAR contemporary issues course.

600 Children and Their Families Under Stress UGRD 3
Examination of normative and developmental stressors and crises that impact on the development of children; implications for practitioners drawn from conceptual frameworks and recent research.
Su, Au, Wi, Sp Qtrs. 2-1.5 hr cl. Prereq: 360 or 364 or Sociol 430 or Psych 340, and rank 3 or grad standing.

601 Advanced Child Development Practicum UGRD 3-5
A series of courses focusing on issues, attitudes, behaviors and social exchanges pertinent to adult development, including the experience of normal and non normative aging. Examination of change and continuity in human development from young adulthood to very old age using a psycho-social-biological perspective.
Su, Wi, Sp Qtrs. 1-5 hr cl. Prereq: 360 or 364 or 390 430 or Psych 340, and rank 3 or grad standing.

602 Multicultural Programming for Young Children UGRD 3
Utilizing a variety of teaching and learning methods, students begin to develop an understanding of and appreciation for the diversity and how it relates to programming for young children.
Su, Au, Wi, Sp Qtrs. 1-2.5 hr cl.

603 Infant Development UGRD 3
Infant development during first two years of life with special consideration of bases of support for provision of effective care.
Au Qtr. 1-2 hr cl, 1-2 hr lab arr. Prereq: 361 or 363 or Psych 550.

605 Parenting UGRD 3
Identification and examination of the theoretical approaches applicable to child rearing in families; emphasis on developing practical skills for working with parents and children.
Su, Au, Wi, Sp Qtrs. 2-1.5 hr cl. Prereq: 360 or 364 or Sociol 430 or Psych 340, and rank 3 or grad standing.

607 Administration of Agencies Serving Children and Families GRAD 3
Study of the administration of child care program and other family service agencies; topics include program objectives, regulations, program development and evaluation, staff development and training, and budget and funding.
Su Qtr. 2.5 hr cl, 1 hr arr. Prereq: 465.01 or 465.02 or equiv and written permission of instructor.

609 Comparing Program Philosophies for Young Children GRAD 3
Exploration of a variety of philosophies and resultant practices in caring for and educating young children in day care and pre school situations.
Wi Qtr. 2-1.5 hr cl. Prereq: 464, or permission of instructor, and sr standing or higher.

670.01 Adult Developmental Issues: Adult Development and Aging UGRD 3
A series of courses focusing on issues, attitudes, behaviors and social exchanges pertinent to adult development, including the experience of normal and non normative aging. Examination of change and continuity in human development from young adulthood to very old age using a psycho-social-biological perspective.
Su, Wi Qtr. 1-2.5 hr cl. Prereq: 360 or 364 or 365 430 or Psych 390, and rank 3 or grad standing.

670.02 Adult Developmental Issues: Human Sexuality UGRD 3
A series of courses focusing on issues, attitudes, behaviors and social exchanges pertinent to adult development, including the experience of normal and non normative aging. Examination of the intellectual, physical, and social-emotional aspects of human sexuality. Focus on how sexual issues impact human development, attitudes, relationships, values and choices.
Au, Wi, Sp Qtrs. 1-2.5 hr cl. Prereq: 360 or 364. Graduate students must concurrently register for 1 cr hr of HDFS 793.

670.03 Adult Developmental Issues: Courtship and Marriage UGRD 3
A series of courses focusing on issues, attitudes, behaviors and social exchanges pertinent to adult development, including the experience of normal and non normative aging. Consideration of issues and problems pertinent to support systems of older adults.
Sp Qtr. 1-2.5 hr cl. Prereq: 360, 364, and jr or higher standing.

689.01 Advanced Child Development Practicum UGRD 3-5
Special advanced supervised teaching experience with children ages three to five; emphasis on analysis of relationships among teacher behaviors, child characteristics, environmental factors, and learning outcomes.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 465.01, 465.02, 3rd or 4th yr standing, 2.25 CPRH, and written permission of instructor. Application must be approved by instructor the quarter preceding registration. Repeatable to a maximum of 8 cr hrs.

689.02 Curriculum Planning and Interdisciplinary Strategies for Serving Delayed Young Children UGRD 3-5
An opportunity for putting professional research and theory into practice by teaching, administrative, and agency experiences under supervision in university or agency settings. Practicum experience for students who are interested in working with moderately, severely and profoundly developmentally delayed young children and their families in an educational setting.
Wi, Sp Qtrs. Prereq: 361 or equiv, and Psych 571 or Ed-S&R 651 or Edu PAES 650, 3rd or 4th yr standing, 2.25 CPRH, and written permission of instructor. Application must be approved by instructor the quarter preceding registration. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.
689.04 Advanced Infant-Toddler Practicum UGRD 3-5
An opportunity for putting professional research and theory into practice by teaching, administrative, and agency experience under supervision in university or agency settings. Advanced supervised teaching experience with children between birth to three years of age. Su, Au, Wi, Sp Qtrs. 2 hrs lab time weekly/credit hr enrolled. Prereq: 3rd or 4th yr standing, 2.25 CPRH, and written permission of instructor. Application must be approved by instructor the quarter preceding registration. Prereq: 365 or permission of instructor. Repeatable to a maximum of 8 cr hrs.

694 Group Studies UGRD 2-5
Selected topics in human development and family science. Prereq: Open to students who meet dept's stated prereqs. Repeatable to a maximum of 10 cr hrs.

695.01 Special Topics in Child Development GRAD 3
Review, interpretation, and evaluation of current literature and research in defined areas. Special topics seminar with a content focus on child development. Prereq: 360, 361, and sr or grad standing.

695.02 Special Topics in Family Development GRAD 3
Review, interpretation, and evaluation of current literature and research in defined areas. Special topics seminar with a content focus on family development. Prereq: 360, 361, and sr or grad standing.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only. This course is graded S/U.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only. This course is graded S/U.

699 Undergraduate Research in Human Development and Family Science UGRD 0-15
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 20 cr hrs. This course is graded S/U.

701.02 Issues in HDFS: Program Development GRAD 1
Current issues and trends and methods in the interdisciplinary curricula and instructional resources in the field of human development and family science. Prereq: Jr, Sr, or grad standing in HDFS or permission of instructor. This course is graded S/U.

701.03 Issues in HDFS: Research GRAD 1
Current research trends and methods in the interdisciplinary field of human development and family science. Prereq: Jr, Sr, or grad standing in HDFS or permission of instructor.

719 Early Intervention Interdisciplinary Team Dynamics GRAD 3
Interdisciplinary team-taught course with a focus on early intervention/early childhood education services for children birth to three and their families. Au Qtr. 2.5-hr cl. Prereq: Permission of instructor. Not open to students with credit for Alli Med 719, Edu PAES 719, Nursing 719, or SpH/Hng 719. Cross-listed in Education: Physical Activity and Educational Services, Nursing, and Speech and Hearing Science.

760 Research Process Analysis GRAD 5
Overview of research methods and related conceptual issues relevant to study of human development and family science; creative approaches to research problems. Au Qtr. 1 2.5-hr cl, 2 hr lab. Prereq: An undergraduate research methods class.

764 Foundations and Issues in Family Science GRAD 4
Theory, research, and methods used to study family development; individual and family developmental tasks over the life span; personal and social context of family development. Au Qtr. 1.3-hr cl. Prereq: 360 and 364, or equivs with written permission of instructor.

765 Advanced Child Development GRAD 4
Growth and development of children through adolescence with emphasis on maturation patterns and individual differences. Wi Qtr. 2.5-hr cl, 2 hrs arr. Prereq: 360, and 361 or Psych 550, or equiv with written permission of instructor.

770 Ethical and Professional Issues in Couple and Family Therapy GRAD 4
A preclinical introduction to the central issues and resources in professional development, including personal growth, legal responsibilities, regulation, ethics, and special areas of practice. Wi Qtr. 3.5-hr. cl.

793 Individual Studies UGRD 1-5
Problems in various phases of human development and family science. Su, Au, Wi, Sp Qtrs. 1 or more conf. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

810 Divorce and Remarriage GRAD 3
Analysis of research and theory pertaining to the process of marital dissolution, adjustment, and remarriage. Wi Qtr. 1.3-hr cl. Prereq: 764 and 765 or equiv and permission of instructor, 6 cr hrs in research methods, design, or statistics.

820 Family Theory GRAD 3
Explores major theoretical perspectives of the field of family science as well as strategies for developing theory. Wi, Sp Qtrs. 1.2.5-hr cl. Prereq: 764.

824 General Systems Theory GRAD 4
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. Au Qtr.

825 Theories of Development Across the Lifespan GRAD 3
Examination of foundational theories of human development as an emphasis on evaluating, comparing and contrasting the major theories. Wi Qtr. 1.2.5-hr cl. Prereq: 764, 765; doctoral standing or permission of instructor.

840.01 Seminars in Adolescence: Adolescents and Their Families GRAD 3
A multidisciplinary analysis of theory and research bearing on the topic of changing parent-child relationships during the period when children are adolescents. Au Qtr. 1.2.5-hr cl. Prereq: 760, 764, 765; or permission of instructor. One of series will be offered each year.

840.02 Seminars in Adolescence: The Differentiation Process and the Social Context GRAD 3
Comprehensive overview of the differentiation construct's utilization in family theory, research, and clinical practice. Sp Qtr. 1.2.5-hr cl. Prereq: 760, 764, 765; or permission of instructor. One of series will be offered each year.

840.03 Seminars in Adolescence: The Individuation Process in the Context of the Family GRAD 3
A review and analysis of research on the process of individuation during the developmental period of adolescence in the context of the family. Wi Qtr. 1.2.5-hr cl. Prereq: 760, 764, 765; or permission of instructor. One of series will be offered each year.

840.04 Seminars in Adolescence: Risks in Context GRAD 5
Examines the ways that social relationships and contexts (family, peers, community, etc) shape development, specifically risk and problem behavior during the adolescent period. 1 3-hr cl, 1 2-hr lab. Prereq: 760, 764, 765; or permission of instructor. One of series will be offered each year.

850 Measurement and Assessment in the Study of Children and Families GRAD 3
Examination of measurement techniques, instruments, and methods which are used by family researchers to assess children and families. Au Qtr. 1 2.5-hr cl. Prereq: 760 and one other research course or permission of instructor.

851 Practicum in Research GRAD 1-5
Participation in the research process under the supervision of a faculty member. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Grad standing and permission of instructor. Repeatable to a maximum of 20 cr hrs. A maximum of 5 hrs of 851 may be included in a student's program of study. This course is graded S/U.

852 Practicum in Teaching GRAD 1-5
Supervised college teaching experience for department graduate students. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Grad standing and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

861 The Family: Middle and Later Years GRAD 3
The interrelationship and adjustment of families with emphasis on the middle and late years of the life cycle. * Au Qtr. 1 2.5-hr cl. Prereq: 764 or equiv with written permission of instructor, and 6 cr hrs in research methods, design, or stat.
### Seminar in Human Development and Family Science
- **Topics:** To be announced.
  - **Au, Wi, Sp Qtrrs:** 1.25-hr cl. Prereq: Grad standing in human ec or written permission of instructor; and 6 cr hrs in research methods, design or stats. Repeatable to a maximum of 24 cr hrs.

### Infant Caregiving Contexts
- **Review and critical analysis of recent theoretical and research literature relevant to the design and evaluation of infant care settings.**
  - **Sp Qtrr:** 1.25-hr cl. Prereq: 663 or equiv with permission of instructor, and 6 cr hrs in research methods, design, or stat.

### Contemporary Issues in Group Experiences for Young Children
- **Identification and examination of current practices in group experiences for children under five; emphasis on current issues, relevant research and theory as related to curriculum.**
  - **Sp Qtrr:** 1.25-hr cl. Prereq: 15 cr hrs of child development and/or child psychology, supervised student teaching or experience in nursery schools or day care centers, and 3 cr hrs in research methods, design, or stat.

### Play and Development
- **Examination of research on play, including development, special populations, and ways of encouraging and studying play.**
  - **Au Qtrr:** 1.25-hr cl. Prereq: 765 or equiv grad course in human development or play, or permission of instructor.

### Current Trends and Issues: Men in Families
- **A developmental analysis and assessment of the empirical and theoretical literature on male role performance in family systems with implications derived for research and social policy.**
  - **Sp Qtrr:** 1.25-hr cl. Prereq: 764 and 765 or equiv; 6 cr hrs in research methods, design or stats, or permission of instructor. Repeatable to a maximum of 12 cr hrs.

### Current Trends and Issues: Women in Families
- **An analysis and assessment of the theoretical and empirical literature on women’s roles in family systems.**
  - **Au Qtrr:** 1.25-hr cl. Prereq: 764 and 765 or equiv; 6 cr hrs in research methods, design or stats, or permission of instructor. Repeatable to a maximum of 12 cr hrs.

### Family Systems Assessment
- **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.**
  - **Sp Qtrr:** 3.5-hr cl. Prereq: 760 and 770.

### Family Therapy Theory I
- **An emphasis on the theoretical orientation of the structural, strategic, MRI, and Milan approaches to family therapy.**
  - **Au Qtrr:** 1.35-hr cl. Prereq: 650 or permission of instructor.

### Family Therapy Theory II
- **An emphasis on the theoretical orientation of the intergenerational, behavioral, experimental and solution-focused approaches to family therapy.**
  - **Wi Qtrr:** 1.35-hr cl. Prereq: 650 or permission of instructor.

### Couple Therapy Theory
- **An emphasis on theoretical approaches, intervention techniques, and basic issues or problems of application for couple therapy.**
  - **Au Qtrr:** 3.5-hr cl. Prereq: 874 or 875.

### Supervision of Couple and Family Therapy
- **Preparation of Couple and Family Therapy doctoral students to provide supervision of therapy.**
  - **Su Qtrr:** 1.2-hr cl; 4 hrs. practicum. Prereq: 889 and enrollment in Couple and Family Therapy Program, or permission of instructor.

### Seminar in Couple and Family Therapy
- **Topics to be announced.**
  - **Su, Wi, Sp Qtrrs:** 3.5-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

### Research in Couple and Family Therapy
- **Explore major design, measurement and analysis strategies for conducting and understanding couple and family therapy research.**
  - **Wi Qtrr:** 1.35-hr cl. Prereq: 6 hrs of measurement, design or analysis.

### Practicum in Couple and Family Therapy
- **Supervised practice in couple and family assessment and intervention in the department’s couple and family therapy clinic.**
  - **Su, Au, Wi, Sp, Qtrrs:** 6 cr hrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

### Group Studies
- **Selected topics in human development and family science.**
  - **Prereq:** 6 cr hrs in research methods, design or stat; and stated prereqs for specific topics. Repeatable to a maximum of 10 cr hrs.

### Supervised Field Experience in Family Therapy
- **Supervised practice in couple and family assessment and intervention in an agency setting.**
  - **1-5 client contact hrs per week. Prereq:** Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

### Individual Studies
- **Problems in various phases of human development and family science.**
  - **Su, Au, Wi, Sp Qtrrs:** 1 or more conf. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

### Research: Thesis
- **Research for master's thesis.**
  - **Su, Au, Wi, Sp Qtrrs:** Repeatable. This course is graded S/U.

### Research: Dissertation
- **Research for thesis or dissertation purposes only.**
  - **Su, Au, Wi, Sp Qtrrs:** Repeatable. This course is graded S/U.

### Human Ecology
- **Introduction to Human Ecology Survey**
  - **UGRD:** 1

### Human Nutrition
- **Basic principles of biological science involving interactions between nutrients and physiological processes with emphasis on implications for human health.**
  - **Su, Au, Wi, Sp Qtrrs:** 5 cl. Prereq: Biology 101 or equiv. Not open to students with credit for 310. BER/GEC/LAR course.

### Nutrition and Dietetic Careers
- **Exploration of careers in nutrition/dietetics through self-assessment, informational interviews and employer presentations; information on internships and job search strategies.**
  - **Wi Qtrr:** 1.2-hr cl.

### Fundamentals of Human Nutrition
- **Nutrient and food energy needs of the human biological system throughout the life cycle with consideration of socio-psychological factors.**
  - **Au, Wi, Sp Qtrrs:** 5 cl. Prereq: Biology 101, 110, 113 or equiv; Chem 101 or 121 and Chem 102 or 122. This course is available for EM credit.
593 Individual Studies UGRD 1-10
Problems in various phases of human nutrition chosen for individual study.
Su, Au, Wi, Sp Qtrs. Prereq: Minimum of 6 cr hrs in subject matter of problem with cumulative point-hour ratio of 2.70 or written permission of instructor. Repeatable to a maximum of 10 cr hrs. 1 or more conf. HS93 (honors) may be available to students enrolled in college honors program or eligible for enrollment. This course is graded S/U.

596 Advanced Professional Development UGRD 1
Advanced professional development issues in dietetics: Leadership, marketing, continuing education, licensure, preparation for accredited practice experience/graduate education.
Au Qtr. 1 cl. Prereq: 295 or 595. Open only to seniors in dietetics. Required for students preparing for dietetic internships.

610 Advanced Human Nutrition UGRD 5
Interrelationships of nutrition and human biological functions.
Au Qtr. 3 1.5-hr cl. Prereq: 310 or Anim Sci 330, Biochem 211 and 212 or 511 or MolBioch 311 and 312, EEOb 232 or PhysioCB 311 and 312, or grad standing.

611 Nutrition and Chronic Disease UGRD 5
Examination of relationship between nutrition, dietary intake and chronic disease; introduction to medical nutrition therapy; study of scientific rationale behind applying nutrition principles to disease.
Wi Qtr. 3 1.5-hr cl. Prereq: 610 or Med Diet 545.

612 Medical Nutrition Therapy UGRD 5
The role of medical nutrition therapy in the treatment of established disease with emphasis on the biochemical and physiological rationale for dietary modifications.
Sp Qtr. 3 1.5 cl. Prereq: 610 or Med Diet 545, 611 and Med Diet 546. Not open to students with credit for 612.01 or 612.02.

694 Group Studies UGRD 1-5
Selected topics in human nutrition.
Prereq: Open to students who meet dept's stated prereqs. Repeatable to a maximum of 10 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress ("P") graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only. This course is graded S/U.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only. This course is graded S/U.

699 Undergraduate Research in Human Nutrition UGRD 0-15
Undergraduate research in areas of study related to the unit and the instructor's research agenda.
699H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

704 Nutrition Programs and Services in the Community UGRD 3
Study of nutrition in the community including nutrition resource assessment, program goals, target audiences, funding, legislation, policy formation, quality assurance and delivery of programs.
Sp Qtr. 2 cl, 2 3-hr lab. Prereq: 504 and 506.

705 Nutrition and Exercise UGRD 3
Theoretical and applied framework for making dietary decisions for exercising populations.
Wi Qtr. 2 cl, 3-hr lab. Prereq: Advanced coursework in nutrition, physical and biochemistry and permission of instructor.

710 Physiological Basis for Food Utilization UGRD 5
Advanced concepts of human nutrition integrating physiological, biochemical, and nutritional functions relevant to food utilization.
Wi Qtr. 3 1.5-hr cl. Prereq: 610 or equiv.

761 Carbohydrate and Lipid Metabolism GRAD 5
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.
Wi Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv; Humn Ntr 610 or Anim Sci 630.01 OR grad standing or permission of instructor. Not open to students with credit for Fs Sc&Te 761 or Anim Sci 761. Cross-listed in Food Science and Technology and Animal Sciences.

762 Principles of Nutrient Metabolism GRAD 5
In-depth examination of the cellular and molecular mechanisms responsible for regulation of nutrient transport and metabolism with focus on the utilization of dietary protein.
Au Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv; Humn Ntr 310 or Anim Sci 330 OR grad standing or permission of instructor. Not open to students with credit for Fs Sc&Te 762 or Anim Sci 762. Cross-listed in Food Science and Technology and Animal Sciences.

763 Vitamin and Mineral Metabolism GRAD 5
In-depth treatment of biochemical functions, absorption, transport, utilization, interrelationships and nutritional requirements of the vitamins and minerals in humans and other higher animals.
Sp Qtr. 3 1.5-hr cl. Prereq: Biochem 511 or equiv; Humn Ntr 610 or Anim Sci 630.01 or 630.02 OR grad standing or permission of instructor. Not open to students with credit for Anim Sci 763 or Fs Sc&Te 763. Cross-listed in Animal Sciences and Food Science and Technology.

789.01 Practicum in Community Nutrition GRAD 4
Supervised practice in community assessment, program development and delivery of programs and services to promote health and nutrition.
Au Qtr. 36 hr/wk. Prereq: Permission of instructor.

789.02 Practicum in Medical Nutrition Therapy GRAD 4
Supervised practice in medical nutrition therapy.
Wi Qtr. 36 hr/wk. Prereq: Nutrition Education, Medical Nutrition Therapy. Permission of instructor.

789.03 Practicum in Nutrition and Food Management GRAD 4
Supervised practice in applying concepts of management to nutrition of food program and services.
Sp Qtr. 36 hr/wk. Prereq: Permission of instructor.

793 Individual Studies UGRD 1-10
Problems in various phases of human nutrition chosen for individual study.
Su, Au, Wi, Sp Qtrs. 1 or more conf. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

802.02 Seminar: Advanced Topics in Human Nutrition GRAD 3
Advanced Topics in Human Nutrition.
^ Su, Au, Wi, Sp Qtrs. Prereq: Advanced course work in seminar topic. Repeatable to a maximum of 15 cr hrs.

802.04 Seminar: Human Nutrition GRAD 3
Human Nutrition.
Au Qtr. Prereq: Advanced course work in seminar topic. Repeatable to a maximum of 15 cr hrs.

804 Advanced Community and International Nutrition GRAD 5
Nutrition
Prepares students for nutrition field studies in immigrant or international communities.
Students gain knowledge and skills to plan, implement and evaluate a community or international project.
Sp Qtr. 3 1.5-hr cl. Prereq: 704 or equiv; community nutrition course or permission of instructor. Offered during odd numbered years.

806 Advanced Nutrition Education GRAD 5
Teaches nutrition education skills related to theories, models and methodologies for designing, implementing and evaluating community-based programs in nutrition education.
Sp Qtr. 3 1.5-hr cl. Prereq: 704 or permission of instructor. Offered during even numbered years.

830.01 Advanced Studies: Energy/Lipids GRAD 5
Advanced concepts in nutrition: Energy/Lipids.
Sp Qtr. 5 cl. Prereq: 610 or Anim Sci 530; Fs Sc&Te 761 and 762; 10 grad cr hrs in physiol. Prereq: Fs Sc&Te 761. Not open to students with credit for Anim Sci 830 or Fs Sc&Te 830. Cross-listed in Animal Sciences and Food Science and Technology.

830.02 Advanced Studies: Vitamins/Minerals GRAD 5
Advanced concepts in nutrition: Vitamins/Minerals.
Wi Qtr. 5 cl. Prereq: 610 or Anim Sci 530; Fs Sc&Te 761 and 762; 10 grad cr hrs in physiol. Prereq: Humn Ntr 763. Not open to students with credit for Anim Sci 830 or Fs Sc&Te 830. Cross-listed in Animal Sciences and Food Science and Technology.
830.09 Advanced Studies: Food and Nutritional Toxicology
Advanced concepts in nutrition.
Basic principles in food and nutrition toxicology focused on interactions of nutrients and food toxicants; role of diet in carcinogenesis and safety assessment. Au Qtr. Prereq: 610 or Anim Sci 530; Fd Sc&Te 761 and 762; 10 grad cr hrs in physiol. Prereq: Fd Sc&Te 761, 762, Humn Ntr 610 or Anim Sci 630.01 and 630.02 or permission. Not open to students with credit for Anim Sci 830 or Fd Sc&Te 830. Cross-listed in Animal Sciences and Food Science and Technology.

830.10 Advanced Studies: A Comprehensive Approach to Food Safety
Advanced concepts in nutrition.
Course provides a comprehensive overview of food safety issues, challenges and solutions across the food chain from farm to table. Wi Qtr. 1 3-1 hr cl. Prereq: 610 or Anim Sci 530; Fd Sc&Te 761 and 762; 10 grad cr hrs in physiol. Prereq: Microbiol 509 and introductory level course in nutrition or food science or permission of instructor. Not open to students with credit for Anim Sci 830 or Fd Sc&Te 830. Cross-listed in Animal Sciences and Food Science and Technology.

830.11 Advanced Studies: Nutrition-Endocrine Interactions in Women's Health
Advanced concepts in nutrition.
Examination of the historical and emerging research in the area of diet-endocrine interactions and women's health.

830.12 Advanced Studies: Diet, Nutrition and Cancer
Advanced concepts in nutrition.
Analysis of linkages between diet, nutrition and cancer including dietary interactions with molecular and metabolic processes involved in carcinogenesis and current research methodologies. Au Qtr. 2 2-1 hr cl. Prereq: 610 or Anim Sci 530; Fd Sc&Te 761 and 762; 10 grad cr hrs in physiol. Prereq: 761, 762 or FdSc&Te 761, 762 or Anim Sci 761, 762 or grad standing or permission of instructor. Not open to students with credit for Anim Sci 830 or Fd Sc&Te 830. Not open to students with credit for Fd Sc&Te 830.12 and Anim Sci 830.12. Cross-listed in Animal Sciences and Food Science and Technology. Cross-listed with Fd Sc&Te 830.12 and Anim Sci 830.12.

889 Nutrition Research: Principles and Techniques
Introduction to principles and techniques frequently used for evaluating dietary adequacy, nutritional status and nutrient metabolism and functions. Au Qtr. 2 cl, 3 hrs lab. Prereq: Grad standing or permission of instructor.

890 Nutrition Field Research Experience
Individual graduate students will participate in field research. Students will travel to location for their project. A contract will establish the expectations for the experience. Su Qtr. Arr. Prereq: 804 or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

894 Group Studies
Selected topics in human nutrition.
Prereq: Open to students who meet dept's stated prereqs. Repeatable to a maximum of 10 cr hrs.

895 Seminar
Presentations by students, faculty, and visiting scientists with critical discussion of issues in human nutrition. Au, Wi Qtr. Arr. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

898 Interdepartmental Seminar in Nutrition
A seminar in nutrition and related fields. Sp Qtr. Repeatable to a maximum of 5 cr hrs. Cross-listed in Animal Sciences, and Food Science and Technology. This course is graded S/U.

899 Interdepartmental Seminar
Two or more departments may collaborate in presenting seminars on subjects of mutual interest; topics to be announced.

993 Individual Studies
Problems in various phases of human nutrition chosen for individual study.
Su, Au, Wi, Sp Qtrs. 1 or more conf. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

998 Research: Thesis
Research for master's thesis.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

999 Research: Dissertation
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

100 Humanities Survey
Academic requirements, University procedures, grading system, resources; student rights and responsibilities; overview of Humanities areas of study, Arts and Sciences services.
Au Qtr. 100H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for Fd Sc&Te 100, Arts Col 100.01 or 100.02, Arts&Sci 100 or 100.01 or 100.02, Bio Sci 100, Engineer 100, MPS Col 100, SBS Col 100, or any decimal subdivision of Univ Col 100. This course is graded S/U.

294 Group Studies
Interdisciplinary study under the direct auspices of the College of Humanities involving materials of an interdepartmental or intercollegiate nature.
294H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

450.01 Cultures of Professional Writing: Writing and Its Places
Exploration of the kinds and roles of writing in multiple communities. Prereq: English 110 and any 367.

450.02 Cultures of Professional Writing: Writing in Organizations
Writing that shapes professional organizations; discourse analysis of the written documents produced in these settings. Prereq: English 110 and any 367.

450.03 Cultures of Professional Writing: Writing and New Media
Exploration of how conceptions of writing have changed along with technologies of writing and examination of New Media's role in our experiences as writers. Prereq: English 110 and any 367.

467 Issues and Methods in Tutoring Writing
Theories and practices in tutoring and writing; explores the writing-learning connections and prepares students to work as writing consultants/tutors for small writing groups.
Sp Qtr. Prereq: Not open to students with credit for English 467. Cross-listed in English.

489 Research Internship in the Humanities
Intensive research experience in a humanities discipline; individual instruction within faculty research project; students work as research assistants.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 5 cr hrs. This course is graded S/U.

589 Internship in Professional Writing
Students work on-site in an organization, planning, revising, editing, and producing documents and meet two hours a week to discuss their experiences. 1 2-hr cl, 8-12 hrs onsite. Prereq: 450.01 or 450.02 or 450.03, one additional course toward the minor, and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies
Interdisciplinary study under the direct auspices of the College of Humanities involving materials of an interdepartmental or intercollegiate nature. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

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Hungarian

101.01 Elementary Hungarian I
Development of four skills: listening comprehension, speaking, reading, and writing; introduction to Hungarian culture.
Au Qtr. 2 2-2 hr cl. Not open 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. GEC for lang course. Students must register for and complete 5 cr hrs during the qtr.

101.51 Elementary Hungarian I: Individualized UGRD 1-5 Track
Development of four skills: listening comprehension, speaking, reading, and writing; introduction to Hungarian culture.
Not open 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. GEC for lang course. Repeatable to a maximum of 5 cr hrs. Students register for and complete 1-5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 102.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement.

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Humanities, College of
102.01 Elementary Hungarian II
Further development of the four skills: listening comprehension, speaking, reading, and writing; more work on Hungarian culture.
Wi, Qtr. 2-2 hr cl. Prereq: 101.01 or 5 cr hrs of 101.51. Not open to native speakers of this language through regular course enrollment or EM credit; or to students with 3 or more years of this language in high school, except by permission of dept. GEC for lang courses. Students must register for and complete 5 cr hrs during the qtr.

102.51 Elementary Hungarian II: Individualized
Further development of the four skills: listening comprehension, speaking, reading, and writing; more work on Hungarian culture.
Prereq: 101.01 or 5 cr hrs of 101.51 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit; or to students with 3 or more years of this language in high school, except by permission of dept. GEC for lang courses. Repeatable to a maximum of 5 cr hrs.
Students may register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 103.51. Progress is sequential from one cr hr to the next with proficiency at the level of 80% required for advancement. Students may register for 101.51 and 102.51 concurrently with permission of instructor.

103.51 Intermediate Hungarian I: Individualized
Continuation of 102.51; development of the four skills with emphasis on listening comprehension and reading.
Prereq: 103.01 or 5 cr hrs of 103.51 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. Students register for and complete 1 to 5 hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 104.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 102.51 and 103.51 concurrently with permission of instructor. GEC for lang course. Repeatable to a maximum of 5 cr hrs.

104.51 Intermediate Hungarian II: Individualized
Continuation of 103.51; development of the four skills with emphasis on listening comprehension and reading.
Prereq: 103.01 or 5 cr hrs of 103.51 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 103.51 and 104.51 concurrently with permission of instructor. GEC for lang course. Repeatable to a maximum of 5 cr hrs.

501.01 Advanced Hungarian III
Continuation of Hungarian 407.51; development of speaking, reading, writing, and listening skills in Hungarian at the advanced level; study of contemporary Hungarian culture and society.
Au Qtr. Prereq: Hungarian 407.51 or permission of instructor. Not open to native speakers of Hungarian or students with 3 or more years of study in this language, except by permission of instructor.

502.01 Language Maintenance and Hungarian Culture I
Continuation of Hungarian 501.01; development of speaking, reading, writing, and listening skills in Hungarian at the advanced level; study of contemporary Hungarian culture and society.
Wi Qtr. Prereq: Hungarian 501.01 or permission of instructor. Not open to native speakers of Hungarian or students with 3 or more years of study in this language, except by permission of instructor.

503.01 Language Maintenance and Hungarian Culture II
Continuation of Hungarian 502.01; development of speaking, reading, writing, and listening skills in Hungarian at the advanced level; study of contemporary Hungarian culture and society.
Sp Qtr. Prereq: Hungarian 502.01 or permission of instructor. Not open to native speakers of Hungarian or students with 3 or more years of study in this language, except by permission of instructor.

485 Practical Experience in an Industrial Organization
To be obtained in some engineering or industrial organization; prior adviser approval and final report required.
Su, Au, Wi, Sp Qtrs. Arr cl. Prereq: Majors in ise only. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

500 Introduction to Industrial and Systems Engineering
Introduction to the industrial engineering curriculum and to the profession; technical communication; completion is required prior to beginning advanced portion of the major.
Au, Sp Qtrs. 2 1.5-hr cl. Prereq: or concur: Chem 121, Econ 200, Math 415 or 255 and 568 or 571, Physics 132, Psych 100, Stat 428 and English 367 or equiv. Open to ISE majors only. Not open to students with credit for Ind Eng 500. GEC 3rd writing course.

501 Simulation of Production Systems
Emphasizes the creation and use of simulation models for the design and evaluation of production systems.
Au, Wi Qtrs. 2 1.5-hr cl, 1 3-hr lab. Prereq: 500; Stat 427 and 428, or equiv. Not open to students with credit for Ind Eng 521.

504 Engineering Economic Analysis
Economic analysis of engineering projects and methods of operation; the analysis of public investments, and introduction to the analysis of engineering decisions.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 3rd yr standing or concur with 500 or written permission of instructor; and a minimum cumulative pt-hr ratio of 2.00. Not open to students with credit for Ind Eng 504.

504H Honors Engineering Economic Analysis
Economic analysis of engineering projects using spreadsheet modeling. Economic decision making under uncertainty.
Sp Qtr. 2 cl, 2 1-hr labs. Prereq: 2nd yr standing, enrollment in College of Engineering Honors Program. Not open to students with credit for 504 or Ind Eng 504.

510 Statistical Process Control
Emphasizes the application of statistical methods to product design, process design and operation, and quality engineering.
Au, Sp Qtrs. 2 1.5-hr cl. Prereq: 500; Stat 427 and 428, or equiv. Not open to students with credit for Ind Eng 509.

520 Fundamentals of Linear Optimization with Applications
Emphasizes the formulation, solution and analysis of linear models to optimize the design of production and service systems and other engineering applications.
Au, Wi, Sp Qtrs. 3 cl. Prereq: 500, Math 254, 415 or 255, and 568 or 571. Not open to students with credit for Ind Eng 522.

521 Fundamentals of Nonlinear Optimization with Applications
Emphasizes the formulation, solution, and analysis of nonlinear models to optimize the design of production and service systems and other engineering applications.
Wi, Sp Qtrs. 4 cl, 1 1-hr lab. Prereq: 500. Not open to students with credit for Ind Eng 531.

540 Production Systems Design
This course develops the knowledge and skills to design production systems and their workplace components.
Wi, Sp Qtrs. 3 cl, 1 3-hr lab. Prereq: 501, 520, 521, 540. Not open to students with credit for Ind Eng 532.

541 Facilities Design
Principles and methods for design and analysis of facility layouts, systematic layout planning, production flow analysis, material handling systems, workstation design, Lean Manufacturing.
Au, Sp Qtrs. 3 cl, 1 1-hr lab. Prereq: 501, 504, 520, 521, 540. Not open to students with credit for Ind Eng 532.

542 Design and Implementation of Control Systems
Principles and practices of modern production systems control including scheduling, shop floor control, MRPII systems, theory of constraints, finite capacity scheduling, commercial software, pull scheduling.
Au, Sp Qtrs. 4 cl, 1 1-hr lab. Prereq: 501, 504, 520, 521, 540. Not open to students with credit for Ind Eng 533.

550 Introduction to the Physical Principles of Manufacturing Processes
Applications of the basic principles of transport phenomena to develop physics based models of manufacturing processes.
Wi Qtr. 2 1.5-hr cl. 550H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Math 415; Physics 132; CS&E 201, 202 or En Graph 167. Not open to students with credit for Ind Eng 517.
560 Work Physiology and Biomechanics in Engineering  
6 Work Design  
Investigations of the physiological and biomechanical aspects of work design; anthropometry, biomechanical analysis, physics-control models, and work rest cycles applied to the workplace. 
Au, Wi Qtrs. 2 cl, 1-2-hr lab. Prereq: Mech Eng 410; Stat 427 or equiv., and 3rd yr standing in ise; or permission of instructor. Not open to students with credit for Ind Eng 503.

600 Industrial Engineering Principles  
4 A survey of industrial engineering methods used in industry including optimization, probability and statistics, waiting line models, quality control, simulation models and scheduling methods. 
Au, Wi Qtrs. 4 cl. Prereq: 3rd yr standing or equiv with written permission of instructor. Not open to students in Ise or credit for Ind Eng 534.

601 Computer Application in Industrial Engineering  
3 Process Control  
Provides an introduction to evaluation and design of practical industrial control systems with emphasis on real time data acquisition. 
Au, Sp Qtrs. 2.1-hr cl, 1-2-hr lab. Prereq: En Graph 167 or Cptr/Inf 201 or 202 or equiv., and 4th yr standing in ise or permission of instructor. Not open to students with credit for Ind Eng 620.

602 Automation  
3 A survey of mechanization principles and current design practices involved in the automation of manufacturing operations and processes. 
Au, Sp Qtrs. 2.1-5-hr cl. Prereq: 350 or equiv. Not open to students with credit for Ind Eng 614.

603H Market Engineering and Applications  
4 An introduction to market engineering concepts and applications to contemporary market design problems such as resource allocation, information aggregation, and decentralized control. 
Wi Qtr. Prereq: Econ 200, Math 151-153 or 130-132, Stat 245 or 427, and senior honors standing.

608 Engineering Analysis for Design and Simulation  
4 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. 
Au Qtrs. 2.1-5-hr cl, 1-3-hr lab. Prereq: Eng Mech H210 or 400, or Mech Eng H210 or 400 or 410. Not open to students with credit for Weld Eng 620 or Ind Eng 625. Cross-listed with Weld Eng 620.

610 Planning of Engineering Experiments  
3 Study of the planning of industrial and research experiments. 
Au, Wi Qtrs. 2.1-5-hr cl. Prereq: 520 or written permission of instructor. Not open to students with credit for Ind Eng 610.

615 Automation Laboratory  
1 Application of principles of mechanization to manufacturing operations and processes. 
Au, Sp Qtrs. Prereq or concur: 614.

640 Introduction to Integrated Production Systems  
3 Control Systems  
Introduction to the design and analysis of integrated production control systems, including master scheduling, materials requirement planning, just-in-time systems, sequencing and scheduling. 
Wi Qtrs. 2.1-5-hr cl. Prereq: 520 and 521 or equiv. Not open to students with credit for Ind Eng 680.

650.01 Manufacturing Process Fundamentals:  
3 Introduction to Manufacturing Processes  
Courses in this series teach the fundamentals of manufacturing processes. Fundamentals and analysis of principal manufacturing processes and relationship between process variables and product properties. 
Au Qtr. 3 cl. Prereq: 350 recommended; Eng Mech 220 or 400 or 440, or Mech Eng 410 or 420 or 440. Not open to students with credit for Ind Eng 511.

650.02 Manufacturing Process Fundamentals: Tool Engineering  
4 Courses in this series teach the fundamentals of manufacturing processes. Design of tools, jigs, and fixtures. Basic elements of fixture design, such as form, locating points, clamping devices, and the use of standardized parts. 
Au Qtrs. 2.1-5-hr cl, 1-3-hr lab. Prereq: 350; prereq or concur: 683 or Mech Eng 621. Not open to students with credit for Ind Eng 622 or Mech Eng 622. Cross-listed in Mechanical Engineering.

650.03 Manufacturing Process Fundamentals:  
4 Manufacturing Processes and Simulation  
Courses in this series teaches the fundamentals of manufacturing processes. Introduction to advanced theory and simulation of manufacturing processes, including machining, casting, forming, and injection molding. 
Wi Qtrs. 2.1-5-hr cl, 1-2-hr lab. Prereq: 3rd yr standing in College of Engineering. Not open to students with credit for Ind Eng 607.

651.01 Forming Processes: Machining Processes and Machine Tools  
4 Courses in this series teach the specifics of forming processes. Analysis and application of mechanics, stress analysis, vibrations and heat transfer in material removal processes; machine tool design, machine tool metrology and machine tool control. 
Wi Qtr. 2 cl, 1-3-hr lab. Prereq: Mech Eng 420 or 440, or grad standing. Not open to students with credit for Ind Eng 611.

651.02 Forming Processes: Analysis of Die Casting Processes  
3 Courses in this series teach the specifics of forming processes. Fundamental principle: underlying the die casting process; integration of cast component design, process requirements and economics. 
Wi Qtr. 2.1-5-hr cl. Prereq: Grad or sr standing in Engineering. Not open for students with credit for Ind Eng 602. Cross-listed in Materials Science and Engineering.

651.03 Forming Processes: Net Shape Forming of Automotive Parts  
4 Courses in this series teach the specifics of forming processes. Introduces students to fundamentals of Net Shape Manufacturing with emphasis on interaction of materials, design and manufacturing. 
Sp Qtr. 2.2-hr lab. Prereq: 350, Eng Mech 400, Eng Mech 430; at least Rank 3 standing in the College of Engineering. Not open to students with credit for Ind Eng 666. Repeatable to a maximum of 12 cr hrs.

651.04 Forming Processes: Machine Tool Control and Programming  
4 Courses in this series teach the specifics of forming processes. Provides an introduction to numerically controlled machine tools including principles of operation programming systems, computer assisted programming, performance characteristics, and applications. 
Sp Qtrs. 2.1-5-hr cl, 2.3-hr labs. Not open to students with credit for Ind Eng 623 or Mech Eng 623. Cross-listed in Mechanical Engineering.

652.01 Fundamentals of Fabrication Processes: CAD/CAM Laboratory for Rapid Design Prototyping  
3 Courses in this series teach the fundamentals of precision and rapid fabrication processes. Rapid design prototyping using engineering workstations, CAD/CAM software, table-top CNC milling machines, and rapid prototyping machines. 
Sp Qtrs. 1-2.1-hr cl, 1 or 2-hr lab. Prereq: 655 or Mech Eng 623; and 521 or Mech Eng 561 or grad standing in Mech Eng or Ise. Not open to students with credit for Ind Eng 623 or Mech Eng 683. Cross-listed in Mechanical Engineering.

652.02 Fundamentals of Fabrication Processes: Introduction to Nanofabrication and Nanomanufacturing  
3 Courses in this series teach the fundamentals of precision and rapid fabrication processes. Novel nanomanufacturing techniques will be introduced with a focus on to down approaches and a brief introduction of bottom up approaches. 
Au Qtr. 3 cl. Prereq: ECE 331 or MTE 625 or permission of instructor. Not open to students with credit for ChBE 632 or ECE 632 or Biomed E 622. Cross-listed with Biomed E 662, ChBE 632, and ECE 632.

660 Principles of Occupational Biomechanics and Industrial Ergonomics  
3 In-depth treatment of occupational biomechanics and industrial ergonomics to provide transition to more advanced research-oriented topics. 
Au Qtr. 2.5-hr cl. Not open to students with credit for 560 or Ind Eng 503 or 603.

664 Industrial Accident Prevention and Control  
3 Industrial safety practices; OSHA; models of accident phenomena; measurement, inspection, and control of unsafe behavior and conditions; design of loss control programs. Student projects. 
Wi Qtr. 2 cl. Prereq: 500 or equiv with written permission of instructor. Not open to students with credit for Ind Eng 671.

665 Analysis and Design of Workplace Environments  
4 Measurement of environmental parameters including noise, heat, gases, particulates, and light, and their effect on human productivity; design of engineering controls; laboratory includes industrial surveys. 
Au Qtr. 2 cl, 1-2-hr lab. Prereq: 4th yr standing in Ise or written permission of instructor. Not open to students with credit for 770 or Ind Eng 573 or 673.
680.01 Industrial Practice in Systems Design I UGRD 4
An in-depth systems design project for industrial engineering. Problem formulation, data collection, and exploration of design alternatives for an actual systems engineering problem.
Au, Wi Qtrs. 2-2 hr cl. Prereq: 610 or concur; 501, 520, 521, 541, 542, 560, 670, 681.
Not open to students with credit for Ind Eng 608.01. This course is Progress (P) graded. 2-qtr sequence, must be taken in consecutive qtrs. GEC 3rd writing course. 2-qtr sequence, must be taken in consecutive qtrs.

680.02 Industrial Practice in Systems Design II UGRD 4
An in-depth systems design project for industrial engineering. Exploration and selection of design alternatives; justification, recommendation, and written and oral presentation of problems solution.
Wi, Sp Qtrs. 2-2 hr cl. Prereq: 504, 680.01. Not open to students with credit for Ind Eng 608.02. This course is Progress (P) graded. 2-qtr sequence, must be taken in consecutive qtrs. GEC 3rd writing course. 2nd of 2-qtr sequence; must be taken in consecutive quarters.

681 Engineering Project Management UGRD 3
Introduction to project management for engineers. Conception, planning, scheduling, budgeting, leadership, management, tracking, completion of projects. Project management software is introduced and used.
Au, Sp Qtrs. 2.5-hr cl. Prereq: 3rd yr standing in College of Engineering or written permission of instructor. Not open to students with credit for Ind Eng 646.

682 Product Design Fundamentals UGRD 4
Principles of concurrent engineering, design for manufacture and assembly, and lean manufacturing; integration of design and manufacturing; design prototyping.
Au, Wi, Sp Qtrs. 2.5-hr cl, 1,2-hr lab. Prereq: 523 or Mech Eng 561 or grad standing. Not open to students with credit for Mech Eng 682. Cross-listed in Mechanical Engineering.

683 Introduction to Parametric Design UGRD 3
Design of components, assemblies, molds and dies using parametric and feature-based design principles.
Au, Sp Qtrs. 2.5-hr cl. Prereq: 520 or Mech Eng 561 or Weld Eng 600 or grad standing in isdeng or the manufacturing systems and engineering program. Not open to students with credit for Ind Eng 621 or Mech Eng 621. Cross-listed in Mechanical Engineering.

684 Introduction to Applied Decision Analysis UGRD 3
Introduction to decision analysis and its application; deals with modern utility theory and the application of this theory to engineering decisions under risk.
Au, Wi Qtrs. 2.5-hr cl. Prereq: Stat 425 or 427 or equiv probability course. Not open to students with credit for Ind Eng 662.

685 Lean/Sigma Foundation UGRD 5
Introduction to the field of Business Process Improvement and Lean Sigma (LS) methodology. Foundational training in preparation for Green and Black Belt Certification.
Wi Qtr. Prereq: permission of instructor.

688 Systems Thinking in Engineering and UGRD 3
Design
Introduction to concepts and heuristics in systems thinking and how these concepts apply to engineering applications.
Sp Qtr. Prereq: Rank 4 or grad standing or permission of instructor.

689 Senior Laboratory UGRD 3
Students pursue independent laboratory project of up to two quarters duration; proposals must be approved by a faculty member prior to registration for the course.
Prereq: Sr standing in ISE. Not open to students with credit for Ind Eng 689. Repeatable to a maximum of 6 cr hrs.

693 Individual Studies in Industrial Engineering UGRD 1-6
Designed to give the advanced students an opportunity to pursue special studies not offered in fixed curricula.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

694 Group Studies in Industrial Engineering UGRD 1-6
Advanced topics in the various phases of industrial engineering.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 23 cr hrs.

701 Introduction to Discrete System Simulation UGRD 4
Introduction to the analysis of systems via discrete-event simulation models, generation of random variables, testing random number generators, fitting distribution to data, output analysis.
Wi Qtr. 2.2-hr cl. Prereq: Stat 426 or 428. Not open to students with credit for Ind Eng 704.

703 Market Engineering and Applications GRAD 4
An introduction to market engineering concepts and applications to contemporary market design problems such as resource allocation, information aggregation, and decentralized control.
 Wi Qtr. Prereq: Econ 200, Math 151-153 or 130-132, Stat 245 or 427, and graduate standing, or permission of instructor.

710 Statistical Quality Control and Quality Management Systems
Course imparts knowledge to understand and apply current statistical and management methods in quality engineering.
Au, Sp Qtrs. Not open to students with credit for Ind Eng 709.

715.01 Reliability Engineering I UGRD 4
Engineering system reliability modeling and prediction; reliability of programmable devices and human reliability; reliability and risk management of engineering systems.
Wi Qtr. 2.2-hr cl. Prereq: 510 or Elec Eng 351 or Mech Eng 481 or grad standing. Not open to students with credit for 776.xx courses. Not open to students with credit for Ind Eng 776.01. Cross-listed in Electrical Engineering and Mechanical Engineering. Repeatable for different titled topics only of 715.xx. Field experience at the site of Honda in Marysville.

715.02 Reliability Engineering II UGRD 4
Reliability of mechanical and electrical devices, systems, and engineering processes.
Sp Qtr. 2-hr cl. Prereq: 776.01 or 715.01, Elec Eng 776.01 or Mech Eng 776.01 or permission of instructor. Not open to students with credit for 776.xx courses. Not open to students with credit for Ind Eng 776.02. Cross-listed in Electrical Engineering and Mechanical Engineering. Repeatable for different titled topics only of 715.xx. Field experience at the site of Honda in Marysville.

715.03 Reliability Engineering Applications UGRD 1
Study and design of a complete reliability program for a selected engineering system.
Sp Qtr. 1 cl. Prereq or concur: 715.02 or 776.02 or Elec Eng 776.02 or Mech Eng 776.02 or permission of instructor. Not open to students with credit for 776.xx courses. Not open to students with credit for Ind Eng 776.03. Cross-listed in Electrical Engineering and Mechanical Engineering. Repeatable for different titled topics only of 715.xx. Field experience at the site of Honda in Marysville.

720 Linear Programming GRAD 3
Convexity and polyhedral sets, extreme point solutions, degeneracy, the Simplex and other solution methods, duality, sensitivity analysis, decomposition and complexity issues.
Au Qtr. 2.5-hr cl. Prereq: Math 568 or equiv with written permission of instructor. Not open to students with credit for Ind Eng 702.

730 Stochastic Processes Used in Systems GRAD 3
Engineering I
Introduction to modeling of stochastic systems, including Markov chains and Markov processes.
Au Qtr. 2.5-hr cl. Prereq: Knowledge of basic probability and calculus. Not open to students with credit for Ind Eng 703.

742 Warehouse and Facility Design UGRD 3
Principles and methods for design and analysis of warehouses and distribution facilities.
Wi Qtr. Prereq: 720; prereq or concur; 701; or permission of instructor.

748 Design, Analysis, and Control of Integrated Manufacturing Systems GRAD 3
A systematic description of traditional, cellular, and flexible configurations; an introduction to the role of learning machines in process automation.
Courses in this series teach advanced manufacturing processes concepts. Aspects of the basic principles of transport phenomena to develop physics based mathematical models of materials processing methods.
Au Qtr. Prereq: Mech Eng 500 and En Graph 167 and Math 415; or equiv; or permission of instructor. Not open to students with credit for Ind Eng 617.

750.01 Advanced Manufacturing Process UGRD 3
Fundamentals: Introduction to Modeling of Materials Processing
Courses in this series teach advanced manufacturing processes concepts. Applications of the basic principles of transport phenomena to develop physics based mathematical models of materials processing methods.
Au Qtr. Prereq: Mech Eng 500 and En Graph 167 and Math 415; or equiv; or permission of instructor. Not open to students with credit for Ind Eng 617.

750.02 Advanced Manufacturing Process UGRD 3
Fundamentals: Introduction to Metal Forming
Courses in this series teach advanced manufacturing processes concepts. Metal forming processes, fundamentals of plastic deformation in metal forming; approximate analysis of metal forming processes.
Sp Qtr. 2.15-hr cl. Prereq: 651 or permission of instructor. Not open to students with credit for Ind Eng 711.

750.03 Advanced Manufacturing Process UGRD 3
Fundamentals: Robotic Applications in Manufacturing
Courses in this series teach advanced manufacturing processes concepts. Aspects of computer based robots; applications of robots in advanced manufacturing systems; role of learning machines in process automation.
Prereq: 601 or written permission of instructor. Not open to students with credit for Ind Eng 705.
Advanced Forming Processes: Metal Forming
Advanced analysis and design of hot and cold metal forming processes. Sp Qtr. 3 cl. Prereq: 756 or equiv. Not open to students with credit for Ind Eng 712.

Advanced Forming Processes: Polymer Processing Fundamentals
Applies fundamentals of transport phenomena and polymer constitutive equations to plastics manufacturing. Wi Qtr. Prereq: Mech Eng 500, Math 415, En Graph 167 or equiv; or permission of instructor. Not open to students with credit for Ind Eng 618.

Introduction to Precision Engineering
Precision engineering is the multidisciplinary study and practice of high accuracy engineering, metrology, and manufacturing. Sp Qtr. Prereq: Sr standing in ISE/Mech En/MatScEn. Not open to students with credit for Ind Eng 619.

Introduction to Precision Engineering
Precision engineering is the multidisciplinary study and practice of high accuracy engineering, metrology, and manufacturing. Sp Qtr. Prereq: Sr standing in ISE/Mech En/MatScEn. Not open to students with credit for Ind Eng 619.

Operations Research Models in Manufacturing Engineering
Students use the mathematical formulation and algorithmic solution techniques of Operations Research as a scientific approach to solving real-world problems in Manufacturing Engineering. Sp Qtr. Prereq: Senior or graduate standing in Industrial and Systems Engineering; or permission of instructor.

Practice Oriented Ergonomics: Spine biomechanics - exposure assessment
Practical and theoretical development of concepts and methodologies for ergonomic evaluation of occupational risk factors are emphasized, towards goal of preventing work-related back injuries. Sp Qtr. 1.5-hr cl. Prereq: 560 or 660 or permission of instructor. Not open to students with credit for Ind Eng 717.

Practice Oriented Ergonomics: Upper Extremity Biomechanics - Exposure Assessment
Practical and theoretical development of concepts and methodologies for ergonomic evaluation of occupational risk factors are emphasized, towards goal of preventing work-related upper extremity injuries. Wi Qtr. 2.5-hr cl. Prereq: 660 or permission of instructor. Not open to students with credit for Ind Eng 718.

Clinical Ergonomics
The multidisciplinary concepts and methods to accelerate return-to-work, enhance worker capability, job analysis, preplacement tests, reduce injury and compliance with the regulations will be emphasized. Prereq: 560 or 660 or permission of instructor. Not open to students with credit for Ind Eng 716.

Ergonomics in the Product Design Process
Teaches students where and how ergonomics design principles are incorporated into the product design process. Sp Qtr. 2.5-hr cl. Prereq: 560 (or 660) and 670 (or 770) or permission of instructor. Not open to students with credit for Ind Eng 715.

Cognitive Engineering
Methodology for design of person-machine systems; psychological aspects of human performance; design of displays and control, human computer interactions, and human information processing. Au, Wi Qtrs. 2 cl, 1 1/2-hr lab. Not open to students with credit for Ind Eng 573, 670, 673.

Human-Computer Interaction in Complex Systems
Design of human-computer interfaces for applications such as cockpits, process control rooms, space applications, and information retrieval; students will design an interface for an actual system. Sp Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 774.

Cognitive Engineering Methods: Protocol Analysis and Knowledge Acquisition
Class teaches the theory and practice of methods in cognitive engineering, including protocol analysis, knowledge elicitation for intelligent systems, and cognitive task analysis. Wi Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 775.

Human-Computer Interaction in Complex Systems
Design of human-computer interfaces for applications such as cockpits, process control rooms, space applications, and information retrieval; students will design an interface for an actual system. Sp Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 774.

Cognitive Engineering Methods: Protocol Analysis and Knowledge Acquisition
Class teaches the theory and practice of methods in cognitive engineering, including protocol analysis, knowledge elicitation for intelligent systems, and cognitive task analysis. Wi Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 775.

Human-Computer Interaction in Complex Systems
Design of human-computer interfaces for applications such as cockpits, process control rooms, space applications, and information retrieval; students will design an interface for an actual system. Sp Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 774.

Cognitive Engineering Methods: Protocol Analysis and Knowledge Acquisition
Class teaches the theory and practice of methods in cognitive engineering, including protocol analysis, knowledge elicitation for intelligent systems, and cognitive task analysis. Wi Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 775.

Human-Computer Interaction in Complex Systems
Design of human-computer interfaces for applications such as cockpits, process control rooms, space applications, and information retrieval; students will design an interface for an actual system. Sp Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 774.

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Class teaches the theory and practice of methods in cognitive engineering, including protocol analysis, knowledge elicitation for intelligent systems, and cognitive task analysis. Wi Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 775.

Human-Computer Interaction in Complex Systems
Design of human-computer interfaces for applications such as cockpits, process control rooms, space applications, and information retrieval; students will design an interface for an actual system. Sp Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 774.

Cognitive Engineering Methods: Protocol Analysis and Knowledge Acquisition
Class teaches the theory and practice of methods in cognitive engineering, including protocol analysis, knowledge elicitation for intelligent systems, and cognitive task analysis. Wi Qtr. 2 cl, 1 1/2-hr lab. Prereq: 670 and permission of instructor (undergraduates); 770 (graduates). Not open to students with credit for Ind Eng 775.
841. **Sequencing and Scheduling** GRAD 3
Survey of sequencing/scheduling problems encountered in management systems. Emphasis is given to those problems and solution methods found in the literature. Sp Qtr. 2.1-5 hr cl. Prereq: 720 or permission of instructor. Not open to students with credit for Ind Eng 824.

842. **Advanced Studies in Plant Design and Materials Handling** GRAD 3-12
Advanced work in one or more special phases of plant design and materials handling, such as group technology and robotics. Au, Wi, Sp Qtrs. Prereq: 541. Not open to students with credit for Ind Eng 828.

843. **Advanced Models in Production Planning** GRAD 3
Advanced study of models in aggregate production planning and other areas of production systems.

850. **Problems in Production Engineering** GRAD 3-12
Advanced work in one or more phases of production engineering involving problems in production design, equipment planning, tool design, and quality control. Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Not open to students with credit for Ind Eng 821.

851. **Seminar in Advanced Topics in Manufacturing** GRAD 3
Seminar will feature speakers from industry; students will prepare reports and oral presentations on various topics. Sp Qtr. 2.2-5 hr cl. Prereq: Admission to grad program or permission of instructor. Not open to students with credit for Ind Eng 822.

868.01. **Advanced Topics in Biomechanics and Musculoskeletal Disorders: Spine Biomechanics** GRAD 4
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. Wi Qtr. 2 hr lec; 4 hr lab. Prereq: 660 or permission of instructor. Repeatable to a maximum of 8 cr hrs.

868.02. **Advanced Topics in Biomechanics and Musculoskeletal Disorders: Upper Extremity Biomechanics** GRAD 4
Advanced seminar on contemporary topics in ergonomics including work-related musculoskeletal disorders, back biomechanics, upper extremity biomechanics, anthropometry and electromyography. Wi Qtr. 2 hr lec; 4 hr lab. Prereq: 660 or permission of instructor. Repeatable to a maximum of 8 cr hrs.

868.03. **Advanced Topics in Biomechanics and Musculoskeletal Disorders: Contemporary Issues** GRAD 3
Advanced seminar on contemporary topics in ergonomics: topic areas include, but are not limited to, work-related musculoskeletal disorders, back biomechanics, upper extremity biomechanics, anthropometry, electromyography. Wi Qtr. 2 cl Prereq: 660 or permission of instructor. Repeatable to a maximum of 18 cr hrs.

869.01. **Biomechanics Research Practicum: Experience in Spine Biomechanics** GRAD 4
Builds upon information developed in ISE 868. Provides link between theory and laboratory measurement in assessment of occupational biomechanical issues for occupational low back disorder. Sp Qtr. 2 cl, 1.4 hr lab. Prereq: 868.01, 868.02 or 868.03 and permission of instructor. Repeatable to a maximum of 8 cr hrs.

869.02. **Biomechanics Research Practicum: Experience in Upper Extremity Biomechanics** GRAD 4
Builds upon theoretical information developed in ISE 868. Provides link between theory and laboratory measurement in assessment of biomechanical issues for occupational upper extremity disorders. Sp Qtr. 2 hr lec, 4 hr lab. Prereq: 868.01, or 868.02 or 868.03 and permission of instructor. Repeatable to a maximum 8 cr hrs.

870. **Advanced Seminar Cognitive Engineering** GRAD 3
Advanced seminar on contemporary topics dealing with engineering applications of cognitive psychology, artificial intelligence, and linguistics; topic areas include human computer interactions, the design of information retrieval systems, and mental models of complex systems. Au Qtr. 2 cl. Prereq: 770 and permission of instructor. Repeatable to a maximum of 15 cr hrs.

871. **Man-Machine Systems Research** GRAD 1
Advanced work in special research topics in man-machine systems. Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

873. **Advanced Models in Human Factors Engineering** GRAD 3
Advanced study in applied models used in human factors engineering; topics include models of human error, workload measurement and evaluation, risk acceptance, and performance under work paced and environmental stress. Au Qtr. 2 cl. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.

875.01. **Human Error and the Human Contribution to System Failures** GRAD 3
Psychology of human error and contribution of human error to disasters in high-risk systems.

881. **Operations Research Models and Methods** GRAD 3
Examines many basic OR models including the knapsack, traveling salesman, newsboy, and secretary problems; and random walk and queuing models, algorithmic concepts are discussed. Wi Qtr. 2.1-5 hr cl. Prereq: 720 and 730. Not open to students with credit for Ind Eng 802.

885. **Practices in Operations Research** GRAD 3
Application of OR methods in manufacturing, financial, governmental, educational, and service organizations; students work on actual problems of a sponsoring organization and present both oral and written reports. Sp Qtr. 2.1-5 hr cl. Prereq: 881. Not open to students with credit for Ind Eng 885.

890. **Seminar in Industrial Engineering** GRAD 1
Seminar in Industrial Engineering.

893. **Individual Studies** GRAD 1-6
Designed to give advanced graduate students an opportunity to pursue special studies not offered in fixed curricula. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

894. **Group Studies** GRAD 1-6
Advanced topics in the various phases of industrial engineering.

899. **Interdepartmental Seminar** GRAD 1-5
Two or more departments may collaborate in presenting seminars on subjects of mutual interest; topics to be announced.

900. **Systems Theory** GRAD 3
Seminars on Systems Theory. Not open to students with credit for Ind Eng 900.05. Repeatable to a maximum of 15 cr hrs.

990.01. **Seminar in Operations Research: Simulation and Experimentation** GRAD 3
Seminar on simulation and experimentation designed to prepare PhD students for dissertation research and research careers. Prereq: PhD standing or permission of instructor, other prerequisites vary by topic. Not open to students with credit for Ind Eng 900.03. Repeatable to a maximum of 15 cr hrs.

990.02. **Seminar in Operations Research: Optimization** GRAD 3
Seminar on optimization designed to prepare PhD students for dissertation research and research careers. Prereq: PhD standing or permission of instructor, other prerequisites vary by topic. Not open to students with credit for Ind Eng 900.01. Repeatable to a maximum of 15 cr hrs.

990.03. **Seminar in Operations Research: Probabilistic Models** GRAD 3
Seminar on probabilistic models designed to prepare PhD students for dissertation research and research careers. Prereq: PhD standing or permission of instructor, other prerequisites vary by topic. Not open to students with credit for Ind Eng 900.04. Repeatable to a maximum of 15 cr hrs.

999. **Research in Industrial Engineering** GRAD 1-18
Research for thesis or dissertation purposes only.

**Industrial, Interior & Visual Communic Design**
200 Introduction to Design
UGRD 5
Introduction to theory, rationale, practice, and societal impact of design; design process, critical issues, relationship to the environment. Au, Wi, Sp Qtrs. 2-2 hr cl. VPA Admis Cond course.

201 Descriptive and Analytic Drawing for Designers
UGRD 3
Development of drawing skills to explore, observe, understand, record, analyze and communicate visual information. Au, Wi, Sp Qtrs. 3-1 hr cl. This course is available for EM credit. VPA Admis Cond course.

203 Graphic Thinking for Designers
UGRD 3
Introduction to drawing as a design tool. Emphasis is placed on sketching and drawing to explore, analyze and communicate design concepts and design processes. Wi, Sp Qtrs. 3-1 hr cl. Prereq: 202 or permission of instructor.

205 Drawing Systems for Designers
UGRD 3
Introduction to drawing systems, including orthographics, sections, dimensions, paraline and measured drawings. Wi, Sp Qtrs. 3-1 hr cl. Prereq: 201 or permission of instructor.

230 Basic Design Concepts for Non Majors
UGRD 3
A studio-based introduction to the design process; creative problem-solving process emphasizes divergent thinking skills through observation, abstraction, evaluation and communication. Au, Wi, Sp Qtrs. 3-1 hr cl. Not open to majors in design or pre-design.

250 Studies in Design
UGRD 3
Studies in specific areas in the field of design, with emphasis on particular aspects of industrial design, visual communication, and interior design problems. Au, Wi, Sp Qtrs. 2-2 hr labs. Prereq: Permission of instructor.

251 Basic Design I
UGRD 5
Introduction to the theories, methods, and practices of design with primary emphasis on basic visual languages and visual encoding practices. Au Qtr. 3-3 hr labs. Prereq: 200, English 110 or equiv., Math 116, and the successful completion of admissions exam; and a cumulative pt-ht ratio of 2.00.

252 Basic Design II
UGRD 5
Application of three-dimensional organizational principles, introduction to visual logic freehand perspective sketching systems, and basic three-dimensional modeling techniques and materials. Wi Qtr. 3-3 hr labs. Prereq: 251 or permission of instructor.

253 Design History
UGRD 3
A history of design as affected by technology, science, and cultural world view. 2 cl, 1 2-hr lec/lab. Prereq: Design major or permission of instructor.

254 Introduction to Materials and Processes for Designers
UGRD 3
An overview of the properties and fabrication principles for materials used in industrial, interior and visual communication design. Wi Qtr. 2-2 hr cl. Prereq: 251; concur: 252; or permission of instructor.

258 Basic Typography
UGRD 3
Introduction to the knowledge and skills of typographical design and its corresponding aesthetic, functional, and technological applications and utilizations. Sp Qtr. 1 2-1 hr cl, 2-2 hr labs. Open only to majors in visual commun or by permission of instructor.

262.02 Basic Design III: Basic Visual Communication Design Practices
UGRD 5
Studio course for majors in Visual Communication Design: Introduction to basic two- and three-dimensional practices in visual communication design; emphasis on systematic method and research techniques. Prereq: 252; Math 116 or higher equiv; Stat 135 or 145 or equiv; or permission of instructor.

262.04 Basic Design III: Basic Industrial Design Practices
UGRD 5
Studio course for majors in Industrial Design: Introduction to the fundamentals of industrial design with emphasis on development processes, technical skills, and communication; development of simple exemplary products. Prereq: 252; Math 116 or higher equiv; Stat 135 or 145 or equiv; or permission of instructor.

262.08 Basic Design III: Basic Interior Design Practices
UGRD 5
Studio course for majors in Interior Design: Introduction to three-dimensional spatial organization, basic interior design conceptualization and principles of composition; application of basic human needs and space defining elements. Prereq: 252; Math 116 or higher equiv; Stat 135 or 145 or equiv; or permission of instructor.

294 Group Studies in Design
UGRD 1-5
The investigation of various problems in design. Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 15 cr hrs.

310 Color and Communication
UGRD 3
Provides experience in color interaction; introduces color effects on clarity, mood, readability, etc; color theory. Au, Wi, Sp Qtrs. 2 1.5-hr cl.

320 Electronic Media for the Designer
UGRD 4
The application of electronic media technologies to graphical content. Au, Wi, Sp Qtrs. 2 2-hr cl.

340 Information Visualization
UGRD 3
Design principles related to visualizing quantitative information, processes and systems. Su, Wi Qtrs. 2.1.5hr cl.

460.02 Intermediate Design I: Visual Communication Design
UGRD 5
Design and application of graphic elements based on visual imagery in production of visual communications using photographic and handgraphic techniques within frameworks of theories of communication and signs. Open only to majors or permission of instructor.

460.04 Intermediate Design I: Industrial Design
UGRD 5
Design of simple products as a means of introducing systematic methods, sketching, model making, human factors, and presentation. Open only to majors or permission of instructor.

460.08 Intermediate Design I: Interior Design
UGRD 5
An introduction to conceptual planning, interior organization, interior requirements, and human factors, with emphasis on model making and presentation techniques. Open only to majors or permission of instructor.

461.02 Intermediate Design II: Visual Communication Design
UGRD 5
Design and application of typographical elements in production of verbal communications using photographic, handgraphic, and computer techniques within frameworks of theories of communication and signs. Prereq: 460.02.

461.04 Intermediate Design II: Industrial Design
UGRD 5
Emphasis is placed on the refinement of systematic design methods, visualization, detailing and documentation; students are introduced to team working and client requirements. Prereq: 460.04 concur: 551.

461.08 Intermediate Design II: Interior Design
UGRD 5
Introduction to furniture design, exploring material and production characteristics, detailing and full-scale model making, emphasizing man-space-product interface, and special user requirements. Prereq: 460.08.

462.02 Intermediate Design III: Visual Communication Design
UGRD 5
Integration of typographic and graphic elements based on visual imagery in design and development of two-dimensional visual communications using photographic, handgraphic, and computer techniques. Prereq: 461.02 and 555.

462.04 Intermediate Design III: Industrial Design
UGRD 5
Developing of specialized problem solving approaches to more complex industrial design which emphasizes the refinement of solutions in terms of suitable technology and user consideration. Prereq: 461.04, 502 and 555.

462.08 Intermediate Design III: Interior Design
UGRD 5
Design of specialized interior spaces, introducing space planning and design methodology; emphasis on user interaction and existing space and furniture system analysis. Prereq: 461.08 and 555.

489 Internship in Design
UGRD 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 10 cr hrs. This course is graded S/U.

501 Conceptual Drawing for Industrial Design
UGRD 3
Principles of creative conceptual drawing and sketching methods used in the design process. Sp Qtr. 2 3-hr cl. Prereq: 201 through 203, 252, 253, or permission of instructor.

502 Three Dimensional Design Graphics
UGRD 3
Principles of graphic design for industrial and interior design. Au Qtr. 2 3-hr cl. Prereq: 262.04, 501 and Art 201.

511 Visual Communication Hand Graphics
UGRD 3
Advanced laboratory practice in communicating with drawn messages; evaluation and selection of appropriate visual treatments and techniques for print, film, and television. Au Qtr. 2 3-hr labs. Prereq: 262.02; concur: 460.02.
514 Graphic Design Production UGRD 3
Fundamental information on the preparation, administration, and development of printed matter used by the visual communication designer. Wi, Qtr. 3 cl. Prereq: 258, 460.02, and 511; concur: 461.02.

521 Interior Drawing UGRD 3
Principles and application of conceptual drawing techniques. Sp Qtr. 2-3 hr labs. Prereq: 201 through 203 and 252.

522 Interior Graphics UGRD 3
Application and meaning of light, color, material structures, and surface textures; principles of spatial order systems, correlations and intercommunication of space components, forms, signs, styles. Sp Qtr. 2-3 hr labs. Prereq: 461.08.

523 Interior Modeling UGRD 3
Principles and practices to represent spatial components and user interaction; communication and simulation of space in 2- and 3-dimensional form. Au Qtr. 2-3 hr labs. Prereq: 521 or permission of instructor.

524 Interior Specification UGRD 3
Overview and analysis of interior product systems, furniture line market surveys; interior specification and contracting. Wi Qtr. 2-3 hr labs. Prereq: 460.08 and jr or sr standing in design.

525 Interior Design Detailing and Construction UGRD 3
Documentation
Exploring interior design construction techniques and their methods of representation. Wi Qtr. 2 2-3 hr cl. Prereq: 460.08 and jr or sr standing in design.

551 Industrial Design Manufacturing Materials and Processes UGRD 3
Overview of the properties and fabrication principles for materials used in visual communication, interior, and industrial design. Wi Qtr. 2-2 hr cl, 1-2 hr lab. Prereq: 254, 460.04, and 501; concur: 461.04.

552 Design Communication Practices UGRD 3
An overview of communication methods, techniques, and procedures utilized in the various stages of the design process. Sp Qtr. 1 2-2 hr cl, 1-2 hr lab. Prereq: 461.

554 Human and Environmental Systems Design UGRD 3
Overview of the social/behavioral/physical nature of humans and their interaction with the environment as interpreted by the designer. Au Qtr. 1 2-1 hr cl, 1-2 hr lab. Prereq: 462 and 555.

555 Design Methodology UGRD 3
Introduction to and application of qualitative and quantitative methodology useful in problem solving process.

570 Introduction to Image Graphics Techniques UGRD 4
Provides exposure to digital image capture, representation and manipulation from a design perspective. Su, Wi, Sp Qtrs. 2-2 hr cl. Not open to majors in design.

571 Fundamentals of 3D Design Visualization UGRD 4
Concepts of 3D modeling, rendering and animation for visualizing design forms. Au, Wi Qtrs. 2-2 hr cl. Not open to design majors.

573 Fundamentals of Multimedia Design UGRD 4
Electronic communication techniques related to the web and interactivity; web design and technology principles. Au, Sp Qtrs. 2-2 hr cl. Not open to design majors.

603 3D Computer-Aided Design Visualization UGRD 3
Application of computer graphics to visualizing the design issues of form, space, color, and the dynamics of human interaction within problems of industrial design. Wi Qtr. 1 2-1 cl, 1-2 hr lab. Prereq: 502 or 523 or permission of instructor.

656 Design Professional Practices UGRD 3
Investigation of the administrative and legal aspects of the design profession contrasting the private firm with corporate and free-lance types of practice.

660.02 Advanced Design I: Visual Communication UGRD 5
Design
Integration of typographic and graphic elements based on visual imagery in design and development of three-dimensional visual imagery in design and development of three-dimensional visual communication solutions in packaging, exhibit design, or sign systems. Prereq: 462.02, 552, and 555.

660.04 Advanced Design I: Industrial Design UGRD 5
Design of products and product systems for complex functions; emphasis is on extending design consideration to include detailing, mock-ups, prototypes, testing and servicing. Prereq: 462.04, 502, 551, and 555.

660.08 Advanced Design I: Interior Design UGRD 5

661.02 Advanced Design II: Visual Communication UGRD 5
Design
Application of planning and analysis techniques in designing two- or three-dimensional visual communication systems; emphasis on application of visual communication research practices and methodology. Prereq: 554 and 660.02.

661.04 Advanced Design II: Industrial Design UGRD 5
Introduction of field research experience and interdisciplinary expertise to the design of products and product systems. Prereq: 554 and 660.04.

661.08 Advanced Design II: Interior Design UGRD 5
Design of public environments using an interdisciplinary team approach for conceptualization, documentation, and presentation, emphasizing environmental characteristics, and the physical and psychological functionalism of space. Prereq: 554 and 660.08.

662.02 Advanced Design III: Visual Communication Design
Individual student projects; students are to demonstrate their proficiency and grasp of previous subject matter in a project approved by the instructor; portfolio refinement. Prereq: 661.02 or equiv with written permission of instructor.

662.04 Advanced Design III: Industrial Design UGRD 5
Industrial design thesis project; students are to demonstrate their proficiency and grasp of previous subject matter in a project approved by the instructor; portfolio development. Prereq: 661.04 or equiv with written permission of instructor.

662.08 Advanced Design III: Interior Design UGRD 5
Interior design thesis project; students are to demonstrate their proficiency, ability to evaluate and solve problems, comprehension of human needs, and environmental concerns; portfolio development. Prereq: 661.08 or equiv with written permission of instructor.

671 Photo Graphics UGRD 3
An experimental workshop in techniques of manipulating existing images to create new visual ideas, emphasizing individual exploration; discussions and critiques. Sp Qtr. 2-2 hr labs. Prereq: 461.02 and 514; concur: 462.02.

673 Interactive Visual Communication: Strategies for Web Communication
Application of visual communication design principles to interactive interface design and navigational elements. Au, Wi Qtrs. 2-2 hr labs. Prereq: 461.02 or equiv, or permission of instructor.

674 Interactive Visual Communication: Multimedia and Rich Media Design
Application of visual communication principles to interactive multimedia and the integration of rich media resources. Wi, Sp Qtrs. 2-2 hr cl. Prereq: 461.02 (or equiv) and 673, or permission of instructor.

685 Field Work in Design UGRD 3-10
Field application of design in a capacity requiring a close working relationship within a professional environment. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

693 Individual Studies UGRD 2-5
Advanced study for students in specialized programs. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs. This course is graded S/U.

694 Group Studies UGRD 2-5
Group studies for students in specialized programs. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Arr cl. Prereq: Written permission of chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (’P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition as well as all travel and subsistence costs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details. Prereq: Permission of instructor. Repeatable for different titled study tours only.
698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

699 Undergraduate Scholarship: Research and UGRD 1-15
Creative Activity in Design
Undergraduate research or creative activities in varying topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

699H Honors Undergraduate Scholarship: UGRD 1-15
Research and Creative Activity in Design
Undergraduate research or creative activities in varying topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Honors program or by permission of department or instructor. Repeatable to a maximum of 15 cr hrs.

750 3-D Computer Modeling Applications for UGRD 5
Artists and Designers
Advanced techniques and methods using 3-D geometric modeling application programs and techniques to design and synthesize 3-D forms.
Au Qtr. 2 2-hr cl; 1 2-hr lab. Prereq: Written permission of instructor.

752 3-D Computer Generated Visualization and UGRD 5
Simulation Application for Artists and Designers
Advanced topics in computer-generated motion application and script development used by artists and designers to create animating studies and emulations.
Sp Qtr. 2 2-hr cl, 1 2-hr lab. Prereq: 751 and written permission of instructor.

760 Graduate Design Studio GRAD 5
Interdisciplinary projects for solving complex design problems; planning, analysis, an implementation of design research, problem definition development, team formulation and advanced production and presentation methodologies.
Su, Au, Wi, Sp Qtrs. 9 cl. Prereq: 662 or equiv or undergrad ind deg, and grad standing, or permission of instructor. Repeatable to a maximum of 20 cr hrs.

780 Design Issues Seminar UGRD 4
Analysis of issues and inquiry into topics of relevance to design; group discussions and investigations of events, processes, manifestations and procedures related to design.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 12 cr hrs.

783H Honors Research UGRD 3-5
Program of research and/or design investigation for each student with individual conferences resulting in an honors thesis and/or honors project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

785 Orientation to Graduate Studies in Design UGRD 4
Overview of current and future trends in design; introduction to design research and communication methods; faculty interest and research; available resources; requirements of graduate-level study.
Au Qtr. 2 2-hr cl.

786 Design Research and Inquiry UGRD 4
Design as a mode of inquiry, including examination of communication process and models, and emphasizing general problem-solving as a goal-directed, value-laden activity.
Wi Qtr. 2 2-hr cl. Prereq: 785 or permission of instructor.

787 Design Planning, Development, and Evaluation UGRD 4
Preparation for graduate thesis and project courses with emphasis on concept formulation and evaluation based on communication models and other techniques of design.
Sp Qtr. 2 2-hr cl. Prereq: 786 or permission of instructor.

797 Interdepartmental Seminar GRAD 1-5
Interdisciplinary knowledge and problems examined and discussed in the context of shared concerns.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

894 Group Studies GRAD 1-5
Group studies for students in specialized programs.
Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

950 Research Problems in Design GRAD 3-5
Research Problems in Design.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 45 cr hrs.

993 Individual Studies GRAD 1-5
Individual Studies.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 45 cr hrs. This course is graded S/U.

998 Research in Design: Thesis GRAD 1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

### Integrated Biomedical Science

670 Patient-Centered Research GRAD 2
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.
Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor for students not enrolled in the College of Medicine. Repeatable to a maximum of 12 cr hrs. This course is Progress (P) graded. Cross-listed in College of Medicine and Public Health. This is a progress course with a grade rendered each SP quarter. This course is graded S/U.

692 Clinical Biomedical Research GRAD 3
Through lectures, small groups, independent reading, and mentored clinical research projects students learn the nature, goals, importance, basic principles, and administrative requirements of clinical research.
Su, Au, Wi, Sp Qtrs. 1-hr cl, 2 4-hr labs. Prereq. Graduate or professional student status or senior undergraduate student with permission of course director. This course is graded S/U.

701.01 Biology of Human Disease I: Nucleic Acid Biochemistry and Human Disease UGRD 2
Nucleic acid biochemistry and biochemical abnormalities of nucleic acids that lead to the expression of human diseases.
Au Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 701.05.

701.02 Biology of Human Disease I: Protein Chemistry and Function in Human Disease UGRD 2
Normal protein biochemistry and biomedical abnormalities of proteins that lead to the expression of human disease.
Au Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 701.05.

701.03 Biology of Human Disease I: Genome Structure and Function in Human Disease UGRD 2
Normal genome structure and function and genomic abnormalities that lead to the expression of human disease.
Au Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 701.05.

701.04 Biology of Human Disease I: Transcription and Translation Control Mechanisms in Human Disease UGRD 2
Gene transcription and translation and abnormalities in these mechanisms that lead to the expression of human disease.
Au Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 701.05.

701.05 Biology of Human Disease I: Biology of Human Disease UGRD 10
Presentation of biological mechanisms underlying the development, progression, and responses of the body to human diseases at the biochemical and molecular levels.
Au Qtr. 5.2-hr cl. Prereq: Permission of course coordinator for non-IBGP students. Not open to students with credit for 701.05.

702.01 Biology of Human Disease II: Molecular and Cellular Pathology UGRD 2
Normal molecular and cellular physiology and abnormalities in these mechanisms that lead to the expression of human diseases.
Wi Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 702.05.

702.02 Biology of Human Disease II: Signal Transduction and Molecular Pharmacology UGRD 2
Normal signal transduction and molecular pharmacology and abnormalities in these mechanisms that lead to the expression of human diseases.
Sp Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 702.05.

702.03 Biology of Human Disease II: Extracellular Matrix and Cytoskeleton in Human Disease UGRD 2
Normal aspects of the extracellular matrix and cytoskeleton and abnormalities in these that lead to the expression of human disease.
Wi Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 702.05.

702.04 Biology of Human Disease II: Cancer Biology UGRD 2
Normal aspects of the cell cycle and abnormalities in these that lead to the expression of human cancer.
Sp Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 702.05.
702.05 Biological Human Disease II: Biology of Human Disease
Presentation of biological mechanisms underlying the development, progression, and responses of the body to human diseases at the cellular and tissue levels. Wi Qtr. 5.2-hr cl. Prereq: Permission of course coordinator for non-IBGP students. Not open to students with credit for 702.

703.01 Biological Human Disease III: Developmental Biology
Normal cellular and molecular mechanisms in developmental biology and abnormalities in these mechanisms that lead to the expression of human diseases. Wi Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 703.05.

703.02 Biological Human Disease III: Host Defense
Normal immunological and non-immunological mechanisms of host defense and abnormalities in these mechanisms that lead to the expression of human diseases. Wi Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 703.05.

703.03 Biological Human Disease III: Integrated Organ Systems
Physiology of the cardiovascular, pulmonary and renal systems and pathophysiology of these that lead to the expression of human diseases. Sp Qtr. Arr. Prereq: Permission of course director for non-IBGP students. Not open to students with credit for 703.05.

703.04 Biological Human Disease III: Clinical Case Studies
Prereq: 703.01, 703.02, and permission of course coordinator. This course is graded S/U.

703.05 Biological Human Disease III: Biology of Human Disease
Presentation of biological mechanisms underlying the development, progression, and responses of the body to human diseases at the tissue, organ and organ system levels. Sp Qtr. 5.2-hr cl. Prereq: Permission of course coordinator for non-IBGP students. Not open to students with credit for 703.05.

704 Research Problem Solving in Biomedical Science
Students will identify and solve problems in research materials distributed in advance to the class by the Module Leaders from IBGP 701, 702, and 703. Sp Qtr. 2 cl. Prereq: 701 and 702 or equiv with permission of instructor. This course is graded S/U.

705 Bioinformatics Applied to Human Disease
Training with computerized bioinformatics packages and electronics sources of genomics information to develop skills for genomics analysis of human diseases. Wi Qtr. 1.1-hr cl. Prereq: Equivalent of 701 and permission of course coordinator for non-IBGP students. Requires standard personal computers to access web.

706 Faculty Research in Biomedical Science
IBGP faculty members will present current research in their laboratories that could provide the basis for student laboratory rotations and dissertation research. Su, Au, Wi, Sp Qtr. 1.1-hr cl or 2.1-hr cl. Prereq: IBGP student or permission of course director. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

707 Fundamentals of Grant Writing I
Provide background information for and practical experience in grant writing. Au Qtr. 1.2-hr cl. Prereq: Permission of course directors for non-IBGP students. This course is graded S/U.

708 Fundamentals of Grant Writing II
Provide experience and background information in reviewing NIH grants. Sp Qtr. 1.2-hr cl. Prereq: Permission of course directors for non-IBGP students. This course is graded S/U.

709 Statistical Aspects of Grant Writing
To provide training and experience for IBGP students in preparing the statistical component of research grant proposals. Wi Qtr. 1 cl. Prereq: 707 and basic statistics course or equiv with permission of course coordinator. This course is graded S/U.

724 Molecular Pathogenesis
In-depth presentation and discussion of the molecular and cellular mechanisms of pathogenesis, emphasizing current research in the field. Au Qtr. Prereq: Grad standing, advanced undergrads must have permission of instructor. Cross-listed in Microbiology.

730 Biomedical Informatics I
Introduces students to basic topics of bioinformatics including sequence analyses, proteomics, microarrays, regulatory networks, sequence and protein databases, etc. Au Qtr. Prereq: Cptr/Inf 230 or equiv with permission of course director. Not open to students with credit for Biom Inf 730. Cross-listed in Biomedical Informatics.

731 Biomedical Informatics II
Continuation of Biomedical Informatics I. Wi Qtr. Prereq: IBGP/Biom Inf 730 and/or Cptr/Inf 230 or equiv with permission of course director. Not open to students with credit for Biom Inf 730. Cross-listed in Biomedical Informatics.

740 Selected Topics in Microbial Pathogenesis
Student led discussion of classic and current literature in microbial pathogenesis. Wi Qtr. 1.2-hr cl. Prereq: Microbiol 724 or permission of instructor. Repeatable to a maximum of 6 cr hrs.

762.01 Independent Studies in Medical Biochemistry
Students will independently follow provided study guides to gain an understanding of the medical biochemistry essential for understanding the mechanism of human diseases. Prereq: Registration as IBGP graduate student or permission of course director.

762.02 Independent Studies in Human Histology
Students will independently follow provided study guides to gain an understanding of the human histology essential for understanding the mechanism of human diseases. Prereq: Registration as IBGP graduate student or permission of course director.

762.03 Independent Studies in Human Neuroanatomy
Students will independently follow provided study guides to gain an understanding of the human renal system and body fluids essential for understanding human renal diseases. Prereq: Registration as IBGP graduate student or permission of course director.

762.04 Independent Studies in Human Neurophysiology
Students will independently follow provided study guides to gain an understanding of the human gastrointestinal system essential for understanding human gastrointestinal diseases. Prereq: Registration as IBGP graduate student or permission of course director.

762.05 Independent Studies in the Human Cardiovascular System
Students will independently follow provided study guides to gain an understanding of the human cardiovascular system essential for understanding human cardiovascular diseases. Prereq: Registration as IBGP graduate student or permission of course director.

762.06 Independent Studies in the Human Respiratory System
Students will independently follow provided study guides to gain an understanding of the human respiratory system essential for understanding human respiratory diseases. Prereq: Registration as IBGP graduate student or permission of course director.

762.07 Independent Studies in the Human Urinary System and Body Fluids
Students will independently follow provided study guides to gain an understanding of the human renal system and body fluids essential for understanding human renal diseases. Prereq: Registration as IBGP graduate student or permission of course director.

762.08 Independent Studies in the Human Gastrointestinal System
Students will independently follow provided study guides to gain an understanding of the human gastrointestinal system essential for understanding human gastrointestinal diseases. Prereq: Registration as IBGP graduate student or permission of course director.

762.09 Independent Studies in Human Molecular Biology and Genetics
Students will independently follow provided study guides to gain an understanding of the molecular biology and genetics essential for understanding the mechanism of human diseases. Prereq: Registration as IBGP graduate student or permission of course director.

762.10 Independent Studies in Human Blood and Lymphatic Tissues
Students will independently follow study guides to gain an understanding of human blood and lymphatic tissues essential for understanding disease mechanism in those tissues. Prereq: Registration as IBGP graduate student or permission of course director.

762.11 Independent Studies in Human Immunological Mechanisms
Students will independently follow provided study guides to gain an understanding of the immunological mechanisms essential for understanding the pathogenesis of human diseases. Prereq: Registration as IBGP graduate student or permission of course director.
762.12 Independent Studies in Human Medical Nutrition
Students will independently follow provided study guides to gain an understanding of the medical nutrition essential for understanding the mechanism of human diseases.
Prereq: Registration as IBGP graduate student or permission of course director.

762.13 Independent Studies in Human Endocrine and Metabolic Systems
Students will independently follow provided study guides to gain an understanding of human endocrine and metabolic systems essential for understanding human endocrine and metabolic diseases.
Prereq: Registration as IBGP graduate student or permission of course director.

762.14 Independent Studies in the Human Reproductive System
Students will independently follow provided study guides to gain an understanding of the human reproductive system essential for understanding human reproductive diseases.
Prereq: Registration as IBGP graduate student or permission of course director.

763.01 Independent Studies in Human Pathologic Mechanisms
Students will independently follow study guides to gain an understanding of the basic pathologic mechanisms leading to human disease.
Prereq: Registration as IBGP graduate student or permission of course director.

763.02 Independent Studies in Human Microbial Mechanisms
Students will independently follow study guides to gain an understanding of microbiologic mechanisms leading to human disease.
Prereq: Registration as IBGP graduate student or permission of course director.

763.03 Independent Studies in Human Drug Mechanisms
Students will independently follow study guides to gain an understanding of pharmacokinetics, pharmacodynamics, and mechanisms of action of drugs used to treat human diseases.
Prereq: Registration as IBGP graduate student or permission of course director.
Prereq: 763.01.

763.04 Independent Studies in Human Infectious Diseases
Students will independently follow study guides to gain an understanding of human infectious diseases.
Prereq: Registration as IBGP graduate student or permission of course director.
Prereq: 763.01 and 763.02.

763.05 Independent Studies in Cardiovascular Pathobiology
Students will independently follow study guides to gain an understanding of human cardiovascular pathobiology.
Prereq: Registration as IBGP graduate student or permission of course director.
Prereq: 762.06 and 763.01.

763.06 Independent Studies in Respiratory Pathobiology
Students will independently follow study guides to gain an understanding of human respiratory pathobiology.
Prereq: Registration as IBGP graduate student or permission of course director.
Prereq: 762.06 and 763.01.

763.07 Independent Studies in Renal Pathobiology
Students will independently follow study guides to gain an understanding of human renal pathobiology.
Prereq: Registration as IBGP graduate student or permission of course director.
Prereq: 762.07 and 763.01.

763.08 Independent Studies in Endocrine Pathobiology
Students will independently follow study guides to gain an understanding of human endocrine pathobiology.
Prereq: Registration as IBGP graduate student or permission of course director.
Prereq: 762.13 and 763.01.

763.09 Independent Studies in Gastrointestinal Pathobiology
Students will independently follow study guides to gain an understanding of human gastrointestinal pathobiology.
Prereq: Registration as IBGP graduate student or permission of course director.
Prereq: 762.08 and 763.01.

763.10 Independent Studies in Reproductive Pathobiology
Students will independently follow study guides to gain an understanding of human reproductive pathobiology.
Prereq: Registration as IBGP graduate student or permission of course director.
Prereq: 762.14 and 763.01.

763.11 Independent Studies in Human Neuro-Pathobiology
Students will independently follow study guides to gain an understanding of human neurological diseases.
Prereq: Registration as IBGP graduate student or permission of course director.
Prereq: 762.03, 762.04 and 763.01.

763.12 Independent Studies in Psychiatry
Students will independently follow study guides to gain an understanding of psychiatric disorders.
Prereq: Registration as IBGP graduate student or permission of course director.

763.13 Independent Studies in Hematology Pathobiology
Students will independently follow study guides to gain an understanding of hematologic pathobiology.
Prereq: Registration as IBGP graduate student or permission of course director.

763.14 Independent Studies in Rheumatic and Musculoskeletal Pathobiology
Students will independently follow study guides to gain an understanding of the pathobiological mechanisms underlying the expression of human rheumatic and musculoskeletal diseases.
Prereq: Registration as IBGP graduate student or permission of course director.

763.15 Independent Studies in Ophthalmic-Pathobiology
Students will independently follow study guides to gain an understanding of the ophthalmological mechanisms underlying the expression of human ophthalmological diseases.
Prereq: Registration as IBGP graduate student or permission of course director.

764 Introduction to Clinical Aspects of Translational Research
Students will attend lectures given to medical students that prepare them for studies in the clinical environment.
Sp Qtr. Arr. Prereq: IBGP student and permission of course director. This course is graded S/U.

765.01 Clinical Experience: Acute and Cancer Pain Therapy
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.02 Clinical Experience: Alcohol and Other Drug Dependency
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.03 Clinical Experience: Allergy and Clinical Immunology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.04 Clinical Experience: Anesthesia
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.05 Clinical Experience: Bariatric Surgery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.06 Clinical Experience: Blood Diseases of Infants and Children
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.07 Clinical Experience: Bone Marrow Transplant
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.08 Clinical Experience: Cancer Genetics Clinical
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.
765.09 Clinical Experience: Cancer Pain and Palliative Medicine
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.10 Clinical Experience: Cardiology-Coronary Care General Cardiology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.11 Clinical Experience: Cardiology Heart Failure
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.12 Clinical Experience: Cardiothoracic
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.13 Clinical Experience: Clinical Rheumatology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.14 Clinical Experience: Complicated Diabetes Mellitus
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.15 Clinical Experience: Comprehensive Care of the Cancer Patient
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.16 Clinical Experience: Dermatology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.17 Clinical Experience: Digestive Diseases Hepatology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.18 Clinical Experience: Emergency Medicine
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.19 Clinical Experience: End Stage Renal Disease in Children
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.20 Clinical Experience: Endocrinology and Metabolism-Clinical
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.21 Clinical Experience: Gastroenterology Outpatient
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.22 Clinical Experience: General Medicine
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.23 Clinical Experience: General Medicine Endocrinology/Diabetes
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.24 Clinical Experience: General Surgery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.25 Clinical Experience: Geriatrics
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.26 Clinical Experience: Clinical Gynecology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.27 Clinical Experience: Gynecologic Oncology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.28 Clinical Experience: Hematology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.29 Clinical Experience: Hematology/Oncology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.30 Clinical Experience: Infectious Diseases
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.31 Clinical Experience: Long Term Care of the HIV Patient
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.32 Clinical Experience: Medical Intensive Care
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.33 Clinical Experience: Nephrology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.34 Clinical Experience: Neurology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.35 Clinical Experience: Neuropsychiatry
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.36 Clinical Experience: Neurosurgery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.37 Clinical Experience: Normal Labor and Delivery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.38 Clinical Experience: Obstetrics High Risk
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.39 Clinical Experience: Oncology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.40 Clinical Experience: Otolaryngology Head and Neck Surgery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.41 Clinical Experience: Orthopedics
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.
765.42 Clinical Experience: Ophthalmology GRAD 2
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.43 Clinical Experience: Pediatric Cardiology GRAD 2
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.44 Clinical Experience: Pediatric Cardiothoracic
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.45 Clinical Experience: Pediatric Clinical Gastroenterology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.46 Clinical Experience: Pediatric Clinical Genetics
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.47 Clinical Experience: Pediatric Critical Care Medicine GRAD 2
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.48 Clinical Experience: Pediatric Developmental Disorders
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.49 Clinical Experience: Pediatric Emergency Medicine GRAD 2
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.50 Clinical Experience: Pediatric Endocrinology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.51 Clinical Experience: Pediatric Infectious Diseases
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.52 Clinical Experience: Pediatric Hematology/Oncology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.53 Clinical Experience: Pediatric Intensive Care Unit
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.54 Clinical Experience: Pediatric Nephrology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.55 Clinical Experience: Pediatric Otolaryngology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.56 Clinical Experience: Pediatric Pulmonology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.57 Clinical Experience: Pediatric Surgery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.58 Clinical Experience: Pediatric Urology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.59 Clinical Experience: Physical Medicine and Rehabilitation
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.60 Clinical Experience: Plastic Surgery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.61 Clinical Experience: Pulmonary
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.62 Clinical Experience: Radiation Oncology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.63 Clinical Experience: Reproductive Endocrinology and Infertility
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.64 Clinical Experience: Rheumatology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.65 Clinical Experience: Surgical Intensive Care
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.66 Clinical Experience: Surgical Intensive Care Unit/Anesthesia
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.67 Clinical Experience: Surgical Oncology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.68 Clinical Experience: Thoracic Surgery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.69 Clinical Experience: Transfusion Medicine Blood Banking
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.70 Clinical Experience: Transplantation Surgery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.71 Clinical Experience: Urology
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.72 Clinical Experience: Vascular Surgery
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.

765.73 Clinical Experience: Adult Clinical Genetics
Students will participate in inpatient or outpatient clinical activities in an area related to the student's dissertation research.
Prereq: IBGP student and permission of course director.
780 Presentation Skills for Biomedical Researchers

Students will learn scientific presentation skills through oral and poster presentations of biomedical research in progress given by themselves, faculty and postdocs.
Su, Au, Wi, Sp Qtrs. Prereq: IBGP 701, or Mol Gen 701.

781 Animal Models of Human Disease

Transgenic and knockout mouse technology and examples of models for genetic diseases with each pattern of inheritance.
Wi Qtr. 1 cl. Prereq: IBGP 701, or Mol Gen 701.

782 Molecular and Cellular Mechanisms of Stress-Associated Diseases in the Human

Through presentations and critical discussions of research and literature students will gain an understanding of the mechanisms underlying stress-associated diseases and methods to study these.
Su, Au, Wi, Sp Qtr. 2-hr cl. Prereq: Registration as IBGP student or permission of course director. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

789 Immunological Research of Pediatric Diseases

Trained students will prepare and give presentations on current research on immunological mechanisms of pediatric diseases.
Au, Wi, Sp Qtr. 1-hr cl. Prereq: Permission of course director for non-IBGP students. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

790 Cancer Immunology: Critical Journal Readings

Faculty, students and postdocs will give critical interpretations of research and journal readings on cancer immunology.
Au, Wi, Sp Qtr. 1-hr cl. Prereq: Registration as graduate student or permission of course director and undergraduate major advisor for undergraduates. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

791 Current Research in Human Viral Diseases

Faculty, students and postdoctoral trainees will give critical interpretations of research and journal readings on human viral diseases.
Au, Wi, Sp Qtr. 1-hr cl. Prereq: Registration as IBGP graduate student or permission of course director. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

792 Translational Biomedical Research

Through lectures, small group discussions and independent reading, students will lean the nature, goals, importance, basic principles and administrative requirements of translational research.
Au, Au, Sp Qtr. 2-hr cl. Prereq: IBGP graduate student or permission of course director.

793 Individual Studies in Integrated Biomedical Science

A research project will be assigned by a faculty member to meet the individual student's educational goals.
Su, Au, Wi, Sp Qtr. 1-15 hr labs. Prereq: Permission of course coordinator for non-IBGP students. This course is graded S/U.

795 Host-Pathogen Interactions: Research Seminar

Faculty, students and outside speakers will give research presentations on microbial-host interactions.
Su, Au, Wi, Sp Qtr. 1-hr cl. Prereq: Registration as graduate student or permission of both course director and undergraduate major advisor for undergraduates. Repeatable to a maximum of 12 cr hrs. Cross-listed in Microbiology. This course is graded S/U.

796 Research Seminars in Heart and Lung Disease

Faculty and outside speakers will give basic and clinical science research seminars in mechanisms of heart and lung disease.
Su, Au, Wi, Sp Qtr. 1-1 hr cl. Prereq: Permission of course director for non-IBGP students. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

797.01 Integrated Biomedical Science Graduate Seminar

Faculty, outside speakers, and graduate students will give research presentations on topics in parallel with the course sequence Biology of Human Disease.
Au, Wi, Sp Qtr. 1-1 hr cl. Prereq: Permission of course director for non-IBGP students. This course is graded S/U. Repeatable to a maximum of 20 cr hrs.

797.02 Integrated Biomedical Science Student Seminar

Graduate students will give presentations on their dissertation research.
Au, Wi, Sp Qtr. 1-1 hr cl. Prereq: Permission of course director for non-IBGP students. Repeatable to a maximum of 20 cr hrs.

798 Seminar in Pediatric Research

Faculty and outside speakers will give presentations on research in biological mechanisms of pediatric diseases.
Au, Wi, Sp Qtr. 1-hr cl. Prereq: Permission of course director for non-IBGP students. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

799.01 Cancer Immunology: Research Seminar Presentation

Registered students attend research presentations on cancer immunology given by faculty, students and postdocs.
Su, Au, Wi, Sp Qtr. 1-hr cl. Prereq: Registration as graduate student or permission of course director. combined for IBGP 799.01 and IBGP 799.02. This course is graded S/U. Repeatable to a maximum of 12 cr hrs.

799.02 Cancer Immunology: Research Seminar Presentation

Faculty, students and postdocs will give research presentations on cancer immunology given by faculty, students and postdocs.
Su, Au, Wi, Sp Qtr. 1-hr cl. Prereq: Registration as graduate student or permission of course director. combined for IBGP 799.01 and IBGP 799.02. Repeatable to a maximum of 12 cr hrs.

805.01 Research Techniques and Resources

Survey of research techniques and resources available to investigate and solve problems in research on the biology of human disease.
Su Qtr. 3 hr cl, 3-3 lab hrs. Prereq: Registration as IBGP student or permission of course director or permission of instructor.

805.02 Lectures on Research Techniques and Resources

Survey of research techniques used to solve problems in modern cell and molecular biology, immunology, biochemistry, microbiology, microscopy, laboratory safety, and related available resources.
Su Qtr. 3 hr cl. Prereq: Registration as IBGP student, permission of course director and undergraduate major advisor for undergraduates.

851 Advanced Seminar in Integrated Biomedical Science

Interdisciplinary biomedical topics will be reviewed in depth with student participation in analyzing literature, and faculty and outside experts presenting their own original research.
Au, Wi, Sp Qtr. 1-1 hr cl. Prereq: Permission of course director for non-IBGP students. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

852 Career Discovery in the Biomedical Sciences

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.
Au, Su Qtr. 1.5-hr cl, alternate weeks. IBGP students only. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

880.01 Signature Program Translational Science Curriculum-Immunology & Inflammation

Translational Science to understand inflammatory diseases, viral diseases, cancer, and wound healing.
Au Qtr. 2.1.5 hr mtgs and web-based discussions. Prereq: Professional MD or DO degree or with permission of instructor.

880.02 Signature Program Translational Science Curriculum-Cancer Biology & Therapeutics

Translational Science to understand Inflammatory diseases, viral diseases, cancer, and wound healing.
Wi Qtr. 2.1.5 hr mtgs and web-based discussions. Prereq: Professional MD or DO degree or with permission of instructor.

880.03 Signature Program Translational Science Curriculum-Infection & Host/Pathogen Science

Translational Science to understand inflammatory diseases, viral diseases, cancer, and wound healing.
Sp Qtr. 2.1.5 hr mtgs and web-based discussions. Prereq: Professional MD or DO degree or with permission of instructor.

880.04 Signature Program Translational Science Curriculum-Regenerative Medicine & Wound Healing

Translational Science to understand Inflammatory diseases, Viral diseases, Cancer, and Wound Healing.
Su Qtr. 2.1.5 hr mtgs and web-based discussions. Prereq: Professional MD or DO degree or with permission of instructor.

891.01 Interdisciplinary Seminar on Biomedical Images

Graduate seminar for Graduate Interdisciplinary Specialization in Comprehensive Engineering and Science of Medical Images.
Au, Wi, Sp Qtr. 1 cl. Prereq: Grad standing. Cross-listed in Biomedical Engineering, Biomedical Informatics, Biophysics, Computer Science and Engineering, Electrical and Computer Engineering, Pathology, Radiology, Statistics, and Vision Science. This course is graded S/U. Repeatable to a maximum of 3 cr hrs.
999 Research in Integrated Biomedical Science GRAD 1-18
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. (1-18)-hr labs. Repeatable. This course is graded S/U.

Internal Medicine

789 Free Radicals in Biomedicine GRAD 3
A background introductory course in free radical biology and medicine, focused on biologically relevant radicals, their physiological and pathophysiologic roles and underlying physico-chemical processes.
Sp Qtr. Prereq: Graduate level biochemistry, physical chemistry and/or biophysics recommended. Undergraduates only by permission of instructor. Cross-listed in Biophysics.

790 Introduction to Gerontology GRAD 3
Provides a foundation for the further study of aging and development of improved aging services. Physiological, cognitive, and social dimensions of aging are considered.
Au, Sp Qtrs. Distance Learning course as part of the SAGE program. This course is graded S/U.

793.02 Individual Studies: Cardiology GRAD 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: Cardiology.
Prereq: Permission of instructor. This course is graded S/U. Repeatable to a maximum of 18 cr hrs.

793.04 Individual Studies: Endocrinology GRAD 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: Endocrinology.
Prereq: Permission of instructor. This course is graded S/U. Repeatable to a maximum of 18 cr hrs.

793.08 Individual Studies: Infectious Diseases GRAD 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: Infectious Diseases.
Prereq: Permission of instructor. This course is graded S/U. Repeatable to a maximum of 18 cr hrs.

793.10 Individual Studies: Pulmonary Diseases GRAD 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: Pulmonary Diseases.
Prereq: Permission of instructor. This course is graded S/U. Repeatable to a maximum of 18 cr hrs.

793.12 Individual Studies: Rheumatology GRAD 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: Rheumatology.
Prereq: Permission of instructor. This course is graded S/U. Repeatable to a maximum of 18 cr hrs.

794 Group Studies in Medicine GRAD 6-18
Group studies of special topics in medicine.
Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

795 Issues and Trends in Aging GRAD 3
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.
Au Qtr. Distance Learning course as part of the SAGE program and is also approved as an elective in the Graduate Interdisciplinary Specialization in Aging. This course is graded S/U.

797 Interdepartmental Seminars GRAD 1-5
Interdepartmental Seminars.
Wi Qtr. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

850.01 Seminar: Allergy GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. Repeatable.

850.02 Seminar: Cardiology GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.03 Seminar: Dermatology GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.04 Seminar: Endocrinology GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.05 Seminar: Gastroenterology GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.06 Seminar: General Medicine GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.07 Seminar: Genetics GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.08 Seminar: Hematology GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.09 Seminar: Infectious Disease GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.11 Seminar: Pulmonary Disease GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.12 Seminar: Renal Disease GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

850.13 Seminar: Rheumatology GRAD 1-3
Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts.
Prereq: Permission of instructor. This course is graded S/U. Repeatable.

999 Research in Medicine GRAD 1-25
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

International Studies

201 Introduction to Peace Studies UGRD 5
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.
Su, Au, Wi, Sp Qtrs. 2-2 hr cl. 201H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC soc sci organizations and polities course.

210 Introduction to Western Europe UGRD 5
Introduction to Western Europe with a particular attention to its social, political, cultural and artistic development over the past several centuries.
Au, Wi, Sp Qtrs. 2-2 hr cl. Honors embedded course available. GEC soc sci human, natural, and economic resources and historical survey and diversity, international issues course.

215 Introduction to Development Studies UGRD 5
Introduction to the contemporary field of development studies through examination of the developing countries of Asia, Africa, and Latin America.
Su, Au, Wi, Sp Qtrs. 2-2 hr cl. 215H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC soc sci human, natural, and economic resources course.

230 The Rise and Fall of the Soviet Union UGRD 5
Survey of the birth, growth, decline, and death of communism in the Soviet Union: land, people, history, politics, social institutions, and culture; conducted by members of several departments.
Au, Sp Qtrs. 2-2 hr cl. 230H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC soc sci organizations and polities course.

230H The Rise and Fall of the Soviet Union UGRD 5
Survey of the birth, growth, decline, and death of communism in the Soviet Union: land, people, history, politics, social institutions, and culture; conducted by members of several departments.
Prereq: Enrolled in the university honors program or permission of instructor. GEC Social Science: Org and Polities course.

231 Introduction to Eastern Europe since World War II UGRD 5
Survey of the land, people, history, politics, social institutions, literature, and arts of Eastern Europe since World War II.
Wi Qtr. 2-2 hr cl. GEC soc sci organizations and politics course.
235 Introduction to China and Japan UGRD 5
Interdepartmental survey of contemporary Asian civilization; geographic and racial background, historical and cultural heritage, social organizations, economic and political problems, and international relations.
Sp Qtr. 2-2 hr cl. GEC soc sci organizations and politics course.

240 Introduction to Latin America UGRD 5
Interdepartmental survey of Latin American societies, anthropology, economics, history, literature, geography, and agriculture.
Au, Sp Qtr. 2-2 hr cl. 240H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC soc sci human, natural, and economic resources course.

245 Introduction to the Modern Middle East UGRD 5
Interdepartmental survey of the land, people, history, politics, religion, philosophy, social institutions, economic development, literature, and the arts, conducted by members of several departments.
Wi Qtr. 2-2 hr cl. GEC soc sci organizations and politics course.

250 Introduction to Africa UGRD 5
Interdepartmental survey of the land, people, history, politics, social institutions, economic development, literature, and the arts, conducted by members of several departments.
Sp Qtr. 2-2 hr cl. GEC soc sci organizations and politics course.

280 Feast or Famine: The Global Business of Food Global and regional trends in food consumption and production are surveyed. Trade, technological change, and other responses to food scarcity are analyzed.
Su, Au, Wi, Sp Qtr. 2-2.5 hr cl. Not open to students with credit for AED Econ 235 or 335. Cross-listed in Agricultural, Environmental, and Development Economics. GEC soc sci hum econ, and nat resources and global diversity course.

294 Group Studies UGRD 1-5
Groups of students are offered the opportunity to pursue the interdepartmental study of special topics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

300 Introduction to Homeland Security UGRD 5
Comprehensive overview of U.S. homeland security. Threats from natural disasters, terrorism, etc will be studied. Programs and technologies involved in disaster prevention and response.
Au, Wi, Sp Qtr. 2-2 hr cl. Prereq: Rank 2 or higher or permission of instructor.

350 Introduction to Intelligence UGRD 5
Provides students with a comprehensive introduction to the gathering, analysis, and use of military and political intelligence in a number of countries.
Su, Au, Wi, Sp Qtr. 2-2 hr cl. 100H (honors) may be available to students enrolled in an honors program or by permission of department or instructor.

350H Introduction to Intelligence UGRD 5
Provides students with a comprehensive introduction to the gathering, analysis, and use of military and political intelligence in a number of countries.
Su, Au, Wi, Sp Qtr. 2-2.5 hr cl.

356 Introduction to Globalization UGRD 5
Analysis of globalization in all its aspects, economic, political, cultural, environmenta and technological, as well as its extent and desirability.
Au, Wi, Sp Qtr. 2-2 hr cl. Prereq: Soph standing or above, or permission of instructor. GEC soc sci individuals and groups course.

443 The Analysis and Display of Data UGRD 5
Analysis of data; introduction to the internet; introduction to techniques in the graphical presentation of data; designed for economics and international studies majors.
Su, Au, Wi, Sp Qtr. 2-2 hr cl. lab arr. Prereq: GEC data analysis course. Not open to students with credit for Econ 443. Cross-listed in Economics.

455 Bioterrorism: An Overview UGRD 5
A broad awareness course on the bioterrorism threat to our food supply, crops, animal and public health, and bioterrorist organizations.
Wi Qtr. 2-2 hr cl. Prereq: Jr or sr standing, or permission of instructor. Not open to students with credit for Plnt Pth 455. Cross-listed in Plant Pathology.

501 Selected Problems in International Studies UGRD 5
Class discussions, with several guest speakers, informal conferences, and a reading and research program arranged to meet the special needs of those enrolled.
Au, Wi, Sp Qtr. 2-2 hr cl. 501H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Open only to int stds majors or students with equiv preparation. Repeatable to a maximum of 15 cr hrs.

515 Ethnicity, Development and the State in Sub-Saharan Africa Course takes a theoretical and comparative historical approach to analyzing problems of development and ethnic conflict in Sub-Saharan Africa.
Au Qtr. 2-2 hr cl. Prereq: Rank 2 or higher or permission of instructor. Not open to students with credit for AFAMAST 515. Cross-listed with AFAMAST 515.

525 Contemporary Religious Movements in Global Context Examination of contemporary religious movements within the context of larger political, cultural, and economic processes, including post-colonialism, modernization and globalization.
Sp Qtr. Prereq: One course in comp std or int stds or grad standing or permission of instructor. Not open to students with credit for Comp Std 525. Cross-listed in Comparative Studies.

530 Comparative Communism: China and Russia Seeks to understand the different trajectories of the world's two great communist powers of the 20th century: China and Russia.
Wi Qtr. 2-2 hr cl. Prereq: Rank 2 or permission of instructor.

531 The City and Culture Introduction to the comparative and cross-cultural study of cities, urban culture, and urbanism.
Sp Qtr. 2-2 hr cl. Prereq: One course in comp std or int stds, or grad standing, or permission of instructor. Not open to students with credit for Comp Std 531. Cross-listed in Comparative Studies.

532 Food Security and Globalization Examination of the causes of and solutions for food insecurity. Global and local factors that affect access to food are also considered.
Au, Wi, Sp Qtr. 2-2 hr cl. Prereq: AED Econ 200 or Econ 200 or permission of instructor. Not open to students with credit for 435 or AED Econ 435, 535. Cross-listed in Agricultural, Environmental, and Development Economics.

533 Organized Crime and Corruption in Contemporary Europe Organized crime and corruption in Post-Communist Europe will be studied. Trafficking in drugs, weapons, organs, people and nuclear materials will be explored.
Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: Rank 2 or higher or permission of instructor.

535 Economic Development Processes in Developing Countries Study of major Third World problems using principles of development economics; examines poverty, inequality, unemployment, population growth, resource use and rural development.
Wi, Sp Qtrs. 2-2.5 hr cl. Prereq: AED Econ 200 or Econ 200. Not open to students with credit for 435 or AED Econ 435, 535. Cross-listed in Agricultural, Environmental, and Development Economics.

536 Economic Development of Sub-Saharan Africa Issues shaping economic development and stagnation in contemporary Africa such as population growth, agricultural development, industrialization, trade, structural adjustment and environmental issues.
Au, Qtr. 2-2 hr cl. Prereq: AED Econ 200 or Econ 200. Not open to students with credit for 436 or AED Econ 436, 536. Cross-listed in Agricultural, Environmental, and Development Economics.

537 Middle Eastern Economic Development Economic conditions, problems, integrations and potentials of Middle Eastern economies using principles of economic development and growth models.
Wi Qtr. 2-2 hr cl. Prereq: AED Econ 200 or Econ 200. Not open to students with credit for 437, AED Econ 437, 537 or Econ 537. Cross-listed in Agricultural, Environmental, and Development Economics.

538 Latin American Economic Development Public policy and other factors influencing economic growth in Latin America are examined.
Sp Qtrs. 2-2.5 hr cl. Prereq: AED Econ 200 or Econ 200 or equiv. Not open to students with credit for 438 or AED Econ 438, 538. Cross-listed in Agricultural, Environmental, and Development Economics.

539 China's Economic Reforms and Globalization An introductory survey course of economic reforms and globalization in China with emphasis on economic and social transformation, and its integration into the global economy.
Sp Qtr. 2-2 hr cl. Prereq: AED Econ 200 or Econ 200 or permission of instructor. Not open to students with credit for 439 or AED Econ 439, 539. Cross-listed in Agricultural, Environmental, and Development Economics.

540 International Commerce and the World Economy Application of trade theory and policies to world trade that impacts global business.
Wi Qtr. 2-2.5 hr cl. Prereq: AED Econ 200 or Econ 200, or permission of instructor. Not open to students with credit for AED Econ 540. Cross-listed in Agricultural, Environmental, and Development Economics.
542 Incomplete Democracies: The (Un)Rule of Law in Latin America UGRD 5
This course explores various forms of violence including electoral violence and political assassination, organized crime, police brutality, and other human rights abuses in Latin America. Au, Sp Qtr. Sophomore standing or higher. Not open to students with credit for Political Science 542. Cross-listed in Political Science.

550 Cultural Diplomacy UGRD 5
Cultural Diplomacy is the exchange of information, ideas, and values among nations and peoples. Public and private mechanisms for these exchanges are explored. Au, Wi, Sp Qtr. 2-2 hr cl. Prereq: Soph standing or higher, or permission of instructor.

551 Intervening for Peace: Peacekeeping and Collective Security UGRD 5
Exploration of the theory and practice of international peacekeeping and collective security. Au, Sp Qtr. 2-2 hr cl.

552 Model United Nations UGRD 5
Interactive diplomatic simulation of the political processes of the UN system focusing on selected global problems; involves class discussions, group projects, and significant student participation. Wi Qtr. 2-2 hr cl.

553 Terror and Terrorism UGRD 5
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. Su, Au, Wi, Sp Qtr. 2-2 hr cl.

554 Science, Technology and the Cold War UGRD 5
Explores how science and technology, especially computer science and arms race technologies, influenced the conflict between America and the Soviet Union. Wi Qtr. 2-2 hr cl.

555 The Development and Control of Weapons of Mass Destruction UGRD 5
Offers students an overview of the issues relating to atomic, biological, and chemical weapons, commonly referred to as weapons of mass destruction (WMD). Au, Sp Qtr. 2-2 hr cl.

556 Cooperation and Conflict in the Global Economy UGRD 5
The economic, social, and political bases for and responses to increasing global economic integration. Su, Au, Wi, Sp Qtr. 2-2 hr cl. 556H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Econ 200 anc 201 or 400, or equivs. Not open to students with credit for Econ 556. Cross-listed in Economics.

557 Research in Globalization UGRD 5
Course explores aspects of globalization through the process of research. Hypothesis construction, data gathering and analysis and preparing a finished research product will be taught. Prereq: 356 or permission of instructor, CompStds 357.

565 Global Climate Change: Economic Implications and Opportunities UGRD 5
This course examines the economics of implications of climate change and climate change policies for society, including discussion of major state, federal and international legislation. Prereq: AEDECON 200 or ECON 200. Not open to students with credit for AEDECON 565. Cross-listed with AEDECON 565.

597.01 Problems and Policies in World Population, Food, and Environment UGRD 5
Problems related to world-wide population increases, food production, and associated environmental stress; policy options for lessening these problems, especially in low-income countries. Su, Au, Wi, Sp Qtrs. 2.1-5 hr cl. 1-2 hr rec. Prereq: Sr standing. Not open to students with credit for AED Econ 597.01. GEC contemporary world courses. Cross-listed in Agricultural, Environmental, and Development Economics.

597.01H Problems and Policies in World Population, Food, and Environment: Honors UGRD 5
Problems related to world-wide population increases, food production, and associated environmental stress; policy options for lessening these problems, especially in low-income countries. Su, Au, Wi, Sp Qtrs. 2.1-5 hr cl. 1-2 hr rec. Prereq: Sr standing; honors program or by permission of department or instructor. Not open to students with credit for AED Econ 597.01. GEC contemporary world courses. Cross-listed in Agricultural, Environmental, and Development Economics.

597.02 Antarctic Marine Ecology and Policy UGRD 5
Historical and contemporary evaluation of Antarctic resource management and its scientific basis. Sp Qtr. 1.5 hr cl. Prereq: Sr standing. Not open to students with credit for EEOB or Nat Res 597.02. GEC contemporary world courses. Cross-listed in Evolution, Ecology, and Organismal Biology and Natural Resources.

601 Senior Seminar in Peace Studies UGRD 5
Advanced offering in the peace studies track, providing an opportunity to integrate multi-disciplinary course work and internship experience into a comprehensive overview of peace theory. Au Qtr. 2-2 hr cl. Prereq: 201, GeoG 200, 25 hrs from list of courses approved for peace studies in international studies.

615 Children and War UGRD 5
Explores how children are affected by war, as forced participants, orphans and refugees. Long-term effects on society will be studied. Au, Wi, Sp Qtr. 2-2 hr cl. Prereq: Soph standing or higher, or permission of instructor.

616 Challenges to Childhood: An International Perspective UGRD 5
Course will explore children's forced participation in war and its consequences and child poverty, labor, health, abuse and victimization in international perspective. Cross-listed in Sociology.

640 Globalization and Latin America: Multi-Disciplinary Approaches UGRD 5
Explores current debates on globalization in Latin America and recent and interrelates transformations in the economies, politics, and cultures of the region. Sp Qtr. 2-2 hr cl. Prereq: Jr standing or higher. Not open to students with credit for Spanish 640. Cross-listed in Spanish.

645 Contemporary Issues in the Middle East UGRD 5
Intensive examination of contemporary issues in the Middle East by applying an interdisciplinary approach. Sp Qtr. 2-2 hr cl. Prereq: 245 or jr standing. Not open to students with credit for NELC 645. Cross-listed in Near Eastern Languages and Cultures.

650 International Law UGRD 5
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. Au Qtr. 2-2 hr cl. Prereq: Soph standing or higher, or permission of instructor.

670 Rebuilding Failed and Weak States UGRD 5
Tackles the question of how to design policies and programs to rebuild failed and weak states into functioning, if not vibrant democracies. Sp Qtr. 2-2 hr cl. Prereq: Second yr standing or higher or permission of instructor. Not open to students with credit for PubPol&M 670. Cross-listed in Public Policy and Management.

689 Student Intern Program in International Studies UGRD 1-16
Opportunity to gain knowledge of the policy process in an international or government agency. Su, Au, Wi, Sp Qtr. Arr. Prereq: Jr or sr standing with at least B average, and 25 cr hrs in a foreign language. Repeatable to a maximum of 15 cr hrs. Travel and subsistence costs to be borne by the student. This course is graded S/U.

693 Individual Studies UGRD 1-10
Design to give able students an opportunity to pursue a special course of study not otherwise available to them. Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies UGRD 3-5
Design to give groups of students an opportunity to pursue special studies not otherwise offered. Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive credit for that work. Su, Au, Wi, Sp Qtrs. Prereq: Written permission of department. Repeatable to a maximum of 45 cr hrs. This course is Progress (‘P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

699 Undergraduate Research in International Studies UGRD 1-15
Undergraduate research or creative activities in variable topics. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
717 Comparative Education UGRD 3
Application of social science theories and methods to international issues of education
Au Qtr. 1.25-hr cl. Prereq: Sr standing and permission of instructor. Not open to students with credit for EDU-P&L 717. Cross-listed in Educational Policy and Leadership.

783H Honors Research UGRD 3-5
Informal conferences to allow full scope of the initiative of the student; a special topic is assigned to each student; the results are tested by papers and a special examination.
Su, Au, Wi, Sp Qtr. Prereq: Sr standing and 40 or hrs in the social sciences including 15 or hrs in courses acceptable for a major in int stds, with a grade of A in at least half of these major courses 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. Repeatable to a maximum of 15 cr hrs. Failure to receive a mark of S in this course is a disqualification for special honors. This course is graded S/U.

Italian

**101 Elementary Italian I** UGRD 5
Introduction to Italian; development of skills in speaking, understanding, reading, and writing contemporary Italian in a cultural context.
Su, Au, Wi, Sp Qtrs. Prereq: Not open 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. GEC for lang course.

**102 Elementary Italian II** UGRD 5
Further development of skills in speaking, understanding, reading, and writing contemporary Italian in a cultural context.
Su, Au, Wi, Sp Qtrs. Prereq: 101. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

**103 Intermediate Italian I** UGRD 5
Development of skills in speaking, understanding, reading, and writing contemporary Italian at a more complex level.
Su, Au, Wi, Sp Qtrs. Prereq: 102. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

**104 Intermediate Italian II** UGRD 5
Readings of contemporary literary and nonliterary texts and continued development of speaking, listening, reading and writing skills.
Su, Au, Wi, Sp Qtrs. Prereq: 103. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

**151 Italian Literature in Cultural Context from the Middle Ages to the Renaissance** UGRD 5
Introduction to social-cultural trends in Italy as reflected in literary texts and other materials from the beginnings to the Renaissance.
Taught in English. GEC arts and hums lit course.

**152 Italian Literature in Cultural Context from the Renaissance to the Present** UGRD 5
Introduction to social-cultural trends in Italy as reflected in literary texts and other materials from the Renaissance to the present.
Taught in English. GEC arts and hums lit course.

**202 Contemporary Italian Society** UGRD 5
Exploration of a variety of aspects of contemporary Italian society and culture while developing language skills. Special focus on reading skills.
Prereq: 104 or permission of instructor. Not open to native speakers of Italian.

**206 Business Italian** UGRD 5
Four-skill study and practice of general business Italian; introduction to current Italian commerce, business practices, terminology, business-related communication skills.
Prereq: 104 or permission of instructor. Not open to native speakers of Italian.

**221 Masterpieces of the Italian Cinema** UGRD 5
Survey of the Italian cinema from the beginnings to today with special emphasis on neo-realism.
Taught in English. GEC arts and hums VPA course.

**251 Dante in Translation** UGRD 5
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 110, 110.01, 110.02, or 110.03. Taught in English; GEC arts and hums lit course.

**293 Individual Studies** UGRD 1-15
Individual Studies.
Prereq: Written permission of dept. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

**401 Modern Italian Media** UGRD 5
Development of language skills using Italian media sources such as soap operas, internet resources, films, newspapers/magazines, etc.
Prereq: 202 or permission of instructor. Not open to native speakers of Italian. Repeatable to a maximum of 10 cr hrs.

**402 The Sounds of Italian** UGRD 5
An introduction to Italian phonetics and phonology. Special focus on pronunciation.
Prereq: 202 or permission of instructor. Not open to native speakers of Italian.

**420 Italian Culture Through the Ages** UGRD 5
An overview of Italian cultural history from the Medieval period to today; develops language skills through discussion of readings and film.
Prereq: 202 or permission of instructor. Not open to native speakers of Italian. Conducted in Italian.

**421 Reading Italy: Italian Literature and Culture** UGRD 5
An exploration of the culture and history of different periods through selected works of Italian literature.
Prereq: 202. Not open to native speakers of Italian. Repeatable to a maximum of 10 cr hrs. Conducted in Italian.

**423 The Italian Language Yesterday and Today** UGRD 5
Development of language skills while studying the evolution of Italian from its Latin origins. Special attention paid to the linguistic diversity of Italy today.
Prereq: 202 or permission of instructor. Not open to native speakers of Italian. Conducted in Italian.

**425 The Regions of Italy** UGRD 5
Development of language skills while studying the histories and cultures of a variety of regions of Italy.
* Prereq: 202 or permission of instructor. Not open to native speakers of Italian.

**450 Italian Theater Workshop** UGRD 5
The study, adaptation and presentation of a play in Italian.
Prereq: Any Italian 400-level class or permission of instructor. Not open to native speakers of Italian.

**501 Italian for Speakers of Other Romance Languages** UGRD 5
This intensive course covers the same material in Italian 101 and 102 and is designed for students with knowledge of a Romance language or Latin.
Au Qtr. Prereq: French 103, Spanish 103, Portuguese 103, Latin 103 or permission of instructor. Not open to native speakers of Italian. GEC Foreign Language course.

**502 Italian for Speakers of Other Romance Languages 2** UGRD 5
This intensive course covers the same material in Italian 103 and 104 and is designed for students with knowledge of a Romance language or Latin.
Wi Qtr. Prereq: 501 or permission of instructor. Not open to native speakers of Italian. GEC Foreign Language course.

**601 Structures of the Italian Language** UGRD 5
Introduction to the basic concepts of Italian linguistics; improve and refine your understanding of grammar; focus on several advanced-level structures.
Prereq: Two 400-level courses, or permission of instructor. Not open to native speakers of Italian.

**602 Italian Translating** UGRD 5
Translation from Italian to English and English to Italian of texts from diverse source analysis of prose styles and conventions in the two languages.
Prereq: 10 hrs of Italian beyond 104.

**613 Italian Cinema** UGRD 5
Examination of Italian cinema from Neorealism to the present. Discussion of contemporary society and culture with a brief introduction to film theory.
Prereq: 420, 421, 423 or permission of instructor. Conducted in Italian.

**614 Survey of Italian Literature** UGRD 5
Overview of selected works of Italian literature from the origins to today. Special focus on the cultural and historical contexts of the text studied.
Prereq: 420 or 421 or 423, or any course above 400-level or permission of instructor. Not open to native speakers of Italian. Conducted in Italian.

**615 Italian Identities** UGRD 5
Examination of the experiences and perspectives of Italians (including emigrants) through reading, film, and discussion. Topics include popular culture, Italian Americans, immigration in Italy, etc.
Prereq: 420, 421, 423, or any course above 400-level, or permission of instructor. Taught in Italian.

**621 Dante** UGRD 5
Introduction to the reading of the Divine Comedy; analysis of major episodes.
Prereq: 10 cr hrs at the 400 level or above, or permission of instructor.

**622 Petrarch and Boccaccio** UGRD 5
Historical and aesthetic analysis of Petrarch's poetry; Petrarchism as a European phenomenon; literary background of Boccaccio's prose and verse; reading from the Decameron.
Prereq: 10 cr hrs at the 400 level or above, or permission of instructor.

**625 Italian Literature of the Renaissance** UGRD 5
Readings in works of representative authors of the 15th and 16th centuries such as Leonardo, Michelangelo, Castiglione, Machiavelli, Ariosto, and Tasso.
Prereq: 10 cr hrs at the 400 level or above, or permission of instructor.
626 Italian Literature of the 17th and 18th Centuries UGRD 5
Readings in selected works of authors such as Campanella, Marino, Galilei, Metastasio, Vico, Goldoni, Parini, and Alfieri.
* Prereq: 10 cr hrs at the 400 level or above, or permission of instructor.

627 Modern Italian Fiction UGRD 5
Modern Italian fiction from 1800 to the present.
Prereq: 10 cr hrs at the 400 level or above, or permission of instructor.

628 Modern Italian Poetry UGRD 5
Italian poetry from 1800 to the present.
* Prereq: 10 cr hrs at the 400 level or above, or permission of instructor.

692 The Romance Languages UGRD 5
Examines the socio-historical factors and the linguistic processes that contributed to the formation of the Romance languages and to their divergences.
Prereq: One year of a Romance language or permission of instructor. Not open to students with credit for French 692 or Rom Ling 692. Cross-listed in French and Romance Linguistics. Offered bi-annually. Taught in English. This course counts toward: the Italian major (as one of the two courses taught in English), the French major (as an elective for all the major tracks), the Linguistics major or minor, the Spanish major (as an elective and the one course taught in English permitted to count for the major).

693 Individual Studies UGRD 1-15
Individual Studies.
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-15
Group Studies.
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

699 Undergraduate Research UGRD 1-15
Undergraduate research or creative activities in variable topics.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

711 History of the Italian Language: Introduction UGRD 5
Basic concepts of historical linguistics; the major factors of change in the history of the Italian language from Roman times to the present.
* Prereq: MA candidates in Italian, qualified undergrads with permission of instructor. Not open to students with credit for 811.

730 Seminar in Italian Linguistics UGRD 5
Detailed exploration of selected topics in Italian linguistics with extensive analysis of Italian language data relevant to the topic.
Prereq: MA candidates in Italian, qualified undergrads with permission of instructor. Repeatable to a maximum of 15 cr hrs. including cr hrs earned in 830.

732 Seminar in Italian Literature UGRD 5
Seminar in Italian Literature.
Prereq: MA candidates in Italian, qualified undergrads with permission of instructor. Repeatable to a maximum of 15 cr hrs. including cr hrs earned in 832.

734 Seminar in Italian Film UGRD 5
Detailed exploration and analysis of selected topics in Italian cinema. Topic varies.
Wi Qtr. Prereq: MA candidates in Italian, qualified undergrads with permission of instructor. Repeatable to a maximum of 15 cr hrs.

783H Honors Research UGRD 3-5
A program of individual study for undergraduate honors students; includes individual conferences and reports; requires presentation and oral defense of an honors thesis. Arr. Prereq: 4th yr standing with at least a 3.50 cumulative pt/hr ratio in Italian; written permission of instructor under whose supervision the work is to be completed, and of the Arts and Sciences Honors Committee. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

792 Interdepartmental Studies in the Humanities UGRD 3-5
Two or more departments present colloquia on subjects of mutual interest; topics to be announced.
* Prereq: Grad standing or permission of instructor(s). Repeatable with permission of dept.

801 Teaching Italian at the College Level GRAD 5
Methods and techniques for teaching Italian language at the college level.
Au Qtr. Two wks intensive workshop prior to the beginning of qtr followed by a 2 hr wly cl. Prereq: Teaching associate in the Dept of French and Italian or permission of instructor. Not open to students with credit for Educ-T&L 801.02. For students enrolled in this course, the minimum number of cr hrs required for graduation is increased by 5 hrs.

885 Introduction to Methods in the History and Criticism of Literature GRAD 5
Selected readings in basic literary history, criticism, and theory, with practice in the use of standard bibliographical aids to scholarship.

893 Individual Studies GRAD 1-5
Individual Studies.
Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

894 Group Studies GRAD 1-15
Investigation of minor problems in the various fields of Italian literature and language.
Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs.

899 Interdepartmental Seminar GRAD 3-5
Two or more departments present seminars on subjects of mutual interest; topics to be announced.
Prereq: Permission of instructor(s). Repeatable with permission of dept.

999 Research in Italian Language or Literature GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Japanese

101.01 Level One Japanese I UGRD 5
Elements of standard colloquial Japanese grammar, with intensive oral and written exercises; introduction to the Japanese writing system (hiragana, katakana, and kanji).
Au Qtr. 5 cl. Prereq: Written permission of instructor and/or written permission of instructor. Not open to students with credit for 101, 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.
GEC for lang courses. FL Admis Cond course. Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

101.02 Level One Japanese I: Summer Intensive Track UGRD 5
Elements of standard colloquial Japanese grammar, with intensive oral and written exercises; introduction to the Japanese writing system (hiragana, katakana, and kanji): Summer Intensive Track.
Su Qtr. 20 cl 3 wks. Prereq: Application and admission to SPEAC program. Not open to students with credit for 101, 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.
GEC for lang courses. FL Admis Cond courses. Students must register for and complete 5 cr hrs during the first 3 weeks of the quarter. This course is available for EM credit.

101.51 Level One Japanese I: Individualized Track UGRD 1-5
Elements of standard colloquial Japanese grammar, with intensive oral and written exercises; introduction to the Japanese writing system (hiragana, katakana, and kanji): Individualized Track.
Su, Au, Wi, Sp Qtrs. Not open to students with credit for 101, 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.
GEC for lang courses. FL Admis Cond courses. Students register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 102.51. Progress is sequential from one cr hr to the next with proficiency at the level of 80% required for advancement.

101.01 Level One Japanese II UGRD 5
Continuation of 101.
Wi Qtr. 5 cl. Prereq: 101 or 101.01 or 101.02 or 5 cr hrs of 101.51. Not open to students with credit for 102; or to native speakers of this language through regular course enrollment or EM credit.
GEC for lang courses. FL Admis Cond course. Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

102.01 Level One Japanese II: Summer Intensive Track UGRD 5
Continuation of 101: Summer Intensive Track.
Su Qtr. 20 cl 3 wks. Prereq: 101 or 101.01 or 101.02 or 5 cr hrs of 101.51. Prereq: Application and admission to SPEAC program. Not open to students with credit for 102; or to native speakers of this language through regular course enrollment or EM credit.
GEC for lang courses. FL Admis Cond course. Students must register for the course at the beginning of the quarter and complete 5 cr hrs during the second 3 weeks of the quarter. This course is available for EM credit.
102.51 Level One Japanese II: Individualized UGRD 1-5
Track
Continuation of 101: Individualized Track.
Su, Au, Wi, Sp Qtr. Prereq: 101 or 101.01 or 101.02 or 5 cr hrs of 101.51. Not open to students with credit for 102; or to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 5 cr hrs. GEC for lang courses. FL. Admis Cond course. Students register for and complete from 1 to 5 cr hrs during the quarter. Progress is sequential from one cr hr to the next with proficiency at the level of 80% required for advancement.

103.01 Level One Japanese III UGRD 5
Track
Continuation of 102.
Sp Qtr. 5 cr. Prereq: 102 or 102.01 or 102.02 or 5 cr hrs of 102.51. Not open to students with credit for 103; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. Students must register for and complete 5 cr hrs during the quarter. This course is available for EM credit.

103.51 Level One Japanese III: Individualized UGRD 1-5
Track
Continuation of 102: Individualized Track.
Su, Au, Wi, Sp Qtrs. Prereq: 102 or 102.01 or 102.02 or 5 cr hrs of 102.51. Not open to students with credit for 103; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. Students must register for the course at the beginning of the quarter and complete 5 cr hrs during the third 3 weeks of the quarter. This course is available for EM credit.

104.01 Level Two Japanese I UGRD 5
Track
Continuation of 103, with supplementary reading of selected graded texts. Summer Intensive Track.
Su Qtr. 20 cl 3 wks. Prereq: 103.01 or 103.02 or 5 cr hrs of 103.51 or equiv with written permission of instructor. Not open to students with credit for 104; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. Students register for and complete from 1 to 5 cr hrs during the quarter. Students who complete 5 cr hrs before the end of the quarter may proceed to 104. Progress is sequential from one cr hr to the next with a demonstrated proficiency of 80% required for advancement to next level.

104.02 Level Two Japanese I: Summer Intensive UGRD 5
Track
Continuation of 103, with supplementary reading of selected graded texts: Summer Intensive Track.
Su Qtr. 20 cl 3 wks. Prereq: 103.01 or 103.02 or 5 cr hrs of 103.51 or equiv with written permission of instructor. Not open to students with credit for 104; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang courses. This course is available for EM credit.

104.51 Level Two Japanese I: Individualized Track UGRD 1-5
Track
Continuation of 103, with supplementary reading of selected graded texts: Individualized Track.
Su, Au, Wi, Sp Qtrs. Prereq: 103.01 or 103.02 or 5 cr hrs of 103.51 or equiv with written permission of instructor. Not open to students with credit for 104; or to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 5 cr hrs. GEC for lang courses. Students register for and complete from 1 to 5 cr hrs during the quarter. Progress is sequential from one cr hr to the next with a demonstrated proficiency of 80% required for advancement to the next level.

205.01 Level Two Japanese II UGRD 5
Track
Continuation of 104 with a shift in emphasis from the spoken to the written language: reading of selected graded texts, writing, and composition. Summer Intensive Track.
Wi Qtr. 5 cl. Prereq: 104 or 104.01 or 104.02 or 5 cr hrs of 104.51 or equiv with written permission of instructor. This course is available for EM credit. Students must register for and complete 5 cr hrs during the quarter.

205.02 Level Two Japanese II: Summer Intensive UGRD 5
Track
Continuation of 104 with a shift in emphasis from the spoken to the written language: reading of selected graded texts, writing, and composition: Summer Intensive Track.
Su Qtr. 20 cl 3 wks. Prereq: 104 or 104.01 or 104.02 or 5 cr hrs of 104.51 or equiv with written permission of instructor. Prereq: Application and admission to SPEAC program. This course is available for EM credit. Students must register for the course at the beginning of the quarter and complete 5 cr hrs during the second 3 weeks of the quarter.

206.01 Level Two Japanese III UGRD 5
Continuation of 205.
Su Qtr. 5 cl. Prereq: 205 or 205.01 or 205.02 or equiv with written permission of instructor. This course is available for EM credit. Students must register for and complete 5 cr hrs during the quarter.

206.02 Level Two Japanese III: Summer Intensive Track
Continuation of 205: Summer Intensive Track.
Su Qtr. 20 cl 3 wks. Prereq: 205 or 205.01 or 205.02 or equiv with written permission of instructor. Prereq: Application and admission to SPEAC program. This course is available for EM credit. Students must register for the course at the beginning of the quarter and complete 5 cr hrs during the third 3 weeks of the quarter.

210 Intensive Level Two Japanese I: Spoken UGRD 5
First course in the sequence of academic year intensive Japanese courses; organized around a set of videotaped core conversations.
Au Qtr. 5 cl. Prereq: 103 or equiv, or permission of instructor; concur: 211. Not open to students with credit for 104, 104.01, 104.02, 104.51, 111, 205, 205.01, 205.02. Students must register for 210 and 211 concurrently.

211 Intensive Level Two Japanese II: Written UGRD 5
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 Qtr. 5 cl. Prereq: 103 or 103.01 or 103.02 or 103.51, or permission of instructor; concur: 210. Not open to students with credit for 104, 104.01, 104.02, 104.51, 205, 205.01, 205.02. Students must register for 210 and 211 concurrently.

231 Elements of Japanese Culture UGRD 5
A survey of literature, art, religion, philosophy, and social institutions of the Japanese people from the earliest to the most recent times.
Su, Au, Wi, Sp Qtrs. 5 cl. Taught in English. GEC arts and hums cultures and ideas course.

251 Japanese Literature in Translation UGRD 5
Representative masterpieces from Japanese literature: fiction, drama, poetry, prose. Au, Wi, Sp Qtrs. Cl. Taught in English. GEC arts and hums lit course.

252 Modern Japanese Literature in Translation UGRD 5
Modern Japanese literature from late 19th century Western influences to contemporary writers; selected readings in English translation with emphasis on Tanizaki, Kawabata and Mishima.
Au, Wi, Sp Qtrs. 5 cl. GEC arts and hums lit course.

293 Individual Studies UGRD 1-5
Individual investigation of problems in Japanese culture, language, and literature.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

294 Group Studies UGRD 1-5
Group Studies.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs.

310 Intensive Level Two-Three Japanese I: Spoken UGRD 5
Third course in the sequence of academic-year intermediate intensive Japanese courses; organized around a set of videotaped core conversations.
Wi Qtr. 5 cl. Prereq: 104 or 104.01 or 104.02 or 104.51 and permission of instructor, or 210, concur: 311. Not open to students with credit for 205. Students must register for 310 and 311 concurrently.

311 Intensive Level Two-Three Japanese II: Written UGRD 5
Fourth course in the sequence of academic-year intensive Japanese courses; organized around reading. Japanese a set of genre-specific samples of Japanese as it is written today, integrated with 310 in structure and vocabulary.
Wi Qtr. 5 cl. Prereq: 211 or equiv, or permission of instructor; concur: 310. Not open to students with credit for 205 or 205.01 or 205.02. Students must register for 310 and 311 concurrently.

501 Japanese Literature in Critical Perspective UGRD 5
Au, Wi, Sp Qtr. 2.5-hr cl. Prereq: 251 or 252 or equiv, or permission of instructor. GEC third writing course.

507 Level Three Japanese I UGRD 5
Expansion of Strategies for communication through oral and textual media.
Au Qtr. 5 cl. Prereq: 206 or equiv with written permission of instructor.

508 Level Three Japanese II UGRD 5
Continuation of 507; supplementary readings in short stories and standard reference works.
Wi Qtr. 5 cl. Prereq: 507 or equiv with written permission of instructor.

509 Level Three Japanese III UGRD 5
Continuation of 508.
Sp Qtr. 5 cl. Prereq: 508 or equiv with written permission of instructor.
510 Intensive Level Three Japanese I: Spoken UGRD 5
Fifth course in the sequence of academic-year intermediate intensive spoken Japanese
uses audio, video, and textual materials.
Sp Qtr. 5 cl. Prereq: 310 or equiv, or permission of instructor; concurs: 511. Students
must register for 510 and 511 concurrently.

511 Intensive Level Three Japanese II: Written UGRD 5
Sixth course in the sequence of academic-year intermediate intensive written
Japanese; moves from pedagogically planned texts to genres written today for native
consumption.
Sp Qtr. 5 cl. Prereq: 311 or equiv, or permission of instructor; concurs: 510. Students
must register for 510 and 511 concurrently.

515 Japanese Language: Structure, Culture, and Communication I UGRD 5
Critical and comprehensive survey of structural, cultural, and communicative aspects
of the Japanese language.
Wi Qtr. 2 2-hr cl. Prereq: 101 or permission of instructor. Taught in English. Counts
as a choice on major/minor.

516 Japanese Language: Structure, Culture, and Communication II UGRD 5
Critical and comprehensive survey of structural, cultural, and communicative aspects
of the Japanese language.
Sp Qtr. 2 2-hr cl. Prereq: 104, 515, or permission of instructor. Taught in English.
Counts as a choice on major/minor.

600 Performance Traditions of Japan UGRD 5
Introduction to performance traditions of Japan; explores selected performance genera
in their cultural contexts and examines patterns of emergence in modern times.
Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 231 or 251 or 252, or Chinese 231 or 251 or 252,
or EALL 131, or Korean 231 or 251; or permission of instructor.

601 Classical Japanese I UGRD 5
Develops familiarity with grammatical categories, functions, and tools for reading
early Japanese, in close reading of selected primary texts and linguistic analysis.
Au, Wi, Sp Qtrs. 5 cl. Prereq: 509 or equiv or permission of instructor.

602 Classical Japanese Continued, Linguistic Focus UGRD 5
Builds on 601, through close reading of selected primary texts, with attention to
linguistic issues in the history of Japanese. May follow 603.
Au, Wi, Sp Qtrs. 5 cl. Prereq: 601 or equiv or permission of instructor.

603 Classical Japanese Continued, Literary Focus UGRD 5
Builds on 601 through close reading of selected primary texts, with focus on
conventions of literary genres and related critical issues. 602 not a prerequisite.
Au, Wi, Sp Qtrs. 5 cl. Prereq: 601 or equiv or permission of instructor.

610.01 Level Four Japanese I UGRD 5
Selected readings in modern literary, scholarly, and journalistic Japanese; essentially a
two-language course intended to improve fluency.
Au Qtr. 5 cl. Prereq: 509 or 510 or 511 or permission of instructor. Not open to
students with credit for 661.

610.02 Level Four Japanese II: Summer Intensive Track UGRD 5
Selected readings in modern literary, scholarly, and journalistic Japanese; essentially a
two-language course intended to improve fluency: Summer Intensive Track.
Au Qtr. 5 cl. Prereq: 509 or 510 or 511 or permission of instructor. Not open to
students with credit for 661.
Su Qtr. 20 cl 3 wks. Prereq: 610 or 610.01 or 610.02 or permission of instructor.
Prereq: Application and admission to SPEAC program. Not open to students with
credit for 662. Students must register for the course at the beginning of the quarter and
complete 5 cr hrs during the first 3 weeks of the quarter.

612.01 Classroom Track UGRD 5
Continuation of 611.
Sp Qtr. 5 cl. Prereq: 611 or 611.01 or 611.02 or permission of instructor. Not open to
students with credit for 663. Students must register for and complete 5 cr hrs during
the quarter.

612.02 Summer Intensive Track UGRD 5
Continuation of 611.
Summer Intensive Track.
Su Qtr. 20 cl 3 wks. Prereq: 611 or 611.01 or 611.02 or permission of instructor.
Prereq: Application and admission to SPEAC program. Not open to students with
credit for 663. Students must register for the course at the beginning of the quarter and
complete 5 cr hrs during the first 3 weeks of the quarter.

641 The Japanese Religious Tradition UGRD 5
A survey of the Japanese tradition, including Shinto, Buddhism, Taoism, Neo-
Confucianism, and folk religion from the 6th century B.C.E. to the present.
Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Permission of instructor. Not open to students with
credit for Comp Std or Rel Stds 641. Cross-listed in Comparative Studies.

654 Japanese Literature: Classical Period UGRD 5
Survey of Japanese literature from the eighth to the mid-fourteenth century: myths,
court poetry, tales, fiction, diaries, and miscellaneous.
* Au Qtr. 5 cl. Prereq: 231 or 251 or 252, or another Japanese literature course at the
200 level or above.

655 Japanese Literature: Medieval and Edo Periods UGRD 5
Survey of Japanese literature from the mid-fourteenth to the mid-nineteenth century:
popular tales, poetry, drama, and the fiction of the merchant class.
* Wi Qtr. 5 cl. Prereq: 231 or 251 or 252, or another Japanese literature course at the
200 level or above.

661 Japanese Literature: Modern Period UGRD 5
Survey of Japanese poetry, fiction, and drama from the 19th century to the present.
* Sp Qtr. 5 cl. Prereq: 231 or 251 or 252, or another Japanese literature course at the
200 level or above.

665 Studies in Japanese-American Literature UGRD 5
Critical study of modern Japanese-American literature in historical and cultural context; topics vary: literature of the interment, gender and identity politics, genre studies, women's writing.
2 2-hr cl. Prereq: 10 cr hrs in any literature or grad standing or permission of
instructor. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in Comp Std
665 or English 681.02. Cross-listed in Comparative Studies and with English 681.02.

680 Introduction to Japanese Linguistics UGRD 5
An introduction to the phonology, syntax, and lexicon of the Japanese language.
Au, Wi, Sp Qtrs. Prereq: 206 or Linguist 601; or permission of instructor.

681 History of the Japanese Language UGRD 5
A survey of the development of the Japanese language from early times to the present
Au, Wi, Sp Qtrs. Prereq: 206 or Linguist 601; or permission of instructor.

693 Individual Studies UGRD 1-5
Requires the use of Japanese sources and the completion of a paper reflecting the student's research.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. Not a substitute for regular language courses. This course is graded S/U.

694 Group Studies UGRD 1-5
Investigation of minor problems in Japanese language and literature.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. Not a substitute for regular language courses.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact
department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact
department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours.

710.01 Level Five Japanese I GRAD 5
Designed to increase rhetorical sensitivity and skill in a variety of genres of present-
day Japanese.
Au Qtr. 3 cl. 1 3-hr lab. Prereq: 612, 612.01, 612.02 or equiv and permission of
instructor. Not open to students with credit for 720.

710.51 Level Five Japanese: Individualized Track GRAD 1-5
Designed to increase rhetorical sensitivity and skill in a variety of genres of present-
day Japanese: Individualized Track.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 5 cr hrs. Prereq: 612, 612.01,
612.02 or equiv and permission of instructor. Not open to students with credit for 720
Students register for and complete from 1 to 5 cr hrs during the qtr. Progress
is sequential from one cr hr to the next with a demonstrated proficiency of 80% required
for advancement to the next level. The lowest passing grade is B-. Distance-learning course.
711.01 Level Five Japanese II
Continuation of 710. Wi Qtr. 5 cl or 3 cl and 2 hrs tutorial. Prereq: 710.01 or 720, or 5 cr hrs of 710.51. Not open to students with credit for 721.

711.51 Level Five Japanese II: Individualized Track
Continuation of 710: Individualized Track. Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 5 cr hrs. Prereq: 710.01 or 720, or 5 cr hrs of 710.51. Not open to students with credit for 721. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr to the next with a demonstrated proficiency of 80% required for advancement to the next level. The lowest passing grade is B-. Distance-learning course.

712.01 Level Five Japanese III
Continuation of 711. Sp Qtr. 3 cl, 1-3 hr lab. Prereq: 711.01 or 721, or 5 cr hrs of 711.51. Not open to students with credit for 722.

712.51 Level Five Japanese III: Individualized Track
Continuation of 711: Individualized Track. Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 5 cr hrs. Prereq: 711.01 or 721, or 5 cr hrs of 711.51. Not open to students with credit for 722. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr to the next with a demonstrated proficiency of 80% required for advancement to the next level. The lowest passing grade is B-. Distance-learning course.

751 Studies in Japanese Poetry
UGRD 5
Critical studies in Japanese poetry; survey of poetic forms, techniques, and aesthetics; concentration on a specific collection, poet, or coterie; topic varies. * Au Qtr. 5 cl. Prereq: 601, 654, 655, and 656; or permission of instructor. Repeatable to a maximum of 15 cr hrs.

752 Studies in Japanese Prose Literature
UGRD 5
History and critical study of myths, early tales, diaries, chronicles, setsuwa, miscellanea, medieval tales, Edo fiction, or the modern novel; topic varies. * Wi Qtr. 5 cl. Prereq: 601, 654, 655, and 656, or permission of instructor. Repeatable to a maximum of 15 cr hrs.

753 Studies in Japanese Drama
UGRD 5
History and texts of Japan's dramatic literature; no, kyogen, kowaka-mai, bunraku, kabuki, shinsei shima, shingeiki, rakugo; topic varies. * Sp Qtr. 5 cl. Prereq: 601, 654, 655, and 656; or permission of instructor. Repeatable to a maximum of 15 cr hrs.

782 Japanese Phonology
UGRD 3
An analysis of the phonological structure of present-day Japanese with a critical examination of traditional and contemporary works on Japanese phonology. * Au, Wi, Sp Qtrs. 3 cl. Prereq: 680, 681, or permission of instructor.

783H Honors Research
UGRD 3-5
A program of reading arranged for each student, with individual conferences, reports, and honor thesis. Au, Wi, Sp Qtrs. Prereq: 4th yr standing; a record of A in at least half of the Japanese courses taken and an average of B in all courses; permission of instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee Open only to candidates for BA in Japanese. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

784 Japanese Syntax
UGRD 5
Discussion of the grammatical structures of Japanese; presentation of syntactic rules. Au, Wi, Sp Qtrs. 5 cl. Prereq: 680 or permission of instructor.

786 Japanese Pragmatics
UGRD 5
Discussion of pragmatic aspects of the Japanese language. Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 680 or Linguist 601 or permission of instructor.

787 Japanese Language Processing
UGRD 5
Discussion of various studies on Japanese first and second language processing. Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 680 or permission of instructor.

788 Japanese Language Acquisition
UGRD 5
Discussion of Japanese language acquisition studies. Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 680 or permission of instructor.

792 Interdepartmental Studies in the Humanities
UGRD 3-5
Two or more departments present colloquia on subjects of mutual interest; topics to be announced. Su, Au, Wi, Sp Qtrs. Prereq: Grad standing or permission of instructor(s). Repeatable to a maximum of 15 cr hrs.

800 Japanese Bibliography and Research Methods
UGRD 5
Problems and procedures in the use of Japanese bibliographies and other reference materials. Au, Wi, Sp Qtrs. 2.5-3 hr cl. Prereq: 509 or permission of instructor.

877 Topics and Problems in Japanese Literature
GRAD 1-5
Readings in the major genres of Japanese literature with emphasis on analysis and critical evaluation. Au, Wi, Sp Qtrs. 3 cl. Prereq: 603 or 663, and written permission of instructor. Repeatable to a maximum of 15 cr hrs.

879 Seminar in Japanese Literature
GRAD 1-5
Seminar in Japanese Literature. Au, Wi, Sp Qtrs. Prereq: 603 or 663, and written permission of instructor. Repeatable to a maximum of 15 cr hrs.

887 Topics and Problems in Japanese Linguistics
GRAD 1-5
A detailed investigation of specific problems in the phonological, syntactical, and/or lexical analysis of the Japanese language. Au, Wi, Sp Qtrs. Prereq: 206 and 680. Repeatable to a maximum of 25 cr hrs.

899 Interdepartmental Seminar
GRAD 3-5
Two or more departments present seminars on subjects of mutual interest; topics to be announced. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor(s). Repeatable to a maximum of 15 cr hrs. With permission of dept.

998 Research in Japanese: Thesis
GRAD 1-18
Research for thesis purposes only. Su, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

999 Research in Japanese: Dissertation
GRAD 1-18
Research for dissertation purposes only. Su, Au, Wi, Sp Qtrs. Arr. This course is graded S/U.

Jewish Studies

201 Introduction to Jewish Studies
UGRD 5
An introduction to the historical, ideological, and cultural growth of Judaism examine from a variety of methodological perspectives. * 2-2 hr cl. GEC arts and hums cultures and ideas course.

294 Group Studies
UGRD 1-5
Group Studies.

613 The American Jewish Experience: Life and Culture
GRAD 3-5
An interdisciplinary approach using history, literature, sociology, and the arts to study about American Jewish life. Su Qtr. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs.

614 The Holocaust and Holocaust Education
GRAD 3-5
Examination of historical events and legacy of fundamental issues raised by the Holocaust; analysis of teaching methodologies in conjunction with United States Holocaust Memorial Museum. Su Qtr. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. Optional trip to U.S. Holocaust Memorial Museum in Washington, D.C.

694 Group Studies
UGRD 1-5

697 Study at a Foreign Institution
GRAD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of Melton Center Director. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

783H Honors Research
UGRD 3-5
Offers undergraduates with special aptitudes a greater opportunity for independent study than is possible in ordinary courses. Su, Au, Wi, Sp Qtrs. Arr. Prereq: 4th yr standing with a grade of A in at least half of the Jewish studies major course work and an average of B in the remainder; permission of the instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
101.01 Level One Korean I UGRD 5
Standard modern Korean: development of listening, speaking skills; basic grammar; reading and writing of the Korean script (hangul). Au Qtr. 5 cl. Not open 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. This course is available for EM credit. FL. Admins Cond course. GEC for lang course.

101.02 Level One Korean I: Summer Intensive UGRD 5
Track
Standard modern Korean: development of listening, speaking skills; basic grammar; reading and writing of the Korean script (hangul): Summer Intensive Track. Su Qtr. 20 cl for 3 weeks. Not open 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. This course is available for EM credit. FL. Admins Cond course. Repeatable to a maximum of 5 cr hrs. GEC for lang course.

102.01 Level One Korean II UGRD 5
Continuation of 101. Wi Qtr. 5 cl. Prereq: 101 or 101.01 or 101.02 or 5 cr hrs of 101.51 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. FL. Admins Cond course. GEC for lang course.

102.02 Level One Korean II: Summer Intensive UGRD 5
Track
Continuation of 101: Summer Intensive Track. Su Qtr. 20 cl for 3 weeks. Prereq: 101 or 101.01 or 101.02 or 5 cr hrs of 101.51 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. FL. Admins Cond course. Repeatable to a maximum of 5 cr hrs. GEC for lang course.

102.51 Level One Korean II: Individualized Track UGRD 1-5
Continuation of 101: Individualized Track. Su, Au, Wi, Sp Qtrs. Variable. Prereq: 101 or 101.01 or 101.02 or 5 cr hrs of 101.51 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. FL. Admins Cond course. Repeatable to a maximum of 5 cr hrs. GEC for lang course.

103.01 Level One Korean III UGRD 5
Continuation of 102. Sp Qtr. 5 cl. Prereq: 102 or 102.01 or 102.02 or 5 cr hrs of 102.51 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. FL. Admins Cond course. Repeatable to a maximum of 5 cr hrs. GEC for lang course.

103.02 Level One Korean III: Summer Intensive UGRD 5
Track
Continuation of 102: Summer Intensive Track. Su Qtr. 20 cl for 3 weeks. Prereq: 102 or 102.01 or 102.02 or 5 cr hrs of 102.51 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. FL. Admins Cond course. Repeatable to a maximum of 5 cr hrs. GEC for lang course.

103.51 Level One Korean III: Individualized Track UGRD 1-5
Continuation of 102: Individualized Track. Su, Au, Wi, Sp Qtrs. Variable. Prereq: 102 or 102.01 or 102.02 or 5 cr hrs of 102.51 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. Repeatable to a maximum of 5 cr hrs. GEC for lang course.

206 Level Two Korean II UGRD 5
Continuation of 104; with a shift in emphasis from spoken to the written language: reading of selected graded texts, writing, and composition. Wi Qtr. 5 cl. Prereq: 104 or 104.01 or 5 cr hrs of 104.51 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit.
610 Level Four Korean I UGRD 5
An advanced Korean language course intended to develop the integrated language skills at an advanced level as preparation for higher-level lectures and discussions. Au Qtr. 5 cl. Prereq: 509 or equiv, or permission of instructor.

611 Level Four Korean II UGRD 5
Continuation of 610. Wi Qtr. 5 cl. Prereq: 610 or equiv, or permission of instructor.

612 Level Four Korean III UGRD 5
Continuation of 611. Sp Qtr. 5 cl. Prereq: 611 or equiv, or permission of instructor.

645 Studies in Korean-American Literature UGRD 5
Critical study of Korean-American literature and literary genres of the twentieth century, with particular attention to historical, social and cultural contexts. Au Qtr. 2 2-hr cl. Prereq: 10 cr hrs in any literature or grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs including cr hrs earned in Comp St 645 or English 681.01. Cross-listed in Comparative Studies and with English 681.01.

653 Advanced Readings in Korean UGRD 5
Advanced readings and cross-cultural analysis of authentic essays, mini-fictions, journals, and editorials in Korean. Prereq: Completion of third year Korean or permission of instructor. Taught in Korean.

654 Korean Literary Traditions UGRD 5
Analysis of the development of Korean literary traditions and their significance in the cultural and intellectual evolution of Korean society and its people. Sp Qtr. 2 2-hr cl. Prereq: 221, or 321 and Math 150. No knowledge of the Korean language is required. All reading materials are in English.

655 Interdisciplinary Courses in Korean Art, Music, Film, and Theatre UGRD 5
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. Repeatable to a maximum of 10 cr hrs. Taught in English. Credit counts toward Korean undergraduate major and minor, and adds to the available courses for East Asian Master's degree program.

656 Interdisciplinary Topics in Korean Politics and Society UGRD 5
Interdisciplinary Korean studies course in the areas of social science bridging Korean history, politics, gender, religion, philosophy, education, intercultural communication and international relations among others. Repeatable to a maximum of 10 cr hrs. Taught in English. Credit counts toward Korean major and minor, and adds to the available courses in East Asian master's degree program.

680 Introduction to Korean Linguistics UGRD 5
An introduction to the phonology, syntax, lexicon and the writing system of the Korean language; some topics related to language use and acquisition. Wi, Sp Qtr. 2 2-hr cl. Prereq: 103 or equiv or permission of instructor.

753 Readings in Korean Literary and Classical Texts UGRD 5
Advanced study of Korean language and literature in cross-cultural context, by introducing selected narrative, drama, poetry and critical essays in Korean. Wi, Sp Qtr. 2 2-hr cl. Prereq: Completion of third year Korean (509) or permission of instructor.

783H Honors Research UGRD 3-5
Special topics research in Korean; research evaluated through papers, thesis and/or special examinations. Au, Wi, Sp Qtr. Prereq: 4th year standing, permission of instructor and Arts and Sciences honors committee. Korean majors only, grade of A in half of Korean courses and B in rest. Repeatable to a maximum of 15 cr hrs. Failure of course will result of disqualification of special honors. This course is graded S/U.

Landscape Architecture

100 Landscape Architecture Survey UGRD 1
Introduction to the University, the Knowlton School of Architecture and the professions of architecture, city and regional planning and landscape architecture. Au, Wi, Sp Qtr. 2 cl. Cross-listed in Architecture.

151 Introduction to Basic Design in Architecture and Landscape Architecture UGRD 5
Introduction to basic design: problem solving techniques; language of design; exploration of space and object through graphic exercises, drawings and models. 8 lab hrs. Not open to students with credit for Arch 202. Cross-listed in Architecture as 202. Required for students intending to major in Larch.

200 Outlines of Architecture and Landscape Architecture UGRD 3
Introduction to the disciplines of architecture and landscape architecture with an emphasis upon the physical artifact and its formal and cultural context. Su, Au, Wi, Sp Qtr. 3 cl. Not open to students with credit for Arch 200. Cross-listed as Arch 200. VPA Admis Cond course.
367 The Making and Meaning of the American Landscape
Interpretation of the contemporary American landscape as the product of many interacting physical and sociocultural forces.
Au, Wi, Sp Qtrs. 3 cl, 2 1-hr rec. Prereq: English 110 or 111 or equiv. Not open to students with credit for 202 or Nat Res 367. Cross-listed in Natural Resources. VPA Admins Cond course. GEC second writing course (and arts and humanities courses and ideas B/S only).

424 Landscape Construction: Materials
Properties and production of man-made landscape building materials; material performance in exterior application; construction detailing with emphasis on wood and masonry assemblies.
Au Qtr. 3 cl, 3 lab hrs. Prereq: Math 150.

457 Urban Landscape Design
Project scale site planning and design within the urban fabric; special study of artistic and ecological principles to address contemporary environmental, economical, and cultural issues in the urban setting.
Au Qtr. 3 cl, 6 lab hrs. Prereq: 323 and 355.

597 Stewardship Issues in Environmental Design and Development
Exploration of the ecological, economic, ethical, political, and social-cultural ramifications of contemporary environmental issues; emphasis on ways the individual or group can respond effectively.
Sp Qtr. 5 cl. Prereq: Sr standing. GEC/LAR course.

603 Landscape Architecture Since 1850: Questions of Nature and Culture
Examination of the history of landscape architecture since Frederick Law Olmsted with emphasis on environmental planning and activism; town planning and the design of infrastructure, park design and garden design.
Sp Qtr. 4 cl, 2 hrs arr. Prereq: Grad standing in larch. Not open to students with credit for 203 or 342.

620 Landscape Design Implementation I
Study of design implementation procedures including: grading and drainage, earthwork calculations, road alignment, staking and layout, surveying appliances.
Au Qtr. 3 cl, 6 lab. Prereq: 670.

622 Landscape Design Implementation II
Study of stormwater management in the treatment of landscape, uses of water in ponds, pools, and fountains; irrigation systems.
Wi Qtr. 3 cl, 6 lab hrs. Prereq: 620.

624 Design Implementation: Construction Materials
Introduction to landscape architecture construction materials and their use in building structures.
Au Qtr. 2 cl, 4 lab hrs. Not open to students with credit for 424.

625 Design Implementation: Landscape Structures
Structural design of site elements typical in landscape architectural design.
Wi Qtr. 2 2-hr cl. Prereq: Physics 103 and Math 150. Not open to students with credit for 425.

626 Landscape Construction: Layout Controls
Basic surveying, horizontal, and vertical curve alignment for roads, and staking and layout of design elements.
Au Qtr. 2 cl, 2 lab hrs. Prereq: 1st yr grad standing or permission of instructor. Not open to students with credit for 322.

627 Landscape Architectural Design/Build
Introduction to the design process and construction techniques associated with the interconnected steps of designing and building small scale projects on campus.
Su Qtr. 3 2-hr cl. Prereq: 323 or 622 and permission of instructor.

633 Planting Design
Form and function of plant materials in design applications.
Wi Qtr. 3 cl, 3 lab hrs. Prereq: Hort 234 or H&CS 234. Not open to students with credit for 333.

640 Landscape Architectural Design
Exploration and application of principles of design, components and characteristics of space, landscape architectural design process, and small scale design.
Au Qtr. 2 cl, 12 lab hrs. Prereq: Grad standing in larch or permission of grad studies committee.

642 Urban Landscape Design
Landscape design in the urban setting; emphasis on design process, spatial structure, and design detailing of urban spaces.
Wi Qtr. 2 cl, 12 lab hrs. Prereq: 670 or permission of grad studies committee.

644 Site Planning and Design
Investigation of site planning and design at the project scale in the urban fringe or rural setting.
Sp Qtr. 2 cl, 12 lab hrs, arr field trips. Prereq: 642 and 672. Travel and subsistence costs for the field trips will be borne by the student.

658 Landscape Architecture Design and Construction
Synthesis of design development based on theory, principles and skills developed in previous design, construction, history and other related courses.
Wi Qtr. 3 cl, 9 lab hrs. Prereq: 457 or 421.

662 Terrain Analysis
Methods and techniques of terrain analysis using aerial photographs, exploring characteristics of landform units, and addressing development issues.
Sp Qtr. 2 cl, 1 2-hr lab. Prereq: Geol&Min 121 or permission of instructor. Not open to students with credit for 362, or 610.

663 Landscape Architecture Professional Practice Seminar
Development of writing skills applied to professional issues in landscape architecture.
Sp Qtr. 2 2-hr cl, 1 1-hr cl. Prereq: Second writing course and sr standing, or 644. Not open to students with credit for 451. GEC course.

665 Digital Landscape Architectural Design and Documentation
Introduction to the design procedures appropriate to emerging technology, especially AutoCAD and related software introduction to documentation methods for construction and implementation.
Su Qtr. 3 cl, 3 2-hr labs. Prereq: 361 or equiv.

670 Graphic Techniques in Landscape Architecture
Graphic media, elements, and skills required in the preparation of landscape architectural presentations in plan, section, and elevation.
An Qtr. 3 cl, 6 lab hrs. Prereq: Grad standing in larch or permission of grad studies committee.

672 Landscape Architectural Graphics II
Principles and techniques of drawing and rendering of sections, isometrics, and perspectives.
Wi Qtr. 6 lab hrs. Prereq: 670 and grad standing in larch. Not open to students with credit for 272.

693 Individual Studies
For students in the Graduate School and those who wish to pursue special studies in landscape architecture.
Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing or permission of dept. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

694 Group Studies
For students majoring in landscape architecture desiring to pursue special studies not offered in the fixed curriculum.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of the dept. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.03H Study Tour: Honors
Honors. Repeatable.

698.04 Study Abroad Preparatory Course
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
698.04H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Permission of instructor. Repeatable for different titled study tours only.
702 Landscape Architecture Presentation UGRD 4
Graphics
Fundamentals of graphic technology in page and document layout and design.
Su, Wi Qtr. 2-3-hr labs. Prereq: Rank 3 or 4 or grad standing or permission of instructor. Not open to students with credit for C&K Plan 702 or undergraduate students in landscape architecture. Cross-listed in City and Regional Planning.

740 Research and Documentation in Landscape Architecture GRAD 5
Research in professional practice techniques; emphasizes all phases of design investigation and documentation.
* Au Qtr. 1 cl, 4-2-hr labs. Prereq: Grad standing in Arch. Repeatable to a maximum of 15 cr hrs.

750 Graduate Landscape Architectural Design: Advanced Site Planning GRAD 5
Advanced professional landscape architectural project design techniques; documentation and execution of all phases from programming through detailed design and construction documents.
Au, Wi, Sp Qtr. 3 cl, 3 lab hrs. Prereq: Completion of 640 series or permission of instructor. Repeatable to a maximum of 15 cr hrs.

752 Graduate Landscape Architectural Design: Land Planning UGRD 5
The relationship between humans and the macro-environment; emphasizes contemporary land use issues, relationship between limited natural resources and human use; use of GIS technology to analyze landscapes and formulate plans and policies.
3 cl, 3-3-hr labs Prereq: Completion of 640 series or permission of instructor. Repeatable to a maximum of 15 cr hrs.

754 Graduate Landscape Architectural Design: Urban Design GRAD 5
Role of landscape in urban settings; study of project types such as rehabilitation or derelict land, neighborhood revitalization, creation of public places.
5 cl, 3-3-hr labs. Prereq: Completion of 640 series or permission of instructor. Repeatable to a maximum of 15 cr hrs.

760 Evaluation and Criticism in Landscape Architecture GRAD 2
Seminar in design philosophy and aesthetic evaluation criteria in landscape architecture.
Au, Wi, Sp Qtr. 1-2 hr seminar. Prereq: Grad standing in Arch. Repeatable to a maximum of 8 cr hrs.

794 Group Studies in Landscape Architecture UGRD 1-5
Group studies in landscape architecture. Topics vary.
Su, Au, Wi, Sp Qtr. Repeatable to a maximum of 10 cr hrs.

998 Thesis in Landscape Architecture GRAD 1-15
Preparation of master's thesis.
Au, Wi, Sp Qtr. Prereq: Permission of Graduate Studies Committee Chair. A maximum of 99 cr hrs. Repeatable. This course is Progress (P) graded. Grade P will be assigned until completion of the project, at which time a grade of S/U will be given. This course is graded S/U.

Latin

101.01 Elementary Latin I UGRD 5
Introduction to reading Latin.
Au, Wi, Sp Qtr. 5 cl. Not open to students with 3 or more years of study in this language in high school except by permission of dept. Not open to students with credit for 101 or 101.55. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

101.55 Elementary Latin I: Accelerated UGRD 5
First part of the accelerated introductory Latin sequence, covering material offered in Latin 101 and first half of the material covered in Latin 102.
Au Qtr. 5 cl. Not open to students with 3 or more years of study in this language in high school except by permission of dept. Not open to student with credit for 101 and 102. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

102.01 Elementary Latin II UGRD 5
Continued study of elementary level Latin.
Au, Wi, Sp Qtr. 5 cl. Prereq: 101.01 or 101. Not open to students with credit for 101.55, 102 or 102.55. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

102.55 Elementary Latin II: Accelerated UGRD 5
Second part of the accelerated introductory Latin sequence, covering second half of material offered in Latin 102 and material offered in Latin 103.
Wi Qtr. 5 cl. Prereq: 101.55. Not open to students with credit for 102 and 103. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

103 Intermediate Latin I UGRD 5
Completion of Latin grammar and syntax; introduction to reading of Latin authors.
Su, Au, Wi, Sp Qtr. 5 cl. Prereq: 102.01 or 102. Not open to students with credit for 102.55. This course is available for EM credit. GEC for lang course.

104 Intermediate Latin II UGRD 5
Selected readings in Latin literature.
Su, Au, Wi, Sp Qtr. 5 cl. Prereq: Placement test or 103 or 102.55. This course is available for EM credit. GEC for lang course.

170 Intensive Latin Workshop I UGRD 10
Intensive Latin workshop offered in the first term of summer quarter covering the material offered in Latin 101-104.
Su (1st term) Qtr. 5-6 hr cl. Not open to students with credit for 101-104. This course is Progress (P) graded. Students may not register for any other course if they enroll in Latin 170. GEC for lang course. Credit will be awarded upon completion of 270.

206 Roman Comedy UGRD 5
Readings from the comedies of Plautus and Terence.
5 cl. Prereq: 104 or equiv high school Latin.

210 Cicero UGRD 5
Readings from the Orations.
Au Qtr. 5 cl. Prereq: 104 or equiv high school Latin.

211 Vergil UGRD 5
Readings from the Aeneid.
Sp Qtr. 5 cl. Prereq: 104 or equiv high school Latin.

212 Roman Historians UGRD 5
Readings from Caesar, Sallust, Livy, and/or Tacitus' Agricola.
* Wi Qtr. 5 cl. Prereq: 104 or equiv high school Latin.

213 Ovid UGRD 5
Readings from the Metamorphoses.
* 5 cl. Prereq: 104 or equiv high school Latin.

214 Latin Lyric UGRD 5
Introduction to major authors of Latin lyric poetry in the original language.
Su Qtr. 5 cl. Prereq: 104 or equiv. This course is graded S/U.

270 Intensive Latin Workshop II UGRD 10
Intensive Latin workshop offered in the second term summer quarter covering the material offered in two 200-level Latin courses.
Su (2nd term) Qtr. 5-6 cl. Prereq: 104 or 170. This course is Progress (P) graded. Students may not register for any other course if they enroll in Latin 270. GEC for lang course.

293 Individual Studies UGRD 1-6
Intermediate readings in Latin literature.
Su, Au, Wi, Sp Qtr. 5 cl. Prereq: 101-104 or equiv; and written permission of dept. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

612 Latin Prose Composition UGRD 5
Review of elementary syntax leading to composition of sentences and short connected passages; concurrent readings from Caesar or Cicero.
* Au Qtr. 5 cl. Prereq: 4 courses more advanced than 104 or permission of instructor.

614 Readings in Roman Lyric and Erotic Poetry UGRD 5
Readings from Catullus, Horace, Propertius, and others.
* 2 2-hr cl. Prereq: 4 courses more advanced than 104 or permission of instructor. Repeatable to a maximum of 10 cr hrs.

615 Readings in Roman Oratory and Rhetorical Theory UGRD 5
Readings in Roman orators and rhetoricians, including Cicero, Quintilian, and Tacitus.
^ 2 2-hr cl. Prereq: 4 courses more advanced than 104. Repeatable to a maximum of 10 cr hrs.

616 Readings in Latin Epic UGRD 5
Readings in Latin epic, including such texts as Vergil's Aeneid, Ovid's Metamorphoses, and Lucan's Bellum Civile.
2-2 hr cl. Prereq: 4 courses more advanced than 104. Repeatable to a maximum of 10 cr hrs.

617 Readings in Roman Historians UGRD 5
Readings in Roman historians, including Caesar, Livy, and Tacitus.
* 2 2-hr cl. Prereq: 4 courses more advanced than 104. Repeatable to a maximum of 10 cr hrs.

618 Readings in Roman Philosophy UGRD 5
Readings from Roman philosophers, including Cicero, Lucretius, and Seneca.
^ 2 2-hr cl. Prereq: 4 courses more advanced than 104. Repeatable to a maximum of 10 cr hrs.

622 Readings in Roman Comedy UGRD 5
Extensive readings drawn from the works of Plautus and Terence.
^ 5 cl. Prereq: 4 courses more advanced than 104.
511L Legal Research LAW 1
Use of law books and computer legal retrieval systems; research methodology and citation form. Semester 1. 2 cl.

529L Legislation LAW 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. Semester 2. 3 cl.

533L Criminal Law LAW 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. Semester 1. 4 cl.

600L Appellate Advocacy LAW 2
Procedural and substantive aspects of appellate practice; the student prepares a brief and presents an oral argument on the basis of assigned research materials. Fall semester. Prereq: 502, 511. Required for graduation. Repeatable to a maximum of 4 cr hrs.

601L Advanced Legal Writing LAW 2-3
Training in the preparation of legal documents. Semester 1, Semester 2. 1 2-hr cl, 1-hr tutorial. Prereq: Completion of first-year law.

603L Evidence LAW 3-4
Survey of rules of evidence; particularly demonstrative, testimonial, and circumstantial proof; qualification and examination of witnesses; privilege; relevancy; documents; hearsay rule and its exceptions.

604L Civil Procedure II LAW 3-5
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. Repeatable to a maximum of 6 cr hrs.

605L Commercial Paper LAW 2-3
Types of commercial or negotiable paper; liability of parties; transfer and payment.

606L Federal Income Taxation LAW 3-5
Gross income; deductions; credits; attribution; timing; sales and other dispositions of property; characterization of income and deductions.

607.01L Business Associations LAW 3-6
Formation, financing, governance, and regulation of corporations and partnerships, and including problems under the federal securities laws. 4 or 5 cl. Not open to students with credit for 607.02.

607.02L Business Associations-Extended LAW 3-6
Formation, financing, governance, regulation of corporations and partnerships, and including problems under the federal securities laws. Semester 1, Semester 2. 3 cl. Not open to students with credit for 607.01. Repeatable to a maximum of 6 cr hrs. This course is Progress (P) graded. 2 sem sequence. Progress graded 1st sem, cr given on completion of 2nd sem.

609L Sales LAW 1-3
A study of the Uniform Commercial Code and other statutes bearing on the sale of goods in the American market.

610L Secured Transactions LAW 2-3
Creation and perfection of security interests in goods and intangibles under the Uniform Commercial Code; priorities and remedies. Not open to students with credit for 612.

611L Debtor and Creditor Law LAW 2-3
Debtor and creditor rights and remedies; emphasis on the Bankruptcy Code. Not open to students with credit for 612.

613L Employment Law LAW 2-4
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.

614L Labor Law LAW 2-5
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. 2 to 5 cl. Prereq: 613. Not open to students with credit for 615 or 616.

618L Insurance Law LAW 2-3
Insurance law and practice with particular reference to fire, life, and automobile insurance; insurable interest; warranties and representation; waiver and estoppel; construction standard policies. Au, Sp terms. Repeatable to a maximum of 6 cr hrs.

619L International Law LAW 2-4
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.

622L State and Local Taxation LAW 2
Legal problems arising in property, excise, income, and estate-inheritance taxation; administrative and procedure.

623L Federal Antitrust Law LAW 2-4
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.

624L Immigration Law LAW 3
Law concerning persons who want to come to the United States on a temporary or permanent basis. Repeatable to a maximum of 13 cr hrs.

625L Copyright Law LAW 2-3
Protection of literary and artistic property under the federal copyright statute, related legislation and unfair competition law.

626L Trademark LAW 2-3
An overview of issues in Trademark law. Repeatable to a maximum of 20 cr hrs.

628L Accounting for Lawyers LAW 2-3
Problems of financial information in the context of business enterprise law and tax law.

630L U.S. Legal System and Legal Traditions LAW 3
Overview of American law and the U.S. legal profession, introduction to U.S. common law and statutory law. Repeatable to a maximum of 6 cr hrs.

632L Legal Framework Supporting Advancement of Technical or Innovative Organizational Initiatives
Laws, rules, policies that shape the corporate structure, employment policies, partnerships, competitive practices and dispute resolution processes for technical or innovative organizations. Not credited towards JD.

634L Juvenile Justice LAW 2-4
The law applicable to children, including a study of agency and juvenile court treatment of dependent, neglected, abused, unruly, and delinquent children. Repeatable to a maximum of 7 cr hrs.

635L Family Law LAW 3-4
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; communal living and homosexual relationships.

636L Disability Discrimination LAW 4
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. 4 1-hr cl.

638L Adoption Law LAW 2-3
Course examines the adoption laws of the United States through their history and development. Repeatable to a maximum of 6 cr hrs.

639L White Collar Crime LAW 2-3
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. 3 cl. Prereq: L633.

640L Criminal Procedure: Investigations LAW 3
Legality of police practices to gather evidence; emphasis on interrogation and search and seizure; some reference to identification procedures and entrapment.

641L Criminal Procedure: Adjudication LAW 3
Study of the criminal justice system emphasizing the right to counsel, bail, preliminary proceedings, grand jury, speedy trial, discovery, and plea.

643L Human Rights LAW 3
International norms and procedures for the enforcement of the rights of individuals, including treaties and the activities of international agencies. Repeatable to a maximum of 6 cr hrs.

645L Real Estate Development LAW 2-4
Overview of role that a lawyer plays during the development of a commercial real estate project. Repeatable to a maximum of 8 cr hrs.

652L Banking Law LAW 2-3
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.
655L Foster Care Law LAW 3
The legal underpinnings, judicial procedures, and the factual realities of the foster care system in the United States.

656L Wills, Trusts, Estates LAW 2-4
Gifts, wills, intestate succession, protection of spouse and other dependents, fiduciary administration, social security and other employee benefits, life insurance. 2-4 cr hrs.

694L Group Studies LAW 1-4
Group study in selected areas of the law. Repeatable to a maximum of 20 cr hrs. This course is Progress ('P') graded. 2-4 cr hrs.

696 Anglo-American Legal System LAW 1-6
Introduction to the Anglo-American Legal System for undergraduate students, taught summers at the University of Oxford, Oxford, England. Sp Qtr. Limited to students accepted in Oxford Summer Program. 2-4 cr hrs.

697L Study at a Foreign Institution LAW 1-10
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Semester 1, Semester 2, Semester 3. Prereq: Written permission of the Dean. Repeatable to a maximum of 30 cr hrs. This course is Progress ('P') graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs. 2-4 cr hrs.

700.01L Interprofessional Education: Care of Patient/Client LAW 1-2
Focus 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. Treatment of the whole person through the analysis of the interrelated problems of actual patients/clients. Repeatable to a maximum of 4 cr hrs. 2-4 cr hrs.

700.03L Ethical Issues LAW 1-2
Focus 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. Ethical issues of concern to the professions and arising out of advanced technology: euthanasia, mind control, malpractice, and social responsibility of the professions. Repeatable to a maximum of 4 cr hrs. This course is graded S/U. 2-4 cr hrs.

701L Negotiation and Mediation Advocacy LAW 1-2
Negotiation and mediation techniques and practices. 2-4 cr hrs.

702L Issues in Arbitration LAW 3
An introduction to the arbitration process as well as an identification of controversial legal issues that have arisen in the arbitration context. Repeatable to a maximum of 13 cr hrs. 3 cr hrs.

703L Legal Negotiation and Settlement LAW 2-4
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. 2-2 hr cl. Prereq: 736.01 or professional responsibility recommended. Enrollment limited to 16 students, class attendance mandatory. 2-4 cr hrs.

704L Trial Practice LAW 2-4
Forensic skills developed through actual trial advocacy by individual students in civil or criminal cases. Prereq: 603 or written permission of instructor. 2-4 cr hrs.

707L Professional Practice LAW 1-6
Courses in the Professional Practice series focus on specific lawyering skills and our taught by law faculty or distinguished adjuncts. Repeatable to a maximum of 9 cr hrs. This course is graded S/U. 2-4 cr hrs.

708L Regulation of Security Distributions LAW 2-3
Analysis of Securities Act of 1933 and its pervasive effects on the issuance and transfers of securities. 2-3 cr hrs.

710L Federal Courts LAW 3-4
The federal judicial system; jurisdiction of the district courts, courts of appeals, and United States Supreme Court. 3-4 cr hrs.

711L Law and Medicine LAW 2-4
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. 2-4 cr hrs.

712L Lawyering Skills Program LAW 1-4
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. 2-4 cr hrs.

713L Appellate Practice IV LAW 1-4
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 Moot Court Program. 1 to 4 cr hrs by arrangement with instructor. Repeatable to a maximum of 6 cr hrs. Grade given on completion of third-year Moot Court Program. This course is graded S/U. 1-4 cr hrs.

714L Herman Moot Court Competition LAW 1-4
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. 1-4 hrs by arrangement with instructor.

715L Corporate Taxation LAW 3-4
Taxation of organizations; operations; sales and liquidations; divisions and reorganizations. 3-4 cr hrs.

717L International Business Arbitration LAW 3
Examines international arbitral procedures through the interaction of private contractual ordering, national law, and international treaties. Repeatable to a maximum of 6 cr hrs. 3 cr hrs.

721L Mergers and Acquisitions LAW 2-4
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. Repeatable to a maximum of 13 cr hrs. 2-4 cr hrs.

722L Dispute Resolution Processes: Theory & Practice LAW 3
This course is a survey of dispute resolution processes including negotiation, mediation, arbitration and a variety of court-administered and extra-judicial settlement processes. Repeatable to a maximum of 6 cr hrs. 3 cr hrs.

724L Comparative Dispute Resolution LAW 3
Examines a wide range of dispute resolution processes in use, not only in the United States but around the world. Repeatable to a maximum of 6 cr hrs. 3 cr hrs.

725L Employee Benefits LAW 3
Federal regulation of employee benefits, both pension benefits and welfare benefits, primarily through the Employee Retirement Income Security Act of 1974. Repeatable to a maximum of 6 cr hrs. 3 cr hrs.

726L Advanced Issues in ADR LAW 3
Advanced study in the area of dispute resolution. Repeatable to a maximum of 13 cr hrs. 3 cr hrs.

728L International Transactions LAW 2-4
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. 2-4 cr hrs.

729L Administrative Law LAW 3-4
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. 3-4 cr hrs.

732L Environmental Law LAW 2-4
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. 2-4 cr hrs.

733L Political and Civil Rights: The First Amendment LAW 2-3
Advanced study of First Amendment precedent and doctrines governing the press, speech, association, and church-state relations. 2-3 cr hrs.

735L Law Journal LAW 1-2
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 4 cr hrs. 1-2 cr hrs.

736.01L Professional Responsibility: Legal Profession LAW 1-2
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. Semester 1, Semester 2, Semester 3. 1-2 cl. Prereq: First year law course. 1-2 cr hrs.
736.02L Legal Profession LAW 1-4
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. Semester 1, Semester 2, Semester 3. 4 cl. Prereq: First year law course. Not open to students with cr for 736.01.

737L Patent Law LAW 2-3
Fundamentals of substantive patent law relating to standards of patentability, patent claim interpretation and enforcement in patent litigation, and licensing. Repeatable to a maximum of 9 cr hrs.

738.01L Study and Practicums in Legal Problems: LAW 2-6
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 or conc: 603 plus one or more of the following: 633, 640, 641; or written permission of instructor. This course is Progress (P) graded. Pursuant to the New York Court of Appeals Rules for Admission to Practice, students who enroll for more than 8 cr hrs may be ineligible for admission to practice in New York. No student may enroll in more than 16 cr hrs.

738.02L Study and Practicums in Legal Problems: LAW 2-6
Civil Law Practicum
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. May not be taken simultaneously with any other practicum. This course is Progress (P) graded. Pursuant to the New York Court of Appeals Rules for Admission to Practice, students who enroll for more than 8 cr hrs may be ineligible for admission to practice in New York. No student may enroll in more than 16 cr hrs.

738.03L Criminal Prosecution Practicum LAW 4
Students represent the City of Delaware in criminal cases, prosecuting cases such as domestic violence, sexual misconduct, drunk driving, and theft. Prereq: 603L. Repeatable to a maximum of 8 cr hrs.

738.04L Study and Practicums in Legal Problems: LAW 2-6
Justice For Children Clinic
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: None; 634, 640 and/or 641 recommended.

738.06L Study and Practicums in Legal Problems: LAW 1-6
Legislation Clinic
Law students help Ohio legislators analyze legislative issues, examine other state approaches, and develop statutory (or other) responses that are appropriate for our state. Repeatable to a maximum of 8 cr hrs.

738.08L Multiparty Mediation Practicum LAW 4
Examines the legal, ethical, and policy issues that arise when using the mediation process to resolve multi-party controversies. Repeatable to a maximum of 8 cr hrs.

738.20L Study and Practicums in Legal Problems: LAW 1-6
Selected Legal Problems Practicum
Topics will change as specially scheduled in any semester. Repeatable to a maximum of 8 cr hrs.

739L Pretrial Litigation LAW 3
Depositions and client interviews; drafting of interrogatories; case strategies. Semester 1, Semester 2. 3-3 hr cl. Prereq: Completion of first-year law.

741L Landlord Tenant LAW 2-3
Provides a survey of residential landlord and tenant law with a primary focus on Ohio law. Repeatable to a maximum of 8 cr hrs.

743L Remedies LAW 2-4
An integrated study of remedial theory and devices available in the context of torts, contracts and property law. Repeatable to a maximum of 6 cr hrs.

744L Employment Discrimination Law LAW 2-4
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. 2-4 cl.

746L Internet, Law & Democracy LAW 2-4
Course analyzes how the production, consumption, and regulation of Internet speech and digital technologies shape the Internet's democratic impacts, looking especially at the United States. Repeatable to a maximum of 8 cr hrs.

747L Civil Rights LAW 2-3
Study topics such as discrimination, race and class. 2 or 3 cl. Prereq: Completion of first yr law program. Repeatable to a maximum of 9 credit hours.

748L Opinion Writing LAW 1
A skills-based course focused on various types of judicial opinions. Repeatable to a maximum of 4 cr hrs.

749L Jury Instructions LAW 1
Step-by-step approach to the drafting of jury instructions. Repeatable to a maximum of 4 cr hrs.

753L Education Law LAW 3
An examination of the legal framework and issues of public education K-12.

755L Law and Social Science LAW 2-4
Examines the uses of social science in adjudication by studying research methodology and the use of research in resolving disputes, making law, and planning litigation. Repeatable to a maximum of 6 cr hrs.

756L Separation of Powers Law: Presidential Power LAW 3
This course examines U.S. presidential power in both foreign and domestic affairs, and the President's interactions with Congress and the Judiciary. Repeatable to a maximum of 13 cr hrs.

757L Special Education Advocacy LAW 2-3
The law of special education as provided in the Individuals with Disabilities Education Act. Repeatable to a maximum of 6 cr hrs.

758L Sports Law LAW 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. Repeatable to a maximum of 8 cr hrs.

760L Law of War LAW 2-3
The lawfulness of the initiation of hostilities by nations, and the lawfulness of the methods employed in the use of armed force.

761L International Dispute Resolution LAW 3
This course examines procedures for resolving international disputes (negotiation, mediation, arbitration, judicial settlement), how they operate in contemporary disputes, and how law governs their use. Repeatable to a maximum of 13 cr hrs.

762L International Trade LAW 3
Public international law framework and institutions that regulate trade and economic relations between nations. Repeatable to a maximum of 6 cr hrs.

764L Commercial Leasing LAW 3
Business and legal considerations which drive the leasing of a commercial real estate project. Repeatable to a maximum of 6 cr hrs.

766L Nonprofit Law LAW 3
This course examines the major aspects of governance and tax law issues affecting the nonprofit sector, particularly legal counsel, directors, trustees, employees, or volunteers. Repeatable to a maximum of 6 cr hrs.

771L Lawyers and the Media LAW 2
Legal and ethical issues involved with making public statements about litigation and legal issues. Repeatable to a maximum of 4 cr hrs.

772L Designing Forums and Disputing Systems LAW 2-4
Design new forums for particular disputes and for a series of disputes.

781L Comparative Law LAW 2-3
Broad study of legal systems with emphasis on patterns of similarities and differences 3 cl. Prereq: Completion of first year law curriculum.

793L Individual Studies LAW 1-4
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. In general, assignment of special problems will be limited to instances of exceptional student specialization, scheduling difficulties, and curricular irregularity. Repeatable to a maximum of 13 cr hrs. This course is graded S/U.

794L Group Studies LAW 1-6
Group study in selected areas of the law. Repeatable to a maximum of 24 cr hrs.
796.03L Seminars: Constitutional Problems LAW 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, protection of civil liberties, special problems under Ohio Constitution. Repeatable to a maximum of 6 cr hrs.

796.04L Seminar in Africa LAW 2
The seminar focuses on Africa, both the domestic law of the various countries of Africa, and international-legal issues relating to Africa. Repeatable to a maximum of 4 cr hrs.

796.06L Seminar Middle East Conflict LAW 2
The Israeli-Palestinian conflict: legal issues, positions of the parties, relevant treaties, activity of international agencies, procedures for settlement. Repeatable to a maximum of 6 cr hrs.

796.10L Seminar: Topics in Business Law LAW 1-4
Topics in business law and of concern to practitioners will vary by semester. Repeatable to a maximum of 8 cr hrs.

796.11L Seminar: The U.S. Supreme Court LAW 2-3
The Supreme Court as an institution emphasizing its formal and informal norms and structures, and content of the law the Court makes. Repeatable to a maximum of 6 cr hrs.

796.12 Law & Genetics LAW 2
Examines how the law responds to rapid changes in scientific knowledge and technology. Repeatable to a maximum of 4 cr hrs.

796.13L Seminar: Medical-Legal Problems LAW 2-3
Conflict in concept between disciplines of law and medicine in matters of causation, injury, disability, prognosis, aggravation, and re-injury related to their use in proof of such elements in litigation.

796.14L Seminar: Anthropology and the Law LAW 2
An examination of the relationship between Anthropology and the law. Repeatable to a maximum of 6 cr hrs.

796.15L Seminar Ethics and Alternative Dispute Resolution LAW 2
This seminar explores the intersection of traditional lawyer ethical codes with the new roles lawyers assume with alternative dispute resolution (ADR). Repeatable to a maximum of 6 cr hrs.

796.16L Seminar: Privacy, Technology and the Law LAW 2-3
Freedom from publicity and in physical seclusion; the law's response to social and technological changes which threaten these interests. Topics will vary each semester.

796.17L Seminar History of American Law and Society Since the Civil War LAW 2
The history of American law and legal institutions, and their relationship to society, from the Reconstruction era through recent past. Not open to students with credit for History 774. Cross listed with History 774. Repeatable to a maximum of 6 cr hrs.

796.18L Seminar: Health and Ethics LAW 2
This course considers approaches to topics in Bioethics and Public Health Ethics, with an eye to developing an equality-centered, and unifying, account of both fields.

796.19L Seminar: Selected Problems in Criminal Law and Procedure LAW 2
Topics vary and will be announced each semester.

796.20L Seminar: Research Seminar in Law LAW 2-3
Topics will change as specially scheduled in any quarter. Repeatable to a maximum of 6 cr hrs. Law 796M20, Women and the Law, grad level, 2 semester cr hrs, cross-listed in Women's Studies.

796.21L Seminar: Sexual Violence and the Law LAW 2
This course examines various theories of sexuality -- both cross-sex and same-sex -- and how they sit in relation to violence, injury, and law. Repeatable to a maximum of 6 cr hrs.

796.51L Seminar: Social and Environmental Litigation LAW 2-3
Study of impact of law on social and environmental problems with emphasis on procedure and choice of remedies. Prereq: None; 710 and 719 recommended.

796.52L Seminar: Federal Criminal Law LAW 2-3
The relationship of federal and state criminal law; historical role and specialized problems of federal criminal law.

796.55L Seminar: Consumer Credit LAW 2-3
Consumer credit; statutory and judicial regulation, with particular emphasis on the problems of the poor consumer. Prereq: 605, 609, or 610.

796.58L Seminar: Law and the Political Process LAW 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.

796.62L Commercial Law LAW 2-3
In-depth consideration of commercial law, focusing primarily on the Uniform Commercial Code. Prereq: 605, 609, and 610.

796.63L Seminar: Problems in Torts LAW 2-3
Exploration of current and emerging problems in the law of torts.

796.64L Topics In Intellectual Property LAW 2-3
Exploration of current and emerging problems in the law of intellectual property. Repeatable to a maximum of 9 cr hrs.

796.67L Seminar Sexual Harassment LAW 2
This seminar focuses on sexual harassment in the employment setting and in academic settings. Repeatable to a maximum of 6 cr hrs.

796.70L Seminar Law and Development LAW 2-3
Examines the role of the law in economic development. Repeatable to a maximum of 6 cr hrs.

797L Interdepartmental Seminars LAW 1-5
Interdepartmental Seminars.

Linguistics

170 Basics of Language for Language Learners UGRD 5
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. Au, Wi, Sp Qtrs. 2 2-hr cl. GEC soc sci individuals and groups, and international diversity course.

201 Introduction to Language in the Humanities UGRD 5
Examination of language as a system of human communication; provides students with tools needed for the recording, investigation, and close analysis of language. Au, Wi, Sp Qtrs. 2 2hr cl. H201H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for 202 or English 271. GEC arts and hums cultures and ideas course.

270 Introduction to Language in the Social Sciences UGRD 5
Examination of language as a system of human communication; provides students with a general understanding of human linguistic behavior and cognition. Au, Wi, Sp Qtrs. 2 2hr cl. Not open to students with credit for 201 or 202 or English 271. GEC soc sci individuals and groups course.

280 Language and Formal Reasoning UGRD 5
How natural and artificial languages are alike in structure and use in reasoning; how natural languages differ in principles of use by humans. Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Math 075 or equiv or Math placement R. H280 (honors) may be available to students enrolled in an honors program or by permission of department instructor. GEC math and logical analysis course.

286 Analyzing the Sounds of Language UGRD 5
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. Au, Wi, Sp Qtrs. 2 2-hr cl. H286H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Math Placement level R or Math 075 or equiv; H286 requires Math 148 or 150. Not open to students with credit for Sph/Hrng 286. Cross-listed in Speech and Hearing Science. GEC data analysis course.

294 Group Studies UGRD 1-5
Introductory topics in linguistics. 2-2hr cl. 294H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Repeatable to a maximum of 10 cr hrs.

301 Language Evolution and Language Change UGRD 5
A study of how and why languages change and evolve over time, taking into account the linguistic, historical, ideological and cultural factors involved. Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: English 110 or 110.01 or 110.02 or 110.03. Not open to students with credit for 305 or A&AM/A&AS 303 or 305. Cross-listed in African American and African Studies. GEC cultures and ideas and social diversity course.
307 Introduction to American Indigenous Languages

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.

Sp Qtr. Prereq: English 110. GEC soc sci individual and groups and international issues - western course.

367.01 Language, Sex, and Gender in American Culture

Discussing and writing about ways that views about sex and gender affect language and its use in speech communities in the US.

Prereq: English 110 or 111 or equiv. Not open to students with credit for 330. Not open to students with credit for 367. GEC social diversity and second writing course.

367.01H Language, Sex, and Gender in American Culture

Discussing and writing about ways that views about sex and gender affect language and its use in speech communities in the US.

Prereq: English 110.xx or equiv. GEC social diversity and second writing course.

367.02 Language and Advertising in American Culture

How advertising impacts American culture, how the U.S. influences international advertising and how various populations are represented in ads.

Prereq: English 110 or 111 or equiv. Not open to students with credit for 330. GEC second writing course.

371 Language and the Mind

Introduction to the psychological processes for producing and understanding speech, the means by which they arise in the child, and bases in the brain.

Au, Wi, Sp Qtrs. 2-2 hr cl. 371H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 201 or 202 or 601, or Psych 100, or permission of Instructor. Not open to students with credit for Psych 371. Cross-listed in Psychology. GEC soc sci individuals and groups course.

372 Language and Social Identity in the U.S.

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.

Au, Wi, Sp Qtrs. 2-2 hr cl. 372H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: None, though some background in linguistics or a related discipline would be an advantage. Not open to students with credit for 361. GEC soc sci individuals and groups, and social diversity course.

375 Language across Cultures

Investigation of relationships between language and culture in different societies with a view to shedding light on cross-cultural similarities and differences.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: English 110 or 111 or equiv. Not open to students with credit for 365. GEC soc sci individuals and groups and international diversity course.

383 Words and Meanings

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.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 201 or 202; and English 110 or 111.

384 Language and Computers

An introduction to human language technology, explaining the computational and linguistic principles behind such familiar technologies as web search, machine translation, and spelling correction.

Au, Wi, Sp Qtrs. 2-2 hr cl. 384H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC math and logical analysis course.

401 Code Making and Code Breaking

Introduction to old and new technology associated with codes and code-breaking and the ways in which it has impacted people's lives.

Wi, Sp Qtrs. 2-2 hr cl.

489 Internship in Linguistics

Intensive experience in linguistics as a research assistant on a faculty research project or as an intern at a linguistics-related business or organization.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 201, 270 or 601 and at least 15 hours of course work towards the major in linguistics. Open only to linguistics majors. Repeatable to a maximum of 5 cr hrs. May be counted towards linguistics major elective hours (5 credit hours maximum). This course is grade S/U.

500 Phonetics

Cross-linguistic survey of the sounds of the world's languages.

Au, Wi, Sp Qtrs. 2-2 hr cl. and 1 hr lab. Prereq: 201 or 202 or 601 or equiv. Not open to students with credit for 600.01.

502 Syntax

Basic elements of syntactic description and an overview of syntactic structure across languages.

Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 201 or 202 or 601 or equiv. Not open to students with credit for 602.01. E502 may be available for honors embedded experience.

503 Phonology

Introduction to phonological analysis and description, and an overview of phonological structure across languages.

Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: 201 or 202 or 601 or equiv. Not open to students with credit for 603.01.

505 Language and the Black Experience

Introduction to the structure, history, and use of distinctive varieties of English used by and among many African Americans in the U.S.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: English 110 or 111.01 or 110.02 or 110.03. Not open to students with credit for AfAmASt 505 or English 505. Cross-listed in African American and African Studies and English.

505S Language and the Black Experience

Introduction to the structure, history, and use of distinctive varieties of English used by and among many African Americans in the U.S.

Sp Qtr. Prereq: Linguist 201 or Linguist 303 or Linguist 367.01 or Linguist 372 or Linguist 375. Not open to students with credit for AfAmASt 505S or English 505S. Cross-listed in AfAmASt and English. Service Learning course.

509 Morphology

The grammatical and phonological analysis of words, and their significance in linguistic structure.

Au Qtr. 4 cl, 1 lab. Prereq: 201 or 202 or 601 or equiv.

550 Introduction to Linguistic Field Methods

Introduction to techniques for studying the grammar of an unknown language, working with a native speaker.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: Two 500-level (or higher) courses in linguistics (one may be concurrent). Repeatable to a maximum of 15 cr hrs. Permission of instructor required to repeat course.

597.01 Language Endangerment and Language Death

Examines language endangerment and language death to reach an understanding of the forces threatening the survival of over half of today's 6,000 languages.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: Jr or sr standing. GEC contemporary world course.

597.02 Language and the Law: A Cross Cultural Perspective

Examination of the role of interpretation of language in the law and in legal proceedings, with special consideration of issues in international law and multi-lingua jurisdictions.

Su, Au, Wi, Sp Qtrs. 2-2 hr cl. Prereq: Jr or sr standing. GEC contemporary world course.

600.01 Phonetics: Phonetic Theory

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: 201, 202, 601 or Sph/Hrng 320.

600.02 Phonetics: Laboratory Phonology

Introduction to laboratory methods and quantitative models of speech for linguistics.

Prereq: 600.01.

601 Introduction to Linguistics

A broad introduction to general linguistics: survey of phonological, morphological, syntactic, and semantic analysis, and of historical and comparative linguistics. Open to graduate students, declared majors or minors in linguistics, or by permission of instructor.

Prereq: 601 or permission of instructor.

602.01 Syntactic Theory I

Theories of syntax; principles of syntactic description.

Prereq: 502, 601.

602.02 Syntactic Theory II

Theories of syntax; principles of syntactic description.

Prereq: 602.01.

603.01 Phonological Theory I

Introduction to phonological analysis and the principles governing the structure, acquisition, and change of phonological systems; survey of major phonological theories.

Prereq: 601 or permission of instructor.

603.02 Topics in Advanced Phonology

Introduction to phonological analysis and the principles governing the structure, acquisition, and change of phonological systems; survey of major phonological theories.

Prereq: 603.01. Repeatable to a maximum of 15 cr hrs.
605 An Introduction to African-American English GRAD 5
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. Wi Sp Qtrs. 2 2 hr cl. Prereq: One linguistics course at 500-level or above. Not open to students with credit for AfAm&AS 605. Cross-listed in African-American and African Studies.

609 Morphological Theory UGRD 5
Introduction to and comparison of current theories of morphology, with application to linguistic data and problems. Prereq: 601 or permission of instructor, concurrent registration in 601.

611 Introduction to Historical Linguistics UGRD 5
Introduction to the methods and principles of historical linguistics. Prereq: 500 or 600 or 503 or 603.01 or equiv or permission of instructor.

612 Introduction to Cognitive Science UGRD 3
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 or a total of 12 cr hrs from at least two of the following areas: cptr/inf, linguist, philos, and psych. Not open to students with credit for Cptr/Inf 612, Philos 612, or Psych 612 or 794 (Sp Qtr 1989) or 794A (Wi Qtr 1990). Cross-listed in Computer and Information Science, Philosophy, and Psychol;

615 Psycholinguistics UGRD 5
An introduction to high-level language processing, including word recognition, sentence understanding, and discourse processing. Prereq: 601 or permission of instructor. Not open to students with credit for Psych 611 or Lingust 671.

623 Topics in Indic Linguistics UGRD 3-5
Possible topics include advanced classical Sanskrit, introductory Vedic Sanskrit, Indo Iranian or Indo-Aryan linguistics, or studies in the ancient Indian grammarians. Prereq: 622 or Sanskrit 622 or permission of instructor. Repeatable to a maximum of 15 cr hrs.

650.01 Field Methods I UGRD 5
Methodology for determining the phonological system of a previously unknown language through the use of a native informant. Prereq: two courses at the 500 level or higher or permission of instructor. Repeatable to a maximum of 40 cr hrs.

650.02 Field Methods II UGRD 5
Methodology for determining the morphological and syntactic system of a previously unknown language through the use of a native informant. Prereq: 650.01. Repeatable to a maximum of 40 cr hrs.

661.01 Introduction to Sociolinguistics UGRD 5
Survey of approaches to the study of language in its social context: sociology of language, ethnography of speaking, discourse analysis, quantitative sociolinguistics. Prereq: 201 or 202 or 601 or permission of instructor.

661.02 Introduction to Quantitative Sociolinguistics UGRD 5
Exploration of language in its social context through the methods of quantitative analysis of linguistic variation, including the Labovian and implicational models. Prereq: 661.01.

672 Language Description UGRD 3-5
Informant techniques and (if available) textbooks and published linguistic analyses employed in analyzing and describing a language. Prereq: 601. Repeatable to a maximum of 30 cr hrs.

680 Formal Foundations of Linguistics UGRD 5
Applying tools from set theory, symbolic logic, model theory, algebra and formal grammar in the foundations of formal linguistic theories and in linguistic analysis. Au Qtr. 4 cl, 1 lab. Prereq: 201 or 270 or 601 or equiv.

681 Algebraic Linguistics UGRD 5
Formal properties of grammar and automata; relations between linear, context-free and context-sensitive grammars and finite, pushdown-storage and linear-bounded automata; properties of transformational grammars. Prereq: 601 and permission of instructor.

683.01 Linguistic Semantics I UGRD 5
Problems and methods in linguistic semantics, using logic and semantic model theory as analytic tools; reference, compositionality, presupposition, conversational implicature, speech acts, deixis. Prereq: 680 or equiv.

683.02 Linguistic Semantics II UGRD 5
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: 683.01 or equiv.

684.01 Computational Models of Grammar I UGRD 5
Symbolic computation applied to the structure of words and sentences, models of morphology and syntax, parsing algorithms. Wi Sp Qtr. Prereq: 502 or 602.01, and 680.

684.02 Computational Models of Grammar II UGRD 5
Computational models of semantic interpretation, and the role of pragmatic knowledge in sentence processing; implementation of current grammatical theories. Sp Qtr. Prereq: 683.01 and 684.01.

684.03 Computational Semantics UGRD 5
Methods for construction semantic representations for fragments of natural language and performing inference with such representations. Au Qtr. Prereq: 684.01 or equiv.

685 Languages in Contact UGRD 5
Study of the effects of language contact on the structure of the involved languages, an of the characteristics of the individuals and communities involved in language contact. Prereq: One linguistics course at 500-level or above.

693 Individual Studies UGRD 1-20
Individual Studies. Su, Au, Wi, Sp Qtr. Prereq or concur: 601 or permission of instructor. Repeatable to a maximum of 40 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-5
Study of topics not regularly scheduled for seminars in linguistics, under the direction of a faculty member. Prereq: 601. Repeatable to a maximum of 50 cr hrs.

699 Undergraduate Research Seminar in Linguistics UGRD 5
Linguistics students learn about cutting-edge research by OSU linguists and get hands on experience conducting their own linguistic research. Su, Au, Wi, Sp Qtrs. 2 2 hr cl. Prereq: At least one 500-level linguistics course or permission of instructor. Linguistics majors only.

737 Proseminar in Cognitive Science UGRD 2
An in-depth examination of the interdisciplinary field of cognitive science, emphasize fundamental issues of each discipline, provides illustrations of representative research being conducted at OSU. Prereq: Cptr/Inf 612, Linguist 612, Psych 612, or Philos 612, or permission of instructor. Repeatable to a maximum of 4 cr hrs. Cross-listed in Computer and Information Science, Industrial Systems Engineering, Philosophy, Psychology, and Speech and Hearing Science.

780 Formal Pragmatics UGRD 5
Introduction to contemporary theories of pragmatic phenomena which build on theories of dynamic interpretation in formal semantics. Prereq: 683.02.

783H Honors Research UGRD 3-5
Informal conferences to allow full scope to the initiative of the student, who will prepare an honors thesis in consultation with the instructor. Prereq: 4th yr standing and the completion of departmental honors requirements with grade of A in at least half of the linguistics courses, including approved related courses; permission of instructor under whose supervision the work is to be complete and the Arts and Sciences Honors Committee. At least 2 qtrs are required of candidates for the degree BA with distinction in linguistics. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

795.01 Seminar Discussion Groups: TA Workshop UGRD 1-5
A selected group study, with emphasis on individual writing and presentation. Prereq: 600-level or above in linguistics, or permission of instructor. Repeatable.

795.02 Seminar Discussion Groups: Syntax UGRD 1-5
A selected group study, with emphasis on individual writing and presentation. Prereq: 600-level or above in linguistics, or permission of instructor. Repeatable.

795.03 Seminar Discussion Groups: Phonology UGRD 1-5
A selected group study, with emphasis on individual writing and presentation. Prereq: 600-level or above in linguistics, or permission of instructor. Repeatable.

795.04 Seminar Discussion Groups: Computational Linguistics UGRD 1-5
A selected group study, with emphasis on individual writing and presentation. Prereq: 600-level or above in linguistics, or permission of instructor. Repeatable.

795.10 Seminar Discussion Groups: Topics in Linguistics UGRD 1-5
A selected group study, with emphasis on individual writing and presentation. Prereq: 600-level or above in linguistics, or permission of instructor. Repeatable.

795.14 Seminar Discussion Groups: Pragmatics UGRD 1-5
A selected group study, with emphasis on individual writing and presentation. Prereq: 600-level or above in linguistics, or permission of instructor. Repeatable.
795.47 Seminar Discussion Groups: Language Acquisition Research Group
Weekly forum open to anyone with interest in first or second language acquisition. A varied schedule: paper reading, presentations of work in progress, general discussion. Repeatable.

795.61 Seminar Discussion Groups: Sociolinguistics/Historical Linguistics
A selected group study, with emphasis on individual writing and presentation. Prereq: 600-level or above in linguistics, or permission of instructor. Repeatable.

795.71 Seminar Discussion Groups: Psycholinguistics
A selected group study, with emphasis on individual writing and presentation. Prereq: 600-level or above in linguistics, or permission of instructor. Repeatable.

801 Historical Linguistics I
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: 601, and either 611 or written permission of instructor.

802 Historical Linguistics II
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: 801.

803 Topics in Indo-European
Study of various Indo-European languages and language families and exploration in depth of specific problems in Indo-European grammar. * Prereq: 802. Repeatable to a maximum of 30 cr hrs.

809 Seminar in Morphology
Advanced topics in morphological analysis. Arr. Prereq: 609. Repeatable to a maximum of 30 cr hrs.

812 Seminar in Semantics
Accounts of semantic judgments in languages, especially within the theory of generative grammar; relationships between syntax, semantics, and language use. Prereq: 602.02, a course in symbolic logic recommended. Repeatable to a maximum of 30 cr hrs.

814 Seminar in Pragmatics
An intensive examination of one or more major problems in pragmatics, such as speech acts, implicature, or presupposition. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

820 Seminar in Syntax
Advanced topics in syntactic analysis. Prereq: 602.02. Repeatable to a maximum of 30 cr hrs.

821 Seminar in Phonology
Advanced topics in phonological analysis. Prereq: 603.02. Repeatable to a maximum of 30 cr hrs.

822 Seminar in Historical Linguistics
Advanced topics in methods and principles of diachronic analysis. * Prereq: 611 or permission of instructor. Repeatable to a maximum of 30 cr hrs.

825 Seminar in Advanced Phonetics
Study of specific problems in articulatory and acoustic phonetics at an advanced level. Prereq: 600. Repeatable to a maximum of 30 cr hrs.

830 Teaching Introductory Linguistics
Designed to train instructors in the techniques and materials used to teach introductory linguistics courses. Prereq: 601 or equiv. This course is graded S/U.

861 Seminar in Sociolinguistics
Advanced topics in sociolinguistics. Arr. Prereq: 661. Repeatable to a maximum of 30 cr hrs.

871 Seminar in Psycholinguistics
Advanced topics in psycholinguistics. Sp Qtr. Arr. Prereq: 671. Repeatable to a maximum of 30 cr hrs.

884 Seminar in Computational Linguistics
Advanced topics in computational linguistics. Prereq: 684.01; 684.02 or CS&E 732; or permission of instructor. Repeatable.

899 Interdepartmental Seminar
Two or more departments present seminars on subjects of mutual interest; topics to be announced. Prereq: Permission of instructor(s). Repeatable to a maximum of 15 cr hrs. with permission of dept.

993 Individual Studies
Assigned reading and individual research. Su, Au, Wi, Sp Qtr. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

999 Research in Linguistics
Research for thesis purposes only. Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.

Master of Business Administration

800 Financial Accounting and Reporting
Mechanics of income statement, balance sheet, and fund flows; accounting policy choices; financial statement analysis using fund ratios; ratios, quality of earnings, sustainable growth rates, and inflation adjustments. Au Qtr. 2-hr cl. Prereq: Enrollment in the structured MBA.

801 Cost Accounting
Cost data for inventory valuation; cost data for decision making (pricing, product-mix make or buy); cost data for performance evaluation and control. Wi Qtr. 2-hr cl. Prereq: Enrollment in the structured MBA. Not open to students with credit for 802.

805 Business Solution Teams I
Two quarter sequence course that engages teams of MBA students in solution of business problems for real world companies who serve as clients. Au, Wi Qtrs. 2-hr cl. Prereq: Completion of MBA core courses and enrollment in structured MBA or evening MBA program. This course is Progress (P) graded. Credit will be awarded upon completion of 805.

806 Business Solution Teams II
Two quarter sequence course that engages teams of MBA or evening MBA students in solution of business problems for real world companies who serve as clients. Continuation of 805. Wi, Sp Qtrs. 2-hr cl. Prereq: Completion of MBA core courses and enrollment in structured MBA program. This course is Progress (P) graded.

808 International Field Study: Emerging Markets
Course will expand global perspective of business; offer opportunity to apply skills in an emerging market and explore growth strategies of international companies. Wi, Sp Qtrs. 1 credit hour in Winter; 3 credit hours in Spring for study abroad. Prereq: Permission of instructor and completion of successful interview. Students must participate in field study taken during spring break. Repeatable to a maximum of 8 cr hrs. This course is Progress (P) graded. Full-time MBA's given first priority.

810 Financial Management I
The goal of this course is to present the analytical tools and financial theories necessary to make good decisions in the area of financial management. Wi Qtr. Prereq: Enrollment in structured MBA.

812 Managerial Economics
This course approaches microeconomics from a management and organizational perspective. The objective is to develop a framework grounded in the fundamentals of economic theory. Au Qtr. 2-hr cl. Prereq: Enrollment in structured MBA Program.

820 Global Environment of Business
This course approaches microeconomics from a management and organizational perspective. The objective is to develop a framework grounded in the fundamentals of economic theory. Su, Sp Qtr. Prereq: Enrollment in structured MBA.

825 EPI-Enhancing Professional Interchange
Enhance current levels of skills in professional business environment presentations. Course covers: feedback, commentary, agreement, disagreement, change and the opportunity for continued communication: interchange. Au, Wi, Sp, Su Qtrs. Prereq: Enrollment in structured MBA.

840 Marketing Management
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. Wi, Sp Qtr. Prereq: Enrollment in structured MBA program.

850 Operations Management
Introduction to basic operations principles; exploration of major operating problems; strategic and tactical decision making; emphasis on determination of policy for managing productive resources; role of operations manager. Wi, Sp Qtrs. 2-2-hr cl. Prereq: Enrollment in structured MBA.

860 Organizational Behavior and Teamwork Skills
An overview of factors that influence individual work performance and techniques to improve it; analytical frameworks for determining effectiveness of given techniques in specific circumstances. Su, Au Qtrs. 2-2-hr cl. Prereq: Enrollment in structured MBA.

870 Data Analysis for Managers
Introduction to statistical inference and its use in decision making; major emphasis on achieving an application-oriented understanding of regression analysis. Au, Wi Qtrs. Prereq: Enrollment in structured MBA.

871 Decisions and Decision Models
The use of quantitative techniques in practical decision-making situations; emphasis on concepts with relatively little mathematics utilized to describe the techniques. Wi Qtr. 2-hr cl. Prereq: Enrollment in structured MBA.
880 Legal and Regulatory Environment  UGRD  2
Focused on the application of law to managerial decisions; designed to provide an appreciation and understanding of the relationship between legal and business strategy.
Su, Sp Qtr. 1 cr. Prereq: Enrollment in structured MBA program.

881 Advanced Legal and Regulatory Environment  UGRD  4
Application of the law in areas of ethics, litigation, personal liability, employment and agency law for strategic level professionals.
Sp Qtr. Prereq: Enrollment in structured MBA program, executive track.

893 Individual Studies  UGRD  1-5
Individual study projects in selected areas in business not otherwise offered.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 16 cr hrs. This course is graded S/U.

894 Group Studies  UGRD  1-5
Students are given an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 16 cr hrs.

980 Strategy Formulation and Implementation I  UGRD  4
Introduction to the nature of corporate strategy, development of a conceptual framework for understanding competition in industries, and the factors that shape competitive success or failure.
Su, Sp Qtrs. Prereq: Enrollment in structured MBA.

Materials Science and Engineering

194 Group Studies  UGRD  1-6
Special topics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

205 Introduction to Materials Science and Engineering  UGRD  3
Structure, processing, properties, and applications of metals, ceramics, polymers, and composite materials.
Au, Wi, Sp Qtrs. 3 cr hrs lecture, 1 cr hr rec. Prereq: Math 141 or 151 or 161; Physics 131, and Chem 121 or Chem H201.

281 Materials Processing Laboratory  UGRD  1
Introductory lab course dealing with the appearance, handling, and characteristics of several important materials.
Au Qtr. 1 cr hrs lab. Prereq: 205 or concur.

282 Materials Characterization Laboratory  UGRD  1
Microscopy, diffraction, and chemical analyses of metallic, ceramic, semiconductor, and polymeric materials.
Wi Qtr. 1 cr hrs lecture, 1 cr hrs lab. Prereq: 342 or 571.01 or concur and Matsc&en major or permission of instructor. Not open to students with credit for 571.02.

293 Individual Studies  UGRD  1-6
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

294 Group Studies  UGRD  1-6
Special topics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

341 Atomic Scale Structure of Materials  UGRD  3
Crystal structures in metals, ceramics and other materials, point defects in crystals, structure determination by X-Ray diffraction.
Au Qtr. 3 cr hrs lecture. Prereq or concur: 205. Not open to students with credit for 541.

342 Microstructure and Characterization of Materials  UGRD  3
Introduction to dislocations, grain boundaries, surfaces and multiphase microstructures. Optical and electron microscopic characterization of microstructures.
Wi Qtr. 3 cr hrs lecture. Prereq: 205 or concur or 341 and Matsc&en major or permission of instructor. Not open to students with credit for 571.01.

361 Introduction to Mechanical Behavior of Materials  UGRD  3
Macroscopic mechanical response of ceramics, metals, polymers and composite materials, with an introduction to the underlying microstructural processes during deformation.
Sp Qtr. 3 cr hrs lecture. Prereq: 205, Math 153 and prereq or concur Mech Eng 420 or 440, Matsc&en major or permission of instructor. Not open to students with credit for 561.

371 Electronic Materials  UGRD  3
Structure - properties relations and application of materials in electronics, magnetics and optics.
Sp Qtr. 3 cr hrs lecture. Prereq: 205, Physics 132, Math 153, Matsc&en major or permission of instructor. Not open to students with credit for 671.

394 Group Studies  UGRD  1-6
Special topics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

401 Materials Thermodynamics  UGRD  4
First three laws of thermodynamics; phase equilibria; reaction equilibria; solution theory; phase diagrams.
Au Qtr. 3 cr hrs lecture, 1 cr hr rec. Prereq: 205, Physics 132, Math 254, and Chem 121, Matsc&en or Weld eng major or permission of instructor.

489 Professional Practice in Industry  UGRD  2
Preparation of a comprehensive report based on employment experience in a co-op job in industry.
Su, Au, Wi, Sp Qtrs. Prereq: Admission to co-op program. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

493 Individual Studies  UGRD  1-6
Investigations in areas of advanced non-thesis research. Library and/or research investigations under the directions of instructors. Comprehensive report required.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

494 Group Studies  UGRD  1-6
Special topics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

525 Phase Diagrams  UGRD  3
Phase diagrams of unary, binary and ternary materials systems; thermodynamics and applications.
Wi Qtr. 3 cr hrs lecture. Prereq: 401, Matsc&en or Weld eng major or permission of instructor. Not open to students with credit for 521.01 or 542.01.

526 Transport and Kinetics  UGRD  3
Transport of heat, mass and momentum and kinetics as applied to materials processing.
Au Qtr. 3 cr hrs lecture. Prereq: Math 415; prereq or concur: MatSc&En 341, Matsc&en major or permission of instructor. Not open to students with credit for 522.01.

533 Modeling of Materials Processing Methods  UGRD  3
Development and application of simple mathematical models of selected Solidification Processing methods, Solid State Processing methods, and Vapor Phase Processing methods.
Sp Qtr. 3 cr hrs lecture. Prereq: 525 and 526, Matsc&en major or permission of instructor.

543 Structural Transformations  UGRD  3
Principles of structural transformations in materials. Thermodynamics and kinetics of nucleation, growth, precipitation, and martensitic reactions.
Sp Qtr. 3 cr hrs lecture. Prereq: 342, 401, 525 or 542.01, Matsc&en or Weld eng major or permission of instructor.

564 Mechanical Behavior and Material Microstructure  UGRD  3
Course provides detailed understanding of how atomic-scale and micro-scale structure controls macroscopic mechanical behavior of ceramics, metals, polymers and composite materials.
Wi Qtr. 3 cr hrs lecture. Prereq: 341, 342, 361, Matsc&en major or permission of instructor. Not open to students with credit for 562.01.

581.01 Materials Science Laboratory I  UGRD  2
Laboratory experiments related to material properties and processes. Introduction to experimental techniques in materials science. Development technical writing skills.
Au Qtr. Prereq: 205 and 3rd yr engineering standing, Matsc&en major or permission of instructor. Not open to students with credit for 542.02. GEC course.

581.02 Materials Science Laboratory II  UGRD  2
Laboratory experiments related to material properties and processes. Introduction to experimental techniques in materials science. Development technical writing skills.
Wi Qtr. Prereq: 205 and 3rd yr engineering standing, Matsc&en major or permission of instructor. Not open to students with credit for 542.02. GEC course.

581.03 Materials Science Laboratory III  UGRD  2
Laboratory experiments related to material properties and processes. Introduction to experimental techniques in materials science. Development technical writing skills.
Sp Qtr. Prereq: 205 and 3rd yr engineering standing, Matsc&en major or permission of instructor. Not open to students with credit for 542.02. GEC course.

581.04 Materials Science and Engineering Laboratory for Welding Engineering  UGRD  2
Laboratory experiments related to materials characterization and properties for Welding Engineering students. Introduction to experimental techniques in materials science. Development technical writing skills.
Wi Qtr. Prereq: 205 and 3rd yr engineering standing, Matsc&en major or permission of instructor. Prereq or concur: 525. Not open to MatSc&En majors without approval.

594 Group Studies  UGRD  1-6
Special topics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>602</td>
<td>Analysis of Die Casting Processes</td>
<td>UGRD 3</td>
<td>Fundamental principles underlying the die casting process; integration of cast component design, process requirements and economics.</td>
</tr>
<tr>
<td>605</td>
<td>Principles of Materials Science</td>
<td>UGRD 4</td>
<td>A quantitative survey of processing, structure, and properties relationships in engineering materials. A quantitative introduction for students with non-MatSc&amp;En technical backgrounds.</td>
</tr>
<tr>
<td>612</td>
<td>Structure and Defects of Crystalline Ceramics</td>
<td>UGRD 3</td>
<td>Structure of ceramic crystals, point defects and non-stoichiometric structures.</td>
</tr>
<tr>
<td>614</td>
<td>Electrical, Optical and Magnetic Properties of Ceramic Materials</td>
<td>UGRD 3</td>
<td>Ceramic conductors, sensors, varistors; dielectric materials; electro-optic ceramics, fiber optics and magnetic materials.</td>
</tr>
<tr>
<td>615</td>
<td>Chemical Processing of Ceramics</td>
<td>UGRD 3</td>
<td>Chemical methods for making ceramic powders, the colloidal behavior of ceramic particulate suspensions and the multicomponent, multiphase equilibria found in thermomechanically processed ceramics.</td>
</tr>
<tr>
<td>616</td>
<td>Ceramic Forming Processes</td>
<td>UGRD 3</td>
<td>Principles of ceramic forming processes and raw materials.</td>
</tr>
<tr>
<td>617</td>
<td>Thermal Processing of Ceramics</td>
<td>UGRD 3</td>
<td>Ceramic drying and firing processes. Emphasis is on microstructure development: calcining, solid state sintering, liquid phase sintering, grain growth, hot pressing and reaction bonding.</td>
</tr>
<tr>
<td>618</td>
<td>Structure, Properties and Processing of Glass</td>
<td>UGRD 3</td>
<td>Processing, structure and properties of glasses and basic glass manufacturing operations.</td>
</tr>
<tr>
<td>619</td>
<td>Ceramic Processing Laboratory</td>
<td>UGRD 1</td>
<td>Processing and properties of ceramic materials.</td>
</tr>
<tr>
<td>620</td>
<td>Analysis of Die Casting Processes</td>
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<td>Fundamental principles underlying the die casting process; integration of cast component design, process requirements and economics.</td>
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<tr>
<td>621</td>
<td>Ferrous Metallurgy</td>
<td>UGRD 3</td>
<td>Physical metallurgy of plain carbon and alloy steels.</td>
</tr>
<tr>
<td>622</td>
<td>Corrosion</td>
<td>UGRD 3</td>
<td>Principles of corrosion engineering; definitions, types of corrosive attack and methods of minimization and prevention.</td>
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<tr>
<td>623</td>
<td>Non-Ferrous Metallurgy</td>
<td>UGRD 3</td>
<td>Physical metallurgy of important non-ferrous alloys; their properties and applications.</td>
</tr>
<tr>
<td>624</td>
<td>Process Metallurgy</td>
<td>UGRD 3</td>
<td>Thermodynamics, reaction kinetics, and fluid, heat and mass transfer principles applied to metallurgical processes including their analysis and process design.</td>
</tr>
<tr>
<td>625</td>
<td>Metal Processing</td>
<td>UGRD 3</td>
<td>Near net shape manufacturing via solidification and powder metallurgy methods.</td>
</tr>
<tr>
<td>626</td>
<td>Processing Electronic Materials</td>
<td>UGRD 3</td>
<td>Principle of chemical sensing, catalysis, nano-materials/nano-structures and thin-films; includes laboratory group projects.</td>
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<tr>
<td>627</td>
<td>Electroceramics: Chemical Sensors, Thin-films, and Nano-structures</td>
<td>UGRD 3</td>
<td>Principles of chemical sensing, catalysis, nano-materials/nano-structures and thin-films; includes laboratory group projects.</td>
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<tr>
<td>628</td>
<td>Structure and Properties of Solid Polymers</td>
<td>UGRD 3</td>
<td>Principles of polymer science and engineering and the important concepts that distinguish plastics from inorganic materials. Property/structure relationships that drive new applications.</td>
</tr>
<tr>
<td>630</td>
<td>Molecular Aspects of Polymer Properties</td>
<td>UGRD 3</td>
<td>An introduction to the physical properties of polymeric materials, integrating polymeric structure with physical properties, and the application of these properties.</td>
</tr>
<tr>
<td>643</td>
<td>Structure and Properties of Composite Materials</td>
<td>UGRD 3</td>
<td>Structure and properties of polymer matrix, metal matrix, and ceramic matrix composites. Tailoring of properties by composite design.</td>
</tr>
<tr>
<td>644</td>
<td>Materials in Medicine I</td>
<td>UGRD 3</td>
<td>The science and engineering of materials having medical applications.</td>
</tr>
<tr>
<td>645</td>
<td>Materials in Medicine II</td>
<td>UGRD 3</td>
<td>Materials in Medicine II</td>
</tr>
<tr>
<td>646</td>
<td>Biomaterials Processing Lab</td>
<td>UGRD 1</td>
<td>Processing and properties of biomaterials; forming processes used with biomaterials.</td>
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<td>661</td>
<td>Ferrous Metallurgy</td>
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<td>Physical metallurgy of plain carbon and alloy steels.</td>
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<td>666</td>
<td>Deformation Processing</td>
<td>UGRD 3</td>
<td>Continuum behavior of metals; analysis of common forming operations; slab calculations, ideal work methods, upper bound analysis, other numerical methods.</td>
</tr>
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<td>667</td>
<td>Castings and Powder Metallurgy</td>
<td>UGRD 3</td>
<td>Near net shape manufacturing via solidification and powder metallurgy methods.</td>
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<td>Thermodynamics, reaction kinetics, and fluid, heat and mass transfer principles applied to metallurgical processes including their analysis and process design.</td>
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<td>669</td>
<td>Metallic Materials Lab</td>
<td>UGRD 1</td>
<td>Heat treatment, microstructure, phase transformations and mechanical properties of steels. Microstructure control for mechanical property optimization.</td>
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<tr>
<td>673</td>
<td>Electroceramics: Chemical Sensors, Thin-films, and Nano-structures</td>
<td>UGRD 3</td>
<td>Principles of chemical sensing, catalysis, nano-materials/nano-structures and thin-films; includes laboratory group projects.</td>
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<tr>
<td>676</td>
<td>Processing Electronic Materials</td>
<td>UGRD 3</td>
<td>Introduction to microfabrication with emphasis on processing, structure and stability of materials in microelectronics.</td>
</tr>
<tr>
<td>679</td>
<td>Electronic Materials Lab</td>
<td>UGRD 1</td>
<td>Laboratory experience in microelectronics processing.</td>
</tr>
<tr>
<td>693</td>
<td>Individual Studies</td>
<td>UGRD 1-6</td>
<td>Investigations in areas of advanced non-thesis research. Library and/or research investigations are under the close direction of instructors. Comprehensive report required.</td>
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</table>
694 Group Studies UGRD 1-6
Special topics. Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs.

695.01 Senior Design Project I UGRD 1
An in-depth design project to foster independent thinking and to develop problem solving skills. Analysis of design problem and formulation of approach to solve problem. Prereq: Sr standing in MSE or the physical sciences. Must be scheduled in the first 2 qtrs of academic year of projected graduation.

695.02 Senior Design Project II UGRD 1
An in-depth design project to foster independent thinking and to develop problem solving skills. Execution of design projects with written and oral reports. Prereq: 695.01.

695.03 Senior Design Project III UGRD 1
An in-depth design project to foster independent thinking and to develop problem solving skills. Completion of design projects with written and oral reports. May be taken as an honors course with permission of department. 1 hr cl. Prereq: Sr standing in MatSc&En or 695.02.

711 Solidification Science GRAD 3
Thermodynamics of undercooling, local equilibrium, and interface non-equilibrium. Microanalysis of solidification dynamics; micro-analysis of microstructure formation. 2.5-hr cl. Prereq: Grad standing in MatSc&En or permission of instructor.

715 Principles of the Characterization of Materials
Fundamentals of beam-solid interactions and their application to the characterization of materials. 3 1-hr cl. Prereq: Math 415 or grad standing in MatSc&En or permission of instructor.

730 Thermodynamics of Materials UGRD 4
Thermodynamics of mixtures and phase equilibria relevant to metallurgy and material science. 2-hr cl. Prereq: Grad standing or permission of instructor.

731 Physical Properties of Glasses UGRD 3
Viscosity, chemical durability and thermal, electrical, optical, and mechanical properties of commercial glasses. Effects of thermal history and composition. 3 1-hr cl. Prereq: 632 or grad standing in MatSc&En or permission of instructor.

735 Advanced Corrosion UGRD 3
Theories and mechanisms of corrosion. 3 1-hr cl. Prereq: Grad standing in MatSc&En or permission of instructor.

736 High Temperature Corrosion UGRD 3
Corrosion of metals and alloys in high-temperature gases and salts. 3 1-hr cl. Prereq: Grad standing in MatSc&En or permission of instructor.

737 Diffusion and Interface Kinetics GRAD 4
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. Sp Qtr. Prereq: Grad standing in MSE or permission of instructor. Not open to students with credit for 732.

741 Transmission Electron Microscopy Laboratory
Application of transmission electron microscopy of materials with emphasis on practical experimental methods. Au, Wi, Sp Qtrs. 1 3-hr lab. Prereq: 715 or equiv.

747 Structure and Defects in Materials GRAD 4
Structure and defects in crystalline and amorphous solids. Au Qtr. 2 2-hr cl. Prereq: Grad standing in MatSc&En or permission of instructor. Not open to students with credit for 745.

750 Materials Microstructures UGRD 3
Nature and kinetics of microstructural changes produced by cold work and subsequent aging in ductile materials. Homogeneous and heterogeneous nucleation. Dislocations in crystalline materials with emphasis on FCC materials. 2 1.5-hr cl. Prereq: Grad standing in MatSc&En or permission of instructor.

756 Computational Materials Modeling GRAD 3
Introduction to common computer modeling methods including hands-on work with emphasis on the atomic and nano-scales. Au Qtr. 2 1.5-hr cl. Prereq: Permission of instructor.

765 Mechanical Behavior of Materials GRAD 3
Mechanical response of materials to loads and deformation. 2 1.5-hr cl. Prereq: Grad standing in MatSc&En or permission of instructor.
### Mathematics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>50</td>
<td>Precalculus Mathematics I</td>
<td>5</td>
</tr>
<tr>
<td>75</td>
<td>Precalculus Mathematics II</td>
<td>4</td>
</tr>
<tr>
<td>95</td>
<td>Enrichment of Basic College Mathematics</td>
<td>2</td>
</tr>
<tr>
<td>104</td>
<td>Basic College Mathematics</td>
<td>5</td>
</tr>
<tr>
<td>105</td>
<td>Fundamental Mathematics Concepts for Teachers I</td>
<td>5</td>
</tr>
<tr>
<td>106</td>
<td>Fundamental Mathematics Concepts for Teachers II</td>
<td>5</td>
</tr>
<tr>
<td>107</td>
<td>Topics in Mathematics for Elementary Teachers</td>
<td>5</td>
</tr>
<tr>
<td>108</td>
<td>Number and Algebraic Structures for Middle School Teachers</td>
<td>5</td>
</tr>
<tr>
<td>109</td>
<td>Geometry and Measurement for Middle School Teachers</td>
<td>5</td>
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<td>110</td>
<td>Elements of Mathematical Modeling for Middle School Teachers</td>
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<tr>
<td>111</td>
<td>Concepts of Calculus for Middle School Teachers</td>
<td>5</td>
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<tr>
<td>116</td>
<td>Excursions in Mathematics</td>
<td>5</td>
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<tr>
<td>117</td>
<td>Survey of Calculus</td>
<td>5</td>
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<tr>
<td>130</td>
<td>Mathematical Analysis for Business I</td>
<td>4</td>
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<tr>
<td>131</td>
<td>Mathematical Analysis for Business II</td>
<td>4</td>
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<tr>
<td>132</td>
<td>Mathematical Analysis for Business III</td>
<td>5</td>
</tr>
<tr>
<td>140</td>
<td>Calculus with Review</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 50 Precalculus Mathematics I
Arithmetic of fractions and decimals, basic algebra, graphing equations, geometry, exponents, applications of exponents, lines and slopes, area. Su, Au, Wi, Sp Qtrs. 5 cl. Not open to students with credit for any higher numbered math course. Credit will not count toward graduation in any degree program.

#### 75 Precalculus Mathematics II
Factoring, rational expressions and equations, graphs, systems of linear equations and inequalities, problem solving, roots and radicals, quadratic equations, complex numbers. Su, Au, Wi, Sp Qtrs. 4 cl. Prereq: 50 or satisfactory score on Ohio State Math Placement Test. Not open to students with credit for any math course except 50. Credit will not count toward graduation in any degree program.

#### 95 Enrichment of Basic College Mathematics
Supplement to Math 104 using small group interaction and active learning to enhance the development of skills necessary to succeed in 104 and subsequent courses. Au Qtr. 2 cl. Prereq: New first quarter freshman, no math admission condition, and Math Placement T or S; concur: 104. This course is not repeatable under any circumstances (not through audit, repeating a D, repeating an F or NP, Fresh Start, Freshman Forgiveness, transfer credit, or any other means). Credit may not count toward graduation in some degree programs.

#### 104 Basic College Mathematics
Systems of equations, arithmetic of polynomials, factoring, rational equations, variation, quadratic equations, functions, graphs, and right angle trig. Wi Qtr. 4 cl. Prereq: At least one yr of high school algebra, out of high school for 5 or more yrs at time of university enrollment, no formal training in math in the past 5 yrs, and written permission of Dept of Mathematics. Not open to students with a mark in any Ohio State math course within the past 5 yrs. Credit will not count toward graduation in any degree program.

#### 105 Fundamental Mathematics Concepts for Teachers I
Development of basic ideas of arithmetic, algebra and geometry as appropriate for school teachers. Su, Au, Wi Qtrs. 5 cl. Prereq: 75 or 76 or satisfactory score on Ohio State Math Placement Test.

#### 106 Fundamental Mathematics Concepts for Teachers II
Continuation of 105. Wi, Sp Qtrs. 5 cl. Prereq: 105 or written permission of dept.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>151.01</td>
<td>Accelerated Calculus with Analytic Geometry I</td>
<td>5</td>
<td>Limits, continuity, derivatives, Mean Value Theorem, extrema, curve sketching, related rates, differentiation of the trig, log, and exp functions.</td>
</tr>
<tr>
<td>151.02</td>
<td>Calculus and Analytic Geometry I</td>
<td>5</td>
<td>Limits, continuity, derivatives, Mean Value Theorem, extrema, curve sketching, related rates, differentiation of the trig, log, and exp functions.</td>
</tr>
<tr>
<td>151.03</td>
<td>Calculus and Analytic Geometry I</td>
<td>5</td>
<td>Limits, continuity, derivatives, Mean Value Theorem, extrema, curve sketching, related rates, differentiation of the trig, log, and exp functions.</td>
</tr>
<tr>
<td>152.01</td>
<td>Calculus and Analytic Geometry II</td>
<td>5</td>
<td>Integrals, area, fundamental theorems of calculus, logarithmic and exponential functions, trigonometric and inverse trigonometric functions, methods of integration, applications of integration, polar coordinates.</td>
</tr>
<tr>
<td>152.02</td>
<td>Calculus and Analytic Geometry II</td>
<td>5</td>
<td>Integrals, area, fundamental theorems of calculus, logarithmic and exponential functions, trigonometric and inverse trigonometric functions, methods of integration, applications of integration, polar coordinates.</td>
</tr>
<tr>
<td>153.01</td>
<td>Calculus and Analytic Geometry III</td>
<td>5</td>
<td>Indeterminate forms, Taylor's formula, improper integrals, infinite series, parametric curves, and vectors in the plane; vectors, curves, and surfaces in space.</td>
</tr>
<tr>
<td>153.04</td>
<td>Calculus and Analytic Geometry III</td>
<td>5</td>
<td>Indeterminate forms, Taylor's formula, improper integrals, infinite series, parametric curves, and vectors in the plane; vectors, curves, and surfaces in space.</td>
</tr>
<tr>
<td>161.01H</td>
<td>Accelerated Calculus with Analytic Geometry I</td>
<td>5</td>
<td>Functions, limits and continuity, derivatives, applications of the derivative, the integral, inverse functions, techniques of integration, applications of integration.</td>
</tr>
<tr>
<td>161.01H</td>
<td>Accelerated Calculus with Analytic Geometry I</td>
<td>5</td>
<td>Functions, limits and continuity, derivatives, applications of the derivative, the integral, inverse functions, techniques of integration, applications of integration.</td>
</tr>
<tr>
<td>161.02H</td>
<td>Accelerated Calculus with Analytic Geometry I</td>
<td>5</td>
<td>Functions, limits and continuity, derivatives, applications of the derivative, the integral, inverse functions, techniques of integration, applications of integration.</td>
</tr>
</tbody>
</table>
162.01 Accelerated Calculus with Analytic Geometry II UGRD 5
Improper integrals; polynomial approximations and Taylor's theorem; infinite sequences and series; tests for convergence, vectors, lines and planes. Wi Qtr. 5 cl. Prereq: 161 or 161.xx or written permission of Math Counseling Office. Not open to students with credit for 153 or 153.xx or higher or 162 or 162.xx or higher. Standard course.

162.01H Accelerated Calculus with Analytic Geometry II UGRD 5
Improper integrals; polynomial approximations and Taylor's theorem; infinite sequences and series; tests for convergence, vectors, lines and planes. Wi Qtr. 5 cl. Prereq: Honors program; 161 or 161.xx; or written permission of Math Counseling Office. Not open to students with credit for 153 or 153.xx or higher or 162.xx or higher. Standard course.

162.02 Accelerated Calculus with Analytic Geometry II UGRD 5
Improper integrals; polynomial approximations and Taylor's theorem; infinite sequences and series; tests for convergence, vectors, lines and planes. Au, Wi Qtrs. 5 cl. Prereq: 161 or 161.xx or written permission of Math Counseling Office. Not open to students with credit for 153 or 153.xx or higher or 162 or 162.xx or higher. Only open to College of Engineering students.

187.01 Topics in Mathematics UGRD 2-5
An enrichment course for interested and capable students. Au Qtr. Prereq: Permission of dept. This course is graded S/U. Repeatable to a maximum of 15 cr hrs.

187.01H Topics in Mathematics UGRD 2-5
An enrichment course for interested and capable students. Au Qtr. Prereq: honors program or by permission of department or instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

187.04 Topics in Mathematics UGRD 2-5
An enrichment course for interested and capable students. Calculus using computer algebra system either in designated lab and/or remote computer hook-up. Au Qtr. Prereq: Permission of dept. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

188 Invitation to Actuarial Science UGRD 1
Introduction to some basic ideas of life, health, and property casualty insurance; presentations by practicing actuaries on aspects of the actuarial profession.

190H Elementary Analysis I UGRD 5
The first of an enriched honors calculus sequence designed to introduce students to the mathematical underpinnings of analysis. Au Qtr. 5 cl. Prereq: Permission of dept. 190H, or 190H; or permission of instructor. This course is graded S/U.

190H Elementary Analysis II UGRD 5
Continuation of 190H. Wi Qtr. 5 cl. Prereq: 190H with a grade of C or better or written permission of Honors Committee chairperson.

194 Group Studies in Mathematics UGRD 2-5
Designed to give groups of students an opportunity to pursue special studies not otherwise offered. Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 10 cr hrs.

212 History of Mathematics for Middle School UGRD 5
Teachers
Historical development of concepts appropriate to middle childhood mathematics. A capstone course to bring together topics discussed in 108, 109, 110, 111 and Statistics 145.

254.01 Calculus and Analytic Geometry IV UGRD 5
Partial differentiation, Lagrange multipliers, multiple integrals, line integrals, and Green's theorem. Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: 153 or 153.xx. Not open to students with credit for 254 or 254.xx or higher or 255 or 255.xx or higher; use of the Freshman Forgiveness Rule is restricted by this exclusion. This course is available for EM credit. Standard course.
350 Introduction to Mathematical Biology UGRD 3
Introduction to quantitative and qualitative analysis of several mathematical models & biological problems.
Sp Qtr. 3 cl. Prereq: 255 or 255.xx or 415 or 415.xx or permission of instructor.

366 Discrete Mathematical Structures I UGRD 3
Mathematical formalization and reasoning, logic, and Boolean algebra; sets, functions; relations, recursive definitions, and mathematical induction; and elementary counting principles.
Su (1st term), Au, Wi, Sp Qtrs. 3 cl. Prereq: 132 or 152 or 152.xx or permission of dept.

414 Differential Equations for Engineering UGRD 3
Applications
Introduction to the basic methods for solving ordinary and partial differential equations, and some applications.
* Sp Qtr. 3 cl. Prereq: 254 or 254.xx; concur: Aero Eng 414; or permission of instructor. Not open to students with credit for 255 or 255.xx or 415 or 415.xx. This course is linked to Aero Eng 414 where significant engineering applications will be presented. Students enrolled in this course must be simultaneously enrolled in Aero Eng 414.

415.01 Ordinary and Partial Differential Equations UGRD 4
Ordinary, partial, and nonlinear differential equations; Fourier series; boundary value problems; and Bessel functions.
Su, Au, Wi, Sp Qtrs. 4 cl. Prereq: 254 or 254.xx. Not open to students with credit for 255 or 255.xx or 415 or 415.xx. Standard course.

415.02 Ordinary and Partial Differential Equations UGRD 4
Ordinary, partial, and nonlinear differential equations; Fourier series; boundary value problems; and Bessel functions.
Au, Sp Qtrs. 4 cl. Prereq: 254 or 254.xx. Not open to students with credit for 255 or 255.xx or 415 or 415.xx. Only open to College of Engineering students.

415.04 Ordinary and Partial Differential Equations UGRD 4
Ordinary, partial, and nonlinear differential equations; Fourier series; boundary value problems; and Bessel functions.
Wi, Sp Qtrs. 4 cl. Prereq: 254 or 254.xx. Not open to students with credit for 255 or 255.xx or 415 or 415.xx. Calculus using computer algebra system either in designated lab and/or remote computer hook-up.

487H Advanced Problem Solving UGRD 2
An advanced enrichment course for interested and capable students.
Au Qtr. 2 cl. Prereq: Permission of dept. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

504 History of Mathematics UGRD 5
Development of mathematics from primitive origins to present form; topics include: development of arithmetic, algebra, geometry, trigonometry, and calculus.
Su, Sp Qtrs. 5 cl. Prereq: Math major or grad standing in Edu T&L; and 507, 5520, 568, 571, or 580; or equiv with written permission of dept.

507 Advanced Geometry UGRD 5
Advanced topics from Euclidean Geometry.
Au, Wi Qtr. 5 cl. Prereq: H264 or 345 or grad standing.

512 Partial Differential Equations and Boundary Value Problems UGRD 3
Fourier series, orthogonality relations, vibrating string, steady state heat, Laplace transform, and applications.
Su (1st term), Au, Wi, Sp Qtrs. 3 cl. Prereq: 255 or 255.xx or 415 or 415.xx or equiv with written permission of dept.

513 Vector Analysis for Engineers UGRD 3
Vector algebra, vector operators, line integrals, vector integral theorems, curvilinear coordinates; applications.
Au, Wi Qtr. 3 cl. Prereq: 254 or 254.xx. Not open to students with credit for 551.

514 Complex Variables for Engineers UGRD 3
Introduction to complex variables, analytic functions, complex integral theorems, power series, residues, conformal mapping.
Sp Qtr. 3 cl. Prereq: 254 or 254.xx or equiv with written permission of dept. Not open to students with credit for 552 or 654.

520H Linear Algebra UGRD 5
Au Qtr. 5 cl. Prereq: 263.01H with a grade of C or better, or 264H with a grade of C or better, or written permission of Honors Committee chairperson.

521H Differential Equations UGRD 5
Ordinary, linear and nonlinear differential equations, existence and uniqueness theorems, Fourier series, boundary value problems, systems, Laplace transforms, phase space, stability, and periodic orbits.
Wi Qtr. 5 cl. Prereq: 520H with a grade of C or better or written permission of Honors Committee chairperson.

522H Complex Analysis UGRD 5
Analytic functions, Cauchy integral theory, residue calculus, series representations, and conformal mapping.
Sp Qtr. 5 cl. Prereq: 521H with a grade of C or better or written permission of Honors Committee chairperson. The sequence 520H-521H-522H substitutes for 568; 255 or 255.xx or 415 or 415.xx; 514 or 552.

530 Probability UGRD 3
Combinatorial probability, random variables, independence, expectations, variance.
Au Qtr. 3 cl. Prereq: 254 or 254.xx.

531H Rigorous Probability UGRD 5
A rigorous honors course on probability theory with special attention to the history of the subject and continuing connections with other areas of mathematics.
Au Qtr. 3.5-hr cl. Prereq: 264H or permission of instructor.

532 Mathematical Foundations of Actuarial Science UGRD 5
Problem workshop for applications of calculus and probability to actuarial science and risk management.
Sp Qtr. 2.125-hr cl. Prereq: 530 or Stat 420 or 520, or permission of instructor.

540H Geometry and Calculus in Euclidean Spaces and on Manifolds I UGRD 5
The topology of n-dimensional Euclidean space, differentiation of vector-valued functions, inverse and implicit function theorems, Riemann and Lebesgue integration in n-dimensional Euclidean space.
Wi Qtr. 5 cl. Prereq: 520H, or 263H and 568, or permission of instructor. Offered in odd-numbered years only.

541H Geometry and Calculus in Euclidean Spaces and on Manifolds II UGRD 5
Curves and line integrals in n-dimensional Euclidean space, tensor and exterior algebras, differential forms, integration on manifolds, divergence and Stokes' theorem and applications.
Sp Qtr. 5 cl. Prereq: 540H or permission of instructor. Offered in odd-numbered years only.

547 Introductory Analysis I UGRD 3
547-548-549 is an integrated sequence in advanced calculus covering sequences, limits, continuous functions, differentiation, Riemann integral, infinite series, sequences and series of functions, Taylor series, improper integrals.
Au, Wi Qtrs. 3 cl. Prereq: 345 or equiv with written permission of dept.

548 Introductory Analysis II UGRD 3
Continuation of 547.
Wi, Sp Qtrs. 3 cl. Prereq: 547 or equiv with written permission of dept.

549 Introductory Analysis III UGRD 3
Continuation of 548; the Riemann-Stieltjes integral; an introduction to the calculus of several variables.
Au, Sp Qtrs. 3 cl. Prereq: 548 or equiv with written permission of dept.

551 Vector Analysis UGRD 5
Vector operations in three dimensions, vector operators, surface area, the theorems of Green and Stokes, the divergence theorem; applications.
Sp Qtr. 5 cl. Prereq: 254 or 254.xx. Not open to students with credit for 513.

552 Introduction to the Theory of Functions of a Complex Variable UGRD 5
Topics discussed include power series expansions, the formula of Cauchy, residues, conformal mappings, and elementary functions in the complex domain.
* Su Qtr. 5 cl. Prereq: 254 or 254.xx. Not open to students with credit for 514.

556 Differential Equations I UGRD 3
Systems of linear, first-order differential equations, existence and uniqueness theorems, numerical methods, qualitative theory (phase plane analysis, linearization, stability, limit cycles), and physical applications.
Wi Qtr. 3 cl. Prereq: 255, prereq or concur 572.

566 Discrete Mathematical Structures II UGRD 3
Su (2nd term), Wi, Sp Qtrs. 3 cl. Prereq: 366 or permission of dept.

568 Introductory Linear Algebra UGRD 3
The n-dimensional Euclidean space and its subspaces; matrices as mappings; matrix algebra; systems of equations; determinants; dot product; geometric interpretations.
Su (1st term), Au, Wi, Sp Qtrs. 3 cl. Prereq: 254 or 254.xx or equiv with written permission of dept. Not open to students with credit for 571.

571 Linear Algebra for Applications I UGRD 3
Linear systems of equations; vector spaces, matrices, linear operators; inner products, projections and least squares, approximations or eigenvalue problems, applications.
Su (1st term), Au, Wi, Sp Qtrs. 3 cl. Prereq: 254 or 254.xx. Not open to students with credit for 601.

303
572 Linear Algebra for Applications II UGRD 3
The eigenvalue problem or inner product spaces, projections and least squares approximation; classification of operators and quadratic forms; applications. Su (2nd term), Wi; Prereq: 571 or permission of dept. Not open to students with credit for 601.

573 Elementary Number Theory UGRD 5
Utilization of concrete examples to introduce concepts of modern algebra; prime numbers, congruences, Diophantine equations, elementary combinatorial analysis. Sp Qtr. 5 cl. Prereq: 264H or 345 or grad standing or permission of dept. Offered in odd-numbered years only.

575 Combinatorial Mathematics and Graph Theory UGRD 5
Some classical puzzles of recreational mathematics; matching theory, graph theory, network flows, and optimization; enumeration techniques; combinatorial designs and coding theory. Wi, Sp Qtr. 5 cl. Prereq: 568, 571, 520H, or written permission of dept. Offered in even-numbered years only.

576H Number Theory through History I UGRD 5
The integrated honors sequence 576H-577H includes elementary analytic and algebraic number theory and traces its unifying role in development of mathematics through history. Wi Qtr. 3 80-min cl. Prereq: 191H and 520H, or permission of dept. Offered in even-numbered years only.

577H Number Theory through History II UGRD 5
Continuation of 576H. Sp Qtr. 3 80-min cl. Prereq: 576H or permission of dept. Offered in even-numbered years only.

578 Discrete Mathematical Models UGRD 5
Analysis and solution of various applied problems using discrete mathematical models; methods used include graph theory, linear optimization, Markov chains and queues. Sp Qtr. 5 cl. Prereq: 530, Stat 420, 427, 520, or equiv; 568 or 571 or 520H; CSE 201, 202 or 221 or EnGraph 167.

580 Algebra I UGRD 3
The integrated algebra sequence 580-581-582 includes elementary number theory, group theory, vector spaces, and linear transformations, field theory. Au, Wi, Qtrs. 3 cl. Prereq: 345 and (568 or 571 or 520H), or permission of dept. Not open to students with credit for 590H or 670.

581 Algebra II UGRD 3
Continuation of 580. Wi, Sp Qtr. 3 cl. Prereq: 580.

582 Algebra III UGRD 3
Continuation of 581. Au, Sp Qtr. 3 cl. Prereq: 581.

585 Introduction to Coding Theory and Design UGRD 3
Introduction to error-correcting codes and block designs, and their applications. Au Qtr. 3 cl. Prereq or concur: 582 or 592H or permission of instructor.

588 Practicum in Actuarial Science UGRD 4
Presentations by practicing actuaries on topics drawn from their fields of expertise; oral presentations by students on selected topics in actuarial science. Sp Qtr. 2 hr 48 min cl. Prereq: 3rd yr standing and completion of second writing course. Open only to actuarial science majors.

589 Introduction to Mathematical Finance UGRD 3
Introduces students to the basic mathematics used in financial asset pricing. Wi Qtr. 2 1.5-hr cl. Prereq: 530 or Stat 420 or permission of instructor.

590H Algebraic Structures I UGRD 5
Integers, congruence relations, structure preserving maps, topics from groups, rings, modules, vector spaces, fields. Au Qtr. 5 cl. Prereq: 522H with a grade of C or better or written permission of Honors Committee chairperson. The sequence 590H-591H-592H substitutes for the sequence 580-581-582.

591H Algebraic Structures II UGRD 5
A continuation of 590H. Wi Qtr. 5 cl. Prereq: 590H with a grade of C or better or written permission of Honors Committee chairperson.

592H Algebraic Structures III UGRD 5
Continuation of 591H; further topics in group and field theory and their interrelation; Galois theory. Sp Qtr. 5 cl. Prereq: 591H with a grade of C or better or written permission of Honors Committee chairperson.

593 Individual Studies UGRD 2-5
Individual Studies. Su, Au, Wi, Sp Qtr. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

594 Group Studies UGRD 2-5
Designed to give groups of advanced undergraduate students an opportunity to pursue special studies not otherwise offered. Su, Au, Wi, Sp Qtr. 594H (honors) may be available to students enrolled in an honor program or by permission of department or instructor. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

601 Mathematical Principles in Science I GRADE 3
Linear algebra in finite dimensions, abstract vector spaces, linear transformations, fundamental subspaces; complex inner product spaces. Au Qtr. 3 cl. Prereq: 568 or 571 or equiv.

602 Mathematical Principles in Science II GRADE 3

603.01 Mathematical Principles in Science III, A GRADE 3
An introduction to partial differential equations (pdes) that arise in the mathematical and engineering sciences. General properties and methods of solution of hyperbolic, parabolic, and elliptic pdes that arise in science and engineering. ^ Prereq: 415 or 415.xx or equiv, and 602.

603.02 Mathematical Principles in Science III, B GRADE 3
An introduction to partial differential equations (pdes) that arise in the mathematical and engineering sciences. Mathematical principles and methods in the physical and engineering sciences including Fourier theory, Green's function theory, study of pdes illustrated mainly by the Helmholtz equation. Prereq: 415 or 415.xx or equiv, and 602.

606 Introduction to Numerical Analysis of Partial Differential Equations GRADE 3
Classification of partial differential equations; finite difference methods for elliptic, parabolic and hyperbolic PDEs; stability, convergence, error estimates; introduction to finite elements. Sp Qtr. 3 cl. Prereq: 512 and 572 or equiv with permission of instructor.

607 Essentials of Numerical Analysis GRADE 5
Standard problems of numerical analysis, error analysis, and actual computational algorithms. Wi Qtr. 3-2 hr cl. Prereq: (568 or 571 or 520H) and (255 or 255.xx or 415 or 415.xx or 521H), or permission of the Department.

609 Applications of Mathematical Software GRADE 3
Familiarize mathematics majors with some mathematical software encountered in a university setting: Matlab, Maple or Mathematica and LaTeX. Su Qtr. 3 cl. Prereq: 255 or 255.xx or 415 or 415.xx or 521H, and 568 or 571 or 520H, and grad standing or permission of instructor. Open only to math majors.

610.01 Topics in Math for Teachers: Geometry GRADE 1-5
Special topics in mathematics for teachers at the secondary level: Geometry. ^ Prereq: 1 yr teaching experience or permission of instructor. Designed for in-service teachers. Repeatable to a maximum of 10 cr hrs.

610.02 Topics in Math for Teachers: Algebra GRADE 1-5
Special topics in mathematics for teachers at the secondary level: Algebra. ^ Prereq: 1 yr teaching experience or permission of instructor. Designed for in-service teachers. Repeatable to a maximum of 10 cr hrs.

610.03 Topics in Math for Teachers: Approximation Methods GRADE 1-5
Special topics in mathematics for teachers at the secondary level: Approximation Methods. ^ Prereq: 1 yr teaching experience or permission of instructor. Designed for in-service teachers. Repeatable to a maximum of 10 cr hrs.

610.04 Topics in Math for Teachers: Probability GRADE 1-5
Special topics in mathematics for teachers at the secondary level: Probability. ^ Prereq: 1 yr teaching experience or permission of instructor. Designed for in-service teachers. Repeatable to a maximum of 10 cr hrs.

610.25 Topics in Math for Teachers: Special Projects GRADE 1
Special topics in mathematics for teachers at the secondary level: Special Projects. Prereq: 1 yr teaching experience or permission of instructor. Prereq: Enrollment in mathematics MA specialization or written permission of dept. Designed for in-service teachers. This course is graded S/U.

615 Applied Differential Equations I GRADE 3
Modeling by differential equations of physical and biological processes. Topics include explicit solutions, existence and uniqueness, n-dimensional linear ODE systems, geometric theory, and bifurcation analysis. Au Qtr. 3 cl. Prereq: 255 and 568 or permission of instructor.
616 Applied Differential Equations II GRAD 3
Introduction to the basic types of partial differential equations and their solutions with applications to physical and biological processes; methods of separation of variables and Fourier transforms.
Wi Qtr. 3 cl. Prereq: 615 or permission of instructor.

617 Applied Differential Equations III GRAD 3
Topics in applied ODEs and PDEs. Possible topics include solution of the Dirichlet problem in general domains, integral equations, nonlinear PDEs, chaotic dynamics, singular perturbations.
Sp Qtr. 3 cl. Prereq: 616 or permission of instructor.

618 Theory of Interest UGRD 4
Mathematical techniques of use in analyzing financial transactions involving interest: measurement of interest, force of interest, annuities-certain, applications to actuarial science.
Au Qtr. 2.2-hr cl. Prereq: 254 or 254.xx or 263 or 263.xx or 263.01H or 264H or permission of Math Department. Open only to Actuarial Science majors or Mathematics majors.

630 Actuarial Mathematics I UGRD 4
Problem workshop for applications of economics, finance, and theory of interest to actuarial science.
Au Qtr. 2 2-hr cl. Prereq: 530 or Stat 420 or 520; prereq or concur: Math 618. Open only to Actuarial Majors or Mathematics Majors.

631 Actuarial Mathematics II UGRD 4
Actuarial models and their application to insurance and other financial risks.
Wi Qtr. 2.2-hr cl. Prereq: 630 or permission of Department. Open only to Actuarial Science or Mathematics majors.

632 Actuarial Mathematics III UGRD 4
Actuarial models and their application to insurance and other financial risks.
Sp Qtr. 2.2-hr cl. Prereq: 618 or permission of Department. Open only to Actuarial Science or Mathematics majors.

640 General Topology GRAD 3
Open, closed sets; interior, closure, boundaries of sets; continuity; product, quotient, subspace topologies; metric spaces; compactness; separability axioms; countability axioms; metrization theorems; Tychonoff theorem.
Au Qtr. 3 cl. Prereq: Math grad status or permission of instructor with 547 or equiv. Not open to students with credit for 655.

641 Elementary Low-Dimensional Topology GRAD 3
Knot projections; Reidemeister moves; classification of surfaces; Seifert surfaces and matrices; Knot invariants: genus, colorings, group labelings, determinant, signature, Alexander polynomial, braid index, Jones polynomial.
Wi Qtr. Prereq: Mathematics grad status or permission of instructor with Math 568 or equivalent.

647 Set Theory GRAD 3
Axiomatic set theory, transfinte induction and theory of ordinals, order type of characterizations, cardinal arithmetic and structure, and principles of choice.
Au Qtr. 3 cl. Prereq: 547 or 580 or equiv with permission of dept.

648 Mathematical Logic I GRAD 3
The syntax and semantics of sentential logic and first order logic; completeness and compactness theorems for first order logic.
Wi Qtr. 3 cl.

649 Mathematical Logic II GRAD 3
Continuation of 648; decidability and undecidability of systems and structures for number theory; Godel's incompleteness theorems and recursive functions; second order logic.
Sp Qtr. 3 cl. Prereq: 648 or permission of instructor.

650 Principles of Mathematical Analysis GRAD 5
Riemann-Stieltjes integral; uniform convergence and interchange of limit processes, special functions, Fourier series.
^ Su Qtr. 5 cl. Prereq: 547 or permission of Graduate Advising Committee.

651 Introduction to Real Analysis I GRAD 5
Real numbers, infinite sequences, and series.
Au Qtr. 5 cl. Prereq: permission of dept.

652 Introduction to Real Analysis II GRAD 5
Continuous functions, differentiable functions and functions of bounded variation; Riemann-Stieltjes integral.
Wi Qtr. 5 cl. Prereq: 651.

653 Introduction to Real Analysis III GRAD 5
Measurable sets and functions, elementary theory of the Lebesgue integral.
Sp Qtr. 5 cl. Prereq: 652.

654 Complex Variables GRAD 3
Complex arithmetic, geometry, conformal mapping, analytic functions, and residues.
Su Qtr. 3 cl. Prereq: Permission of dept.

655 Elementary Topology I GRAD 5
Continuity, compactness, product spaces, quotient spaces, connectedness in metric and general topological spaces, surface manifolds, cell complexes.
Au Qtr. 5 cl. Prereq: Permission of dept.

656 Elementary Topology II GRAD 5
Continuation of 655; the fundamental group and covering spaces.
Wi Qtr. 5 cl. Prereq: 655.

657 Elementary Topology III GRAD 5
Continuation of 656; homology.
Sp Qtr. 5 cl. Prereq: 656.

660 Introductory Complex Analysis GRAD 5
A beginning graduate course in complex analysis for doctoral students in the Department of Mathematics.
Su Qtr. 3 cl. Prereq: 548 or equiv or math grad status. Not open to students with credit for 654. Designed primarily for math graduate students, emphasizing rigorous proofs.

665 Modern Mathematical Methods in Relativity Theory I GRAD 4
Geometry in Minkowski space-time; physical interpretations; tensors; exterior calculus; manifolds; Lie derivatives; parallel transport; torsion; curvature; Cartan's tw structural equations; Einstein Field equations.
Wi Qtr. 4 cl. Prereq: 254 or 254.xx and Physics 133 or equiv with permission of dept.

666 Modern Mathematical Methods in Relativity Theory II GRAD 4
Fluid dynamics, Hamilton-Jacobi theory in curved geometries; geometry and dynamic of homogeneous cosmologies; black holes; local-global properties; entropy; gravitational collapse; space-time symmetries.
Sp Qtr. 4 cl. Prereq: 665 or equiv.

667 Introduction to the Mathematics of Cryptography GRAD 3
Introduction to cryptography including public key and RSA, discrete logarithms, Diffie-Hellman, ElGamal, elliptic curve methods, and signature schemes.
^ Su Qtr. 8 weeks, 3-60 minute classes. Prereq: 582 or 592H or permission of instructor.

669 Introduction to Number Theory GRAD 5
Basic concepts of divisibility, congruence, reciprocity, and primitive roots as introduction to algebra with emphasis on techniques of proof.
^ Su Qtr. 5 cl. Prereq: 254 or 254.xx or equiv.

670 Algebra I GRAD 5
Elementary theory of groups, permutation groups, Polya theory of counting, rings and ideals, polynomials.
Au Qtr. 5 cl. Prereq: Permission of dept.

671 Algebra II GRAD 5
Continuation of 670; vector spaces, linear transformations, canonical forms for matrices, linear programming, orthogonality.
Wi Qtr. 5 cl. Prereq: 670 or permission of dept.

672 Algebra III GRAD 5
Continuation of 671; quadratic forms, finite fields, various applications.
Sp Qtr. 5 cl. Prereq: 671 or permission of dept.

674 Survey of Combinatorial Mathematics GRAD 4
Enumeration, equivalence relations, generating functions, graph theory, optimization, and combinatorial designs.
Su Qtr. 4 cl. Prereq: 568 or 571 or grad standing.

683 Topics in Number Theory and Algebra GRAD 4
Joint creative problem activity through daily problem solving sets in number theory.
^ Su Qtr. 4 cl. Prereq: Permission of instructor.

693 Individual Studies GRAD 1-5
Individual conferences, assigned readings, and reports on minor investigations.
Su, Au, Wi, Sp Qtr. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

694 Group Studies GRAD 2-5
Designed to give groups of students an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.

701 Mathematical Methods in Science GRAD 5
Introduction to tensor analysis with applications to geometry; elements of the calculus of variations with applications to physical problems.
Sp Qtr. 3.2-hr cl. Prereq: 601 or equiv or permission of dept.

705 Special Functions GRAD 3
Power series developments, asymptotic expansion, gamma functions, cylindrical functions, spherical harmonics, orthogonal polynomials, hypergeometric functions, theta functions, elliptic functions and integrals, numerical techniques.
Wi Qtr. 3 cl. Prereq: 601 and 602.
707 Numerical Methods in Scientific Computing GRAD 3
Numerical solution of dynamical systems and evolution equations, linear and nonlinear systems, boundary value problems, bifurcation diagrams, form fit of data, interpolation, and approximation theory.
Au Qtr. 3 cl. Preq: 255 or 255.xx or 415 or 415.xx, 572 or equiv and working knowledge of Fortran, or written permission of instructor.

708 Numerical Methods in Scientific Computing GRAD 3
Continuation of 707; numerical quadrature, integral equations, iterative procedures, multi-grid techniques, computation of eigenvalues and eigenvectors, Hopf bifurcation and optimization.
Wi Qtr. 3 cl. Preq: 707.

709 Numerical Methods in Scientific Computing GRAD 3
Numerical solution of ordinary differential equations, consistency, stability and convergence, reaction-diffusion equations, phase diagrams, domains of attraction, strange attractors, and chaos.
Sp Qtr. 3 cl. Preq: 708.

712 Applied Functional Analysis I GRAD 3
Advanced linear algebra; introduction to normed and Hilbert spaces; projections and bounded operators; emphasis on matrix and function space applications.
Au Qtr. 3 cl. Preq: 653 and 671, or 601 and 602, or permission of instructor. Not open to students with credit for 857

713 Applied Functional Analysis II GRAD 3
Dual spaces, bilinear functionals, compact operators; Sobolev norms, applications to finite elements and integral equations.
Wi Qtr. 3 cl. Preq: 712 or permission of instructor. Not open to students with credit for 857

714 Applied Functional Analysis III GRAD 3
Spectral theory of linear operators, distribution theory, and applications.
Sp Qtr. 3 cl. Preq: 713 or permission of instructor. Not open to students with credit for 857

715 Differential Equations I GRAD 3
Linear and non-linear systems of ordinary differential equations; phase plane analysis stability, bifurcation, and chaos.
Au Qtr. 3 cl. Preq: 255 or 255.xx, 572, and 652; or permission of instructor.

716 Differential Equations II GRAD 3
Partial differential equations of mathematical physics, classification, characteristics; Sturm-Liouville theory, separation of variables.
Wi Qtr. Preq: 514, 653, and 715; or permission of instructor.

717 Differential Equations III GRAD 3
Eigenfunction expansions, special functions, Green's functions, Fourier and Laplace transforms.
Sp Qtr. 3 cl. Preq: 514 and 716; or permission of instructor.

722 Theory of Probability I GRAD 4
Measure and integration; random variables; independence; convergence in probability, almost everywhere, and in the mean; conditional probability and expectation.

723 Theory of Probability II GRAD 4
Weak convergence, characteristic functions; central limit theorems; random walks; introduction to martingales.

724 Theory of Probability III GRAD 4
Continuation of 723.
Sp Qtr. 4 cl. Preq: 723.

727 Scientific Computing Laboratory I GRAD 1
Designed to teach the computational tools required to write and use numerical codes to study physical systems.
Au Qtr. 1 2-hr cl. Preq: A good working knowledge of FORTRAN (or another high-level language); concur: 707.

728 Scientific Computing Laboratory II GRAD 1
Designed to teach the computational tools required to write and use numerical codes to study physical systems.
Wi Qtr. 1 2-hr cl. Preq: 727; concur: 708.

729 Scientific Computing Laboratory III GRAD 1
Designed to teach the computational tools required to write and use numerical codes to study physical systems.
Sp Qtr. 1 2-hr cl. Preq: 728; concur: 709.

735 Seminar in Teaching College Mathematics for International Graduate Students GRAD 3
Preparation of international graduate students for the teaching of college level mathematics courses.
Su Qtr. 3 2-hr cl. Preq: Permission of Graduate Advising Committee. This course is graded S/U.

736 Seminar in Teaching College Mathematics for Domestic Graduate Students GRAD 1-3
Preparation for teaching lower-division mathematics courses.
Su Qtr. 3 2-hr cl. Preq: Permission of Graduate Advising Committee. This course is graded S/U.

745 Advanced Mathematical Logic I GRAD 3
Basic proof theory and model theory; completeness, interpolation and definability theorems, elimination of quantifiers, compactness, Lowenheim-Skolem Theorems, elementary extensions, and categoricity.
Au Qtr. 3 cl. Preq: 649 or permission of instructor.

746 Advanced Mathematical Logic II GRAD 3
Incompleteness and undecidability; basic recursion theory; Turing machines, Church's thesis, recursive and recursively enumerable sets, Turing degrees, and the arithmetical hierarchy.
Wi Qtr. 3 cl. Preq: 745 or permission of instructor.

747 Advanced Mathematical Logic III GRAD 3
Basic axiomatic set theory; Zermelo-Frankel set theory, the cumulative hierarchy, ordinals and cardinals, constructibility, and forcing.
Sp Qtr. 3 cl. Preq: 746 or permission of instructor.

750 Real Analysis I GRAD 5
Relative extremes in partial orders; additive and countable additive set functions; extensions of set functions; integration, differentiation, applications.
Au Qtr. 5 cl. Preq: 653.

751 Real Analysis II GRAD 5
Continuation of 750.
Wi Qtr. 5 cl. Preq: 750.

752 Real Analysis III GRAD 5
Continuation of 751.
Sp Qtr. 5 cl. Preq: 751.

753 Complex Analysis I GRAD 5
Families of holomorphic and meromorphic functions, geometrical methods of the theory of functions, conformal transformations; including the Cauchy integral theorem Runge's theorem, Riemann mapping theorem.
Au Qtr. 5 cl. Preq: Math 653, and Math 660 or equivalent.

754 Complex Analysis II GRAD 5
Analytic continuation, general analytic functions, algebraic, entire, elliptic, the gamma and zeta function, Dirichlet's series, Picard's theorems, Mittag-Leffler's theorem, Stirling's formula.
Wi Qtr. 5 cl. Preq: 753.

756 Introductory Algebraic Topology GRAD 4
CW-complexes; simplicial complexes; manifolds; homotopy type; ENRs; operations on spaces; fundamental group; circle group; applications; van Kampen theorem; universal covering spaces; their classification; Deck transformations.
Au Qtr. Preq: Math graduate status or permission of instructor with (Math 640 or equivalent) and (Math 580, Math 590H Math 670 or equivalent). Not open to students with credit for 656.

767 Introduction to the Theory of Approximation I GRAD 4
Approximation by polynomials and trigonometric polynomials, Chebyshev's theory of best approximation and its generalizations; interpolation processes and mechanical quadrature; orthogonal polynomials and elements of harmonic analysis.
Au Qtr. 4 cl. Preq: 653 or equiv with permission of dept.

768 Introduction to the Theory of Approximation II GRAD 4
A continuation of 767.
Wi Qtr. 4 cl. Preq: 767 or equiv with permission of dept.

770 Abstract Algebra I GRAD 5
Permutation groups, solvable groups, composition series, polynomial rings, unique factorization domains, canonical forms, bilinear forms, free modules, tensor products, Galois theory, algebraic closure, transcendental extensions.
Au Qtr. 5 cl. Preq: 672 or equiv with permission of instructor.

771 Abstract Algebra II GRAD 5
A continuation of 770.
Wi Qtr. 5 cl. Preq: 770 or equiv with permission of dept.

772 Abstract Algebra III GRAD 5
A continuation of 771.
Sp Qtr. 5 cl. Preq: 771 or equiv with permission of dept.
775 Combinatorics and Graph Theory I GRAD 5
Transversal theory, network flows, matroids, linear programming, Ramsey theory.
Au Qtr. 5 cl. Prereq: 672.

776 Combinatorics and Graph Theory II GRAD 5
Combinatorial designs and geometries, difference sets, orthogonal Latin squares, coding theory, enumeration theory including Mobius inversion, Polya theory, and generating functions.
Wi Qtr. 5 cl. Prereq: 775.

777 Combinatorics and Graph Theory III GRAD 5
Planar graphs and embeddings in surfaces, graph connectivity, algebraic graph theory
Sp Qtr. 5 cl. Prereq: 776.

780 Number Theory I GRAD 3
Algebraic number theory.
Au Qtr. 3 cl. Prereq: 772.

781 Number Theory II GRAD 3
Diophantine equations.
Wi Qtr. 3 cl. Prereq: 780.

782 Number Theory III GRAD 3
Analytic number theory.
Sp Qtr. 3 cl. Prereq: 781.

783H Honors Research UGRD 3-5
A program of reading and research for each student with individual conferences, reports, and honors thesis.
Su, Au, Wi, Sp Qtrs. Arr cl. Prereq: 4th yr standing with a cumulative pt-hr ratio of 3.50 in math; permission of instructor under whose supervision the work is to be completed and of the ASC Honors Committee. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

787.01 Graduate Problem Seminars: Problems in Abstract Algebra
Topics helpful in problem solving in fundamental areas of mathematics; practice with problems in a specific area of mathematics: Problems in Abstract Algebra.
Prereq: Permission of Graduate Advising Committee. Repeatable to a maximum of 9 cr hrs.

787.03 Graduate Problem Seminars: Problems in Real Analysis
Topics helpful in problem solving in fundamental areas of mathematics; practice with problems in a specific area of mathematics: Problems in Real Analysis.
Prereq: Permission of Graduate Advising Committee. Repeatable to a maximum of 9 cr hrs.

804 Applied Complex Variables and Asymptotics I GRAD 3
Methods of complex variables.
Au Qtr. 3 cl. Prereq: 653, 654, and 717; or permission of instructor.

805 Applied Complex Variables and Asymptotics II GRAD 3
Asymptotic methods and their application to ordinary differential equations.
Wi Qtr. 3 cl. Prereq: 804.

806 Applied Complex Variables and Asymptotics III GRAD 3
Asymptotic and complex variable methods applied to linear and nonlinear partial differential equations.
Sp Qtr. 3 cl. Prereq: 805.

807 Numerical Solution of Partial Differential Equations I GRAD 3
Finite difference methods for parabolic and hyperbolic partial differential equations.
Au Qtr. 3 cl. Prereq: 602 or 717, 709, and Fortran experience; or permission of instructor.

808 Numerical Solution of Partial Differential Equations II GRAD 3
Continuation of 807.
Wi Qtr. 3 cl. Prereq: 807.

809 Numerical Solution of Partial Differential Equations III GRAD 3
Special topics in the numerical solution of partial differential equations.
Sp Qtr. 3 cl. Prereq: 808.

820 Ordinary Differential Equations I GRAD 3
Modern theory of ordinary differential equations; stability, asymptotic analysis, Lyapunov exponents, stable manifolds, perturbation methods, and bifurcation theory.
Au Qtr. 3 cl. Prereq: 715 or permission of instructor.

821 Ordinary Differential Equations II GRAD 3
Continuation of 820; differential equations on manifolds, structural stability, integrable and nonintegrable systems; chaos and strange attractors; applications.
Wi Qtr. 3 cl. Prereq: 820.

822 Ordinary Differential Equations III GRAD 3
Continuation of 821.
Sp Qtr. 3 cl. Prereq: 821 or permission of instructor.

835 Partial Differential Equations I GRAD 3
First order PDE’s, theory of characteristics, second order PDE’s, classifications, standard methods of solution; nonlinear equations.
Wi Qtr. 3 cl. Prereq: 717 or permission of instructor.

836 Partial Differential Equations II GRAD 3
Continuation of 835.
Sp Qtr. 3 cl. Prereq: 835 or permission of instructor.

840 Algebraic Geometry I GRAD 3
Varieties over algebraically closed fields.
Au Qtr. 2 72-min cl. Prereq: 772.

841 Algebraic Geometry II GRAD 3
Schemes, sheaves, and cohomology.
Wi Qtr. 2 72-min cl. Prereq: 840.

842 Algebraic Geometry III GRAD 3
Curves and surfaces.
Sp Qtr. 2 72-min cl. Prereq: 841.

846 Topics in Discrete Mathematics GRAD 2-5
Topics in Discrete Mathematics.
Au, Wi, Sp Qtrs. 2-5 cl. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.

851 Differential Geometry I GRAD 3
Curves, surfaces, fundamental forms, tensors, and connections.
Au Qtr. 3 cl. Prereq: 655, 751, and 771.

852 Differential Geometry II GRAD 3
Continuation of 851.
Wi Qtr. 3 cl. Prereq: 851.

854 Lie Groups I GRAD 3
Integration on manifolds, Lie groups, classical groups, homogeneous spaces.
Wi Qtr. 3 cl. Prereq: 651, 751, and 771.

855 Lie Groups II GRAD 3
Continuation of 854.
Sp Qtr. 3 cl. Prereq: 854.

857 Introduction to Functional Analysis GRAD 3
Au Qtr. 3 cl. Prereq: 552 and 751.

860 Algebraic Topology I GRAD 3
Singular homology theory.
Au Qtr. 3 cl. Prereq: 657.

861 Algebraic Topology II GRAD 3
Continuation of 860; general cohomology theories.
Wi Qtr. 3 cl. Prereq: 860.

862 Algebraic Topology III GRAD 3
Continuation of 860 and 861; fibrations and homotopy theory.
Sp Qtr. 3 cl. Prereq: 861.

863 Potential Theory GRAD 3
Newtonian potentials, boundary value problems; logarithmic potential, elliptic partial differential equations.
Sp Qtr. 3 cl. Prereq: 552 and permission of dept.

865 Topics in Applied Mathematics GRAD 2-5
Topics in Applied Mathematics.
Au, Wi, Sp Qtrs. 2-5 cl. Prereq: Written permission of dept. Repeatable to a maximum of 20 cr hrs.

866 Differential Topology I GRAD 3
Differential manifolds and differential maps, tangent bundles, vector bundles and transversality.
Au Qtr. 3 cl. Prereq: 657 or permission of instructor.

867 Differential Topology II GRAD 3
Singular homology and cohomology, Poincare duality, intersection numbers, cobordism theory.
Wi Qtr. 3 cl. Prereq: 866 or permission of instructor.

868 Differential Topology III GRAD 3
Characteristic classes and the theory of fibre bundles.
Sp Qtr. 3 cl. Prereq: 867 or permission of instructor.

870 Topics in Graph Theory GRAD 2-5
Topics of current research interest.
Au, Wi, Sp Qtrs. Prereq: 777 and permission of dept. Repeatable to a maximum of 15 cr hrs.
872 Group Theory I GRAD 4
Properties of groups, extensions, transfer, generators and defining relations, representation theory, permutation groups.
Su, Au Qtr. 4 cl. Prereq: 672 or 772.

873 Group Theory II GRAD 4
Continuation of 872.
Wi Qtr. 4 cl. Prereq: 872.

874 Group Theory III GRAD 4
Continuation of 873.
Sp Qtr. 4 cl. Prereq: 873.

875 Combinatorics Seminar GRAD 2-5
Recent research articles in combinatorics are read and presented by the students.
Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 15 cr hrs.

893 Individual Studies GRAD 1-5
Individual assigned readings and reports on research investigations.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

894 Group Studies GRAD 1-5
When need is sufficient, the department will offer under this number a course on some phase of mathematics not covered in its regular offerings.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 30 cr hrs.

931 Ergodic Theory I GRAD 3
Measurable transformations, mixing and ergodicity, existence of invariant measures, contraction operations on function spaces, ergodic theorems.
Au Qtr. 3 cl. Prereq: 751.

932 Ergodic Theory II GRAD 3
Continuation of 931.
Wi Qtr. 3 cl. Prereq: 931.

939 Topics in Probability Theory GRAD 2-5
Various advanced topics in probability theory.
Au, Wi Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.

949 Topics in Logic GRAD 2-5
Topics in Logic.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.

950 Topics in Real Analysis GRAD 2-5
Topics in Real Analysis.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.

951 Topics in Complex Analysis GRAD 2-5
Topics in Complex Analysis.
Su, Au, Wi, Sp Qtrs. 2-5 cl. Prereq: 754. Repeatable to a maximum of 20 cr hrs.

953 Topics in Topology GRAD 2-5
Topics in Topology.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 45 cr hrs.

957 Topics in Differential Geometry GRAD 2-5
Topics in Differential Geometry.
Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.

961 Topics in Functional Analysis GRAD 2-5
Topics to be chosen from current research papers.
Su, Au, Wi, Sp Qtrs. 2-5 cl. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.

970 Topics in Representation Theory GRAD 2-5
Topics in the representation theory of various algebraic structures.
Au, Wi, Sp Qtrs. 2-5 cl. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.

974 Topics in Homological Algebra GRAD 2-5
Topics selected from current research articles.
Au, Wi, Sp Qtrs. 2-5 cl. Prereq: permission of dept. Repeatable to a maximum of 20 cr hrs.

975 Topics in Geometry GRAD 2-5
Topics to be chosen from current research papers.
Wi Qtr. 2-5 cl. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.

978 Topics in Ring Theory GRAD 2-5
Topics selected from current research papers.
Su, Au, Wi, Sp Qtrs. 2-5 cl. Prereq: 772. Repeatable to a maximum of 20 cr hrs.

981 Topics in the Theory of Groups GRAD 2-5
Topics in the Theory of Groups.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 20 cr hrs.
210H Honors Statics UGRD 4
Vector concepts of statics for isolated and connected body forces systems. Analysis techniques of trusses, frames and machines. Construction of shear and moment diagrams.
Sp Qtr. 4 cl. Prereq: Physics 131G; prerequisite or concurrent: En Graph H167 and Math 254 or equiv. Not open to students with credit for 410, or Eng Mech H210, 220, 293, or 400. This course is part of the Freshman Engineering Honors Program.

250 Numerical Methods and Analysis in Mechanical Engineering UGRD 4
Computing methods for nonlinear equations, interpolation, and ordinary differential equations applied to mechanical engineering problems.
Au, Wi, Sp Qtrs. 2.2-hr cl, 1.1-hr recitation. Prereq: Math 415 or 255; and enrollment in Engineering.

294 Group Studies in Mechanical Engineering UGRD 1-6
Special topics in mechanical engineering: the particular topic, credit hours, and the instructor will be announced in the quarter previous to the one in which the course is offered.
Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable.

410 Statics UGRD 4
Vector concepts of statics for isolated and connected bodies, centroids, inertia, truss, frame and machine analysis, shear force and bending moment diagrams, and friction.
Au, Wi, Sp Qtrs. 3.64-min cl, 1 1-hr recitation. Prereq: Engineer 182 or 183 or H192 or En Graph 167 or H167 or Cptr Inf 201 or Cptr Inf 202, and Physics 131, and Math 254 (prereq or concn). CPRH 2.00 or above recommended. Not open to students with credit for H210 or 400.

420 Introduction Strength of Materials UGRD 4
Stress and strain analysis of structural components subjected to unidirectional and combined loads; pressure vessels; beam deflections, Mohr's Circle, and columns.
Au, Wi, Sp Qtrs. 3.64-min cl, 1 1-hr recitation. Prereq: H210 or 410, or Eng Mech H210; or permission of instructor. Not open to students with credit for 440 or Eng Mech 440.

430 Dynamics UGRD 4
Dynamics of particles and rigid bodies; linear and angular motion; work and energy; and single degree of freedom vibration analysis.
Au, Wi, Sp Qtrs. 3.64-min cl, 1 1-hr recitation. Prereq: H210 or 400 or 410, or Eng Mech H210 or 220 or 400. Not open to students with credit for Eng Mech 430.

481 System Dynamics and Vibrations UGRD 3
Modeling of mechanical and electrical systems; first and second order systems; and analytical, computer, and experimental solution methods.
Au, Wi, Sp Qtrs. 2.5-hr cl, 1.1-hr recitation. Prereq: 250 and Elec Eng 300 or permission of the dept.

482 System Dynamics and Electromechanics UGRD 4
Dynamics of general linear systems, thermofluid system dynamics, and electromechanics with emphasis on applications in mechanical engineering.
Au, Wi, Sp Qtrs. 2.5-hr cl, 1 2-hr lab. Prereq: 481 and prerequisite or concurrent: 504.

490 Professional Practice in Industry UGRD 2
Actual employment in a co-op program job in industry and the preparation of a comprehensive report based on a pre-assigned outline.
Su, Au, Wi, Sp Qtrs. Prereq: Admission to Co-op program in Mech Eng. Repeatable to a maximum of 8 cr hrs. This course may only be counted as a free elective. This course is graded S/U.

494 Group Studies in Mechanical Engineering UGRD 1-4
Short term project organization, design, construction, marketing and budgeting.
Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 4 cr hrs.

500 Engineering Thermal Sciences UGRD 4
Introduction to thermodynamics, fluid mechanics and heat transfer with engineering applications.
Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: Math 255 or 415, Physics 132, Chem 121 or permission of dept. Not open to students majoring in Mech Eng. Open to students enrolled in College of Engineering only.

501 Thermodynamics I UGRD 4
A study of basic engineering thermodynamics.
Au, Wi, Sp Qtrs. 2.2-hr cl, 1 1-hr recitation. Prereq: 430 or Eng Mech 430, Chem 121, Math 255 or 415 and enrollment as an engineering major.

502 Thermodynamics II UGRD 3
Continuation of 501.
Au, Wi, Sp Qtrs. 2.1-hr cl, 1 1-hr recitation. Prereq: 250 and 501.

503 Fluid Dynamics I UGRD 3
A study of the basic concepts, fundamental equations, and applications of fluid mechanics to engineering problems.
Au, Wi, Sp Qtrs. 2.1-hr cl, 1 1-hr recitation. Prereq: 250 and 501.

504 Fluid Dynamics II UGRD 3
Continuation of 503.
Au, Wi, Sp Qtrs. 2.1-hr cl. Prereq: 502 and 503.

505 Introduction to Nuclear Science and Engineering UGRD 3
Discussion of nuclear energy and nuclear radiation; sources, methods of utilization, and projections for future uses.
Au, Sp Qtrs. 2.1-hr cl. Prereq: Math 255 or 415 and Physics 133, or permission of instructor. Not open to students with credit for Nucl En 505. Cross-listed in Nuclear Engineering.

510 Heat Transfer UGRD 3
A study of the fundamentals of conduction, convection, and thermal radiation energy transfer with engineering applications.
Au, Wi, Sp Qtrs. 2.1-hr cl. Prereq: 501, and 504 or Civil En 413.

512 Fluid Mechanics and Heat Transfer Laboratory UGRD 2
Experiments in fluid mechanics and heat transfer.
Au, Wi, Sp Qtrs. 1 4-hr lab. Prereq: 510 or permission of department. This course represents the labs formerly included in Mech Eng 504 and 510.

553 Kinematics and Dynamics of Machinery UGRD 4
Motion and force analysis in mechanisms such as plane linkages and cams; introduction to the synthesis of plane linkages and simple cam systems.
Au, Wi, Sp Qtrs. 2.2-hr cl. Prereq: 430 or Eng Mech 430 or Physics 263, Mech Eng 250, 561, and enrollment in an engineering major or permission of the Mech Eng dept.

561 Failure Modes, Stress Analysis, and Failure Prevention Principles UGRD 5
A study of the application of the general principles and empiricisms of mechanics of solids to the creative design of mechanical equipment.
Au, Wi, Sp Qtrs. 2.2-hr cl, 1 2-hr lab, 1 1-hr recitation. Prereq: 420 or equiv and MathSciEn 205 or equiv.

562 Design of Selected Machine Elements I UGRD 3
Continuation of 561.
Au, Wi, Sp Qtrs. 2.1-hr cl. Prereq: 561.

563 Design of Selected Machine Elements II UGRD 3
Continuation of 562.
Au, Wi, Sp Qtrs. 2.1-hr cl. Prereq: 562 and 553.

564 Senior Design Group Project UGRD 4
Methodology of intermediate design and practice in the design of a specific system which may utilize principles of any engineering discipline; written assignments and oral presentation.
Au, Wi, Sp Qtrs. 3 2-hr lab. Prereq: 510; a second writing course and prerequisite or concurrence: 563. Offered in cooperation with Nuclear Engineering. GEC course.

565.01 Mechanical Engineering Design UGRD 3
First course in a three quarter integrated design sequence constituting a capstone mechanical design experience including technical communications.
Au Qtr. Prereq: 562 and 2nd writing course, 3.4 or higher GPA or permission of instructor. Not open to students with credit for 564 or 581. This course is Progress (P) graded. These courses will integrate design and engineering practice with a focus on real mechanical engineering design problems provided by industrial sponsors. A "P" mark as defined by the University may be assigned until completion of the three course sequence.

565.02 Mechanical Engineering Design UGRD 3
Second course in a three quarter integrated design sequence constituting a capstone mechanical design experience including technical communications.
Wi, Sp Qtrs. Prereq: 565.01. Not open to students with credit for 564 or 581. This course is Progress (P) graded. These courses will integrate design and engineering practice with a focus on real mechanical engineering design problems provided by industrial sponsors. A "P" mark as defined by the University may be assigned until completion of the three course sequence.

565.03 Mechanical Engineering Design UGRD 3
Final course in a three quarter integrated design sequence constituting a capstone mechanical design experience including technical communications.

570 Mechanical Engineering Measurements UGRD 5
A theoretical and experimental study of the principles of operation and performance characteristics of measuring instruments used in mechanical engineering; written assignments and oral presentation.
Au, Wi, Sp Qtrs. 2 cl, 1 4-hr lab. Prereq: 482 or equiv, Elec Eng 320 or ECE 320, a second writing course. GEC course.
571 Principles of Automatic Control UGRD 4
A theoretical and experimental study of the principles of operation of feedback control systems, including servomechanisms and process control.
Au, Wi, Sp Qtr. 2.5 hr cl, 1 hr lab. Prereq: 482 or Agri Eng 525 or F&A&B Eng 525.

578 Senior Program Review UGRD 0
An interactive assessment of graduating seniors’ overall achievements in Mechanical Engineering and their assessment of the program.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Enrolled in quarter of graduation. This course is graded S/U.

580.01 Special Topics: High Performance Vehicle Development UGRD 2
Topics of special interest in vehicle development. Studies include analysis, design, fabrication and testing of vehicles. Topics are announced in quarter prior to quarter offered.
Prereq: Jr standing in Engineering or written permission of instructor. Repeatable to a maximum of 8 cr hrs.

580.02 Special Topics: All Terrain Vehicle Development UGRD 2
Topics of special interest in vehicle development. Studies include analysis, design, fabrication and testing of vehicles. Topics are announced in quarter prior to quarter offered.
Prereq: Jr standing in Engineering or written permission of instructor. Repeatable to a maximum of 8 cr hrs.

580.03 Special Topics: Flight Vehicle Development UGRD 2
Topics of special interest in vehicle development. Studies include analysis, design, fabrication and testing of vehicles. Topics are announced in quarter prior to quarter offered.
Prereq: Jr standing in Engineering or written permission of instructor. Repeatable to a maximum of 8 cr hrs.

580.04 Special Topics: Analysis, Design, Fabrication and Testing of Non-Conventional Vehicles UGRD 2
Topics of special interest in vehicle development. Studies include analysis, design, fabrication and testing of vehicles. Topics are announced in quarter prior to quarter offered.
Prereq: Jr standing in Engineering or written permission of instructor. Repeatable to a maximum of 8 cr hrs.

581 Mechanical Engineering Laboratory UGRD 4
The study and application of methods of experimental analysis.
Au, Wi, Sp Qtr. 2 hr cl, 1 hr lab planning and report writing. Prereq: 570. Offered in cooperation with Nuclear Engineering. GEC course.

593 Individual Studies in Mechanical Engineering UGRD 1-5
Provides the opportunity to pursue special studies in mechanical engineering not otherwise covered.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

610H Direct Energy Conversion UGRD 5
Introduction to principles and operation of devices that convert thermal, chemical, and electromagnetic energy directly into electricity. Lectures are complemented by hands-on laboratory experience.
Wi Qtr. 2.2 hr lec, 2.2 hr labs. Prereq: Physics 133 or equiv, Mech Eng 500 or equiv prereq or concur; or permission of instructor.

612 Principles of Heat Exchangers UGRD 3
A study of principles of heat and mass transfer as applied to the design of heat exchangers.
Au Qtr. 2.1 hr cl. Prereq: 510 or grad standing in Mech Eng or permission of instructor.

621 Introduction to Parametric Design UGRD 3
Design of components, assemblies, molds and dies using parametric and feature-based design principles.
Au, Wi, Sp Qtr. 2.5 hr cl. Prereq: 561 or Ise 520 or Weldeng 600 or grad standing in Ise, Mecheng or graduate interdisciplinary specialization in Manufacturing Science and Engineering (GISM); or permission of instructor. Not open to students with credit for Indeng 621 or Ise 683. Cross-listed in Industrial and Systems Engineering.

622 Tool Engineering UGRD 4
Design of tools, jigs and fixtures. Basic elements of fixture design, such as form, locating points, clamping devices, and the use of standardized parts.
Sp Qtr. 2.1 hr cl, 1.3 hr lab. Prereq: Ind Eng 331 or ISE 350; prereq or concur: Ind Eng/Mech Eng 621 or ISE 683. Not open to students with credit for Ind Eng 622 or ISE 650.02. Cross-listed in Industrial and Systems Engineering.

623 Machine Tool Control and Programming UGRD 4
Provides an introduction to numerically controlled machine tools including principles of operation, programming systems, computer-assisted programming, performance characteristics, and applications.
Au, Wi Qtr. 2.5 hr cl, 2.3 hr labs. Not open to students with credit for Ind Eng 605 or Ind Eng 623 or ISE 651.04. Cross-listed in Industrial and Systems Engineering.

627 Introduction to Turbomachinery UGRD 4
An introduction to the design and analysis of turbomachinery.
Sp Qtr. 2.1 hr cl, 1.2 hr lab. Prereq: 503 and 504 or equiv. Not open to students with credit for 527.

628 Experimental Methods in Mechanics UGRD 3
Static and dynamic strain analysis by electrical gauges; grid techniques; brittle coatings; analogies; reflective photoelasticity in normal and oblique incidence; motion measurements.
Sp Qtr. 2 cl, 2 lab hrs. Prereq: 420 or 440 or Eng Mech 440 or equiv. Not open to students with credit for Eng Mech 627.

630 Energy Conversion in Internal Combustion Engines UGRD 3
A study of combustion chambers, valve mechanisms, and the dynamic balance of internal combustion engines.
Au Qtr. 2.1 hr cl. Prereq: 502 or 500 or equiv, or grad standing in mech eng, or permission of instructor.

631 Automotive Powertrain Laboratory UGRD 3
Focuses on aspects of the internal combustion engine, and is for engineering undergraduate and graduate students who are interested in the field of automotive powertrains.
Wi Qtr. 1.2 hr lab. Prereq: 502 or 630 or permission of instructor. Introduction to the experimental components of the current courses offered in the area of automotive powertrains.

634 Gas Turbine Power Plants UGRD 3
A study of the principles, performance, and design of gas turbine power plants.
Wi Qtr. 2.1 hr cl. Prereq: 510 or grad standing in mech eng or permission of instructor.

638 Introduction to Ultrasonics UGRD 4
Ultrasonic waves in solids and fluids; ultrasonic generators and systems; physical ultrasonics; applications of ultrasonics.
Au Qtr. 4 cl. Prereq: 420 or 440 or Eng Mech 440; Math 255 or 415. Not open to students with credit for Eng Mech 634, Weld Eng 634 or 638. Cross-listed in Welding Engineering.

639 Applied Finite Element Method UGRD 4
Overview of finite element method, description of finite element software, modeling requirements and techniques, analysis using general purpose software, case studies.
Au Qtr. 2 hr cl, 2 hr recitation. Prereq: 420 or 440 or Eng Mech 440 or equiv. Not open to students with credit for Eng Mech 639.

641 Heating, Ventilating, and Air Conditioning UGRD 3
Design techniques, practices, and components in heating, ventilating, and air-conditioning.
Sp Qtr. 2.1 hr cl. Prereq: 500; or 501 and prereq or concur 510; or grad standing in mech eng.

650 Vibration of Mechanical Systems UGRD 3
Techniques for the analysis of vibratory mechanical systems - free and forced response, damping, multiple degree of freedom systems, vibration design and experimental vibration methods.
Wi Qtr. 2.1 hr cl. Prereq: 482 or permission of instructor.

652.01 FIRST Design Concepts UGRD 1
Design, analysis, and construction of a remote control robot that plays a sport with other robots. Fundamental principles for FIRST robot design, analysis, and construction.
Au Qtr. 1 cl. Prereq: Active participation in FIRST. CPHR of 2.00 or above is recommended. Not open for mech eng graduate credit. Not open to students who have exceeded the credit limit for 552. Repeatable to a maximum of 3 cr hrs.

652.02 FIRST Robot Construction UGRD 1-3
Design, analysis, and construction of a remote control robot that plays a sport with other robots. Design, analysis, and construction of a remote control robot that plays a sport against other robots.
Wi Qtr. Arr. Prereq: Active participation in FIRST. CPHR of 2.00 or above is recommended. Not open for mech eng graduate credit. Not open to students who have exceeded the credit limit for 552. Repeatable to a maximum of 9 cr hrs.

654 Land Vehicle Dynamics UGRD 3
Study of the principles and design methodology of automotive vehicles; design and analysis of suspension and braking systems.
Sp Qtr. 2.1 hr cl. Prereq: 482 and 562 or equiv, or grad standing in mech eng or permission of instructor.
662 Introduction to Mechanics of Composite Structures UGRD 4

A study of the fundamentals of acoustics and noise control including design criteria based on hearing damage and other human responses to sound.

666 Acoustic Problems in Engineering UGRD 3

A study of the fundamentals of acoustics and noise control including design criteria based on hearing damage and other human responses to sound.

672 Control Systems Design UGRD 3

A study of the theoretical procedures involved in the design and analysis of feedback control systems including servomechanisms and process control.

674 Introduction to Mechatronics UGRD 3

Introduction to multi-domain systems. Mechanical, thermal, fluid, electrical, electronic, electro-mechanical or solid mechanics systems. Emphasis on modeling and simulation of hybrid systems using modern computer-aided tools.

680H Digital Data Acquisition and Signal Processing UGRD 3

Methodology and practice of computer-aided experimentation and signal processing techniques; frequency analysis, diagnostic systems identification, and random data processing.

682 Product Design Fundamentals UGRD 4

Principles of concurrent engineering, design for manufacturing and assembly, and lean manufacturing; integration of design and manufacturing; design prototyping.

683 CAD/CAM Laboratory for Rapid Design Protoyping UGRD 3

Rapid design prototyping using engineering workstations, CAD/CAM software, table-top CNC milling machines, and rapid prototyping machines.

687 Introduction to Musculoskeletal Biomechanics UGRD 3


693 Individual Studies in Mechanical Engineering UGRD 2-10

Designed to give the advanced student opportunity to pursue special studies not otherwise offered; work undertaken will be selected from automotive and internal combustion machinery, combustion and fuels, heat transfer, heating, ventilating, air conditioning, industrial hydraulics, machine design, refrigeration, steam power plants, and thermodynamics.

694 Group Studies in Mechanical Engineering UGRD 1-6

Special topics in mechanical engineering. The particular topic, credit hours, and the instructor will be announced in the quarter previous to the one in which the course is offered.

697 Study at a Foreign Institution UGRD 1-15

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

701 Gas Dynamics UGRD 3

An analytical study of one and two dimensional steady flows and one dimensional unsteady flows.

702 Advanced Engineering Thermodynamics UGRD 3

A study of the fundamentals of thermodynamics from the classical viewpoint with emphasis on the use of the first and second laws for the analysis of thermal systems.

705 Fundamental Concepts in Fluid Mechanics GRAD 3

In-depth derivation of equations and principles governing fluid flow with an emphasis on formulation of problems.

707 Numerical Methods in Particle Diffusion, Heat Transfer, and Radiation Transport UGRD 3

Computer solution of neutron diffusion, heat conduction, and radiation transport based on finite difference methods using marching, iterative, and direct-solution schemes.

710 Fundamental Concepts in Heat and Mass Transfer GRAD 3

Transfer

712 Energy Principles in Mechanics UGRD 3

Theoretical development of energy principles in mechanics; strain energy and complementary energy with related minimal principles; applications to problems in elasticity, dynamics, and vibrations.

715 Introduction to Micro and Nano Fluidics UGRD 3

Introduction to basic principles of incompressible fluid mechanics appropriate to micro and nano fluidics.

720 Introduction to Mechanics of Composite Structures UGRD 4

Theoretical development of energy principles in mechanics; strain energy and complementary energy with related minimal principles; applications to problems in elasticity, dynamics, and vibrations.

726 Introduction to Combustion UGRD 3

Introduction to thermodynamics and kinetics of combustion and to the role of diffusion in combustion systems; applications to evaporation of fuel droplets, catalytic conversion, and coal combustion.

727 Applications of Jet Propulsion UGRD 4

Characteristics and performance of air breathing flight vehicle power plants and their components. 

730 Internal Combustion Engine Modeling GRAD 3

Comprehensive coverage of spark-ignited internal combustion engines modeling (fluid dynamics, thermodynamics and combustion).

731 Vibrations of Discrete Systems UGRD 4

Free and forced vibrations of mechanical systems having lumped mass and elasticity; multiple degrees of freedom; dissipative systems; random vibrations; engineering applications.

733 Advanced Engineering Dynamics UGRD 3

Three-dimensional dynamics of particles and rigid bodies; rotating reference frames; rigid body kinematics; rotation transformations; Euler angles; engineering application

734 Vibrations of Continuous Systems UGRD 3

Equations of motion for strings, membranes, prismatical bars, and plates for various boundary conditions; approximate methods for complicated shapes; wave propagation in elastic media.

735 Analytical Dynamics UGRD 3

Analytical dynamics of particles, rigid bodies, and continuum; elements of variational calculus; constraints; virtual work, Hamilton's principle, and Lagrange's equations; computational methods; engineering applications.

736 Advanced Engineering Thermodynamics UGRD 3

A study of the fundamentals of thermodynamics from the classical viewpoint with emphasis on the use of the first and second laws for the analysis of thermal systems.

737 Applications of Jet Propulsion UGRD 4

Characteristics and performance of air breathing flight vehicle power plants and their components. 

738 Vibrations of Discrete Systems UGRD 4

Free and forced vibrations of mechanical systems having lumped mass and elasticity; multiple degrees of freedom; dissipative systems; random vibrations; engineering applications.

739 Advanced Engineering Dynamics UGRD 3

Three-dimensional dynamics of particles and rigid bodies; rotating reference frames; rigid body kinematics; rotation transformations; Euler angles; engineering application

740 Vibrations of Continuous Systems UGRD 3

Equations of motion for strings, membranes, prismatical bars, and plates for various boundary conditions; approximate methods for complicated shapes; wave propagation in elastic media.

741 Analytical Dynamics UGRD 3

Analytical dynamics of particles, rigid bodies, and continuum; elements of variational calculus; constraints; virtual work, Hamilton's principle, and Lagrange's equations; computational methods; engineering applications.
736 Nuclear Power Plants UGRD 3
A study of thermal and mechanical design aspects and economics of nuclear power plants and processes. The thermodynamics of operating nuclear power plants (BWR's and PWR's) are emphasized.
Wi Qtr. 2.15-hr cl. Prereq: Nucl En 505 and 501 or 500 with permission of instructor. Not open to students with credit for 636 or Nucl En 636 or 736. Cross-listed in Nuclear Engineering.

737 Heat Transfer Applications in Nuclear UGRD 3
Reactor Systems
The heat transfer applications in nuclear reactor systems include but are not limited to heat transfer in PWR and BWR fuel rods, coolant, and reactor internals.
Sp Qtr. 2.15-hr cl Prereq: Mech Engr 510 or 500 with permission of instructor. Not open to students with credit for Mech Engr 637, or Nucl En 637, or 737. Cross-listed in Nuclear Engineering.

738 Introduction to Two-phase Flow and Heat Transfer UGRD 3
Transfer
Introduction to two-phase flow and heat transfer in mechanical and nuclear engineering applications. Students learn analytical tools for system design and performance evaluation.
Au Qtr. 2.15-hr cl. Prereq: 510 or ChBE521 or equiv or permission of instructor. Not open to students with credit for Nucl En 738. Cross-listed in Nuclear Engineering. Introduction to gas-liquid two-phase flow phenomena.

740 Elasticity UGRD 4
Classical problems in elasticity; St-Venant torsion and bending theory; plane problem in rectangular and polar coordinates; axisymmetric problems.
Au Qtr. 4 cl. Prereq: 420 or 440 or Eng Mech 440 or equiv, and prereq or concur: Math 512. Not open to students with credit for Eng Mech 740.

743 Introduction to Continuum Mechanics UGRD 4
Continuum mechanics in Cartesian coordinates, analysis of deformation and stress, balance principles, constitutive equations; introductory concepts in viscoelasticity and plasticity.
Wi Qtr. 4 cl. Prereq: 420 or 440 or Eng Mech 440 and Math 525, or equiv, or grad standing in Eng. Not open to students with credit for Eng Mech 743.

744 Engineering Fracture Mechanics UGRD 3
Fracture and fatigue; stress intensity factors; the stability of cracks; compliance and energy role analysis; plane stress, plane strain; crack propagation and arrest.
Wi Qtr. 3 cl. Prereq: 420 or 440 or Eng Mech 440 and Math 512 or equiv. Not open to students with credit for 644 or Eng Mech 644.

751 Application of Computer Graphics to Kinematic Synthesis and Analysis UGRD 4
Application of interactive computer graphics to the kinematic synthesis of linkages; extensive use of the RCGL computer graphics facility.
Wi Qtr. 3 cl, 1.2 hr lab. Prereq: 553 and En Graph 167 or equiv. Not open to students with credit for 651.

752 Mechanical Design of Manipulators and Robots UGRD 3
Principles of hardware and software design of industrial robots and related devices; includes use of actual industrial robot programming procedures.
Au Qtr. 2.15-hr cl. Prereq: Eng Mech 430 and Math 568, or permission of instructor.

753 Elastic Stability UGRD 3
Buckling of struts, rings, arches, and plates; torsional instability; stability criteria, exact and approximate methods.
Au Qtr. 3 cl. Prereq: 420 or 440 or Eng Mech 440 and Math 525, or equiv. Not open to students with credit for Eng Mech 751. Offered odd numbered years.

754 Land Vehicle Dynamics Lab UGRD 1
Lab and field tests of an action vehicle to measure vehicle inertia, geometric, suspension and steering characteristics in order to generate parameters for computer simulations.
Sp Qtr. 1.2 hr lab. Prereq or concur: 654. Existing software packages such as ADAMS, VDAO and MATLAB will be used in solving vehicle dynamic problems using principles of multi-body system analysis.

755 Plates and Shells UGRD 4
Basic equations; classical solutions and approximate methods in the theory of thin plates; Membrane theory of shells of revolution.
Sp Qtr. 4 cl. Prereq: 420 or 440 or Eng Mech 440 or equiv, and prereq or concur: Math 512. Not open to students with credit for Eng Mech 754. Offered even numbered years.

760 Form Synthesis and Applied Stress Analysis of Machinery UGRD 3
A study of concepts, principles, and procedures related to stresses and strains for the design and analysis of machine parts.
Wi Qtr. 2.15-hr cl. Prereq: 562 and 563 or grad standing in engineering. Not open to students with credit for 861. This class is one of the core courses in the M.S. program in Mechanical Engineering.

761 Optimization in Mechanical Design UGRD 3
Application of analytical optimization methods to the solution of deterministic and probabilistic mechanical design problems; introduction to interactive optimization using RCGL computer graphics facilities.
Sp Qtr. 2.15-hr cl. Prereq: 562 or 563 or permission of instructor. Not open to students with credit for 661.

762 Structural Composites UGRD 3
An introduction to the analysis and design synthesis of beams, columns, rods, plates, and panels made of structural composites.
Wi Qtr. 3 cl. Prereq: 662, or Civil En 662 or Eng Mech 662 or permission of instructor. Not open to students with credit for Civil En 762 or Eng Mech 762. Cross-listed in Civil Engineering.

763 Advanced Strength of Materials for Design UGRD 4
Mohr's circle for strain; curved beams; bending of non-symmetrical sections; non-circular torsion; beams on elastic foundations; load-deflection relations by energy methods; applications to design.
Au Qtr. 2.1-hr cl. Prereq: 420 or 440 or Eng Mech 440, and Math 255 or 415 or grad standing in mech eng. Not open to students with credit for 620 or Eng Mech 622.

764 Advanced Gear Design UGRD 3
A survey of advanced computer techniques to design spur and helical gears. Techniques will be taught in form of several small and one large capstone project.
Wi Qtr. 4.1-hr cl. Prereq: 562, 563 or permission of instructor. Offered odd numbered years.

765 Principles of Tribology UGRD 3
Mechanisms of friction, wear, and lubrication that govern interfacial behavior; applications of basic theories to solutions of friction and wear problems.
Au Qtr. 2.15-hr cl. Prereq: Grad standing or permission of instructor.

766 Engineering Acoustics UGRD 3
A course in engineering acoustics covering the phenomenon by which acoustic energy is generated and transmitted, with applications to mechanical machinery.
Wi Qtr. 2.15-hr cl. Prereq: 566 or permission of instructor. Offered odd numbered years.

767 Fluid Film Lubrication UGRD 3
Hydrodynamic lubrication applied to journal and thrust bearings; elastohydrodynamic lubrication applied to rolling-element bearings and gears.
Sp Qtr. 1.2 hr cl. Prereq: 561 or permission of instructor.

768 Introduction to the Finite Element Method UGRD 4
Basic concepts, formulation, and application of finite element techniques for numeric solution of problems in structural and continuum mechanics, geotechnical engineering and water resources engineering.
Au, Wi Qtr. 4 cl. Prereq: En Graph 167 or equiv, and Civil En 406 or Math 568 or equiv. Not open to students with credit for Civil En 763 or 768 or Eng Mech 763. Cross-listed in Civil Engineering.

770 Measurement System Application and Design UGRD 4
A theoretical and experimental study of measurement instrumentation; emphasis on both principles of operation and analysis and design techniques for measurement systems of a mechanical and electromechanical nature.
Wi Qtr. 2.15-hr cl, 1.2 hr lab. Prereq: 570 or grad standing in mech eng or permission of instructor. Not open to students with credit for 671.

772 Control Systems Design Laboratory UGRD 1
A study of experimental procedures involved in the analysis and design of feedback control systems including servomechanisms and process control.
Sp Qtr. 1.2 hr lab. Prereq or concur: 672.

773 Applied Digital Control UGRD 4
Theory and application of digital control system design techniques to the control of physical systems; lab sessions deal with implementation of controllers using personal computer.
Wi Qtr. 2.15-hr cl, 1.2 hr lab. Prereq: 571 or equiv. Not open to students with credit for Mech Engr 673.

774 Smart Materials and Intelligent Systems UGRD 3
Macromechanical modeling and control of smart structures to include piezoelectrics, piezopolymers, shape memory alloys, electro-rheological structures.
Sp Qtr. 2.15-hr cl. Prereq: 482 or grad standing in engineering.

776.01 Reliability Engineering I UGRD 4
Engineering system reliability modeling and prediction; reliability of programmable devices and human reliability; reliability and risk management of engineering systems.
Au Qtr. 2.2-hr cl. Prereq: 481 or Elec Eng 351 or Ind Eng 509 or ISE 510 or grad standing. Cross-listed in Electrical Engineering, and Industrial and Systems Engineering. Repeatable for different titled topics only of 776.xx. Field experience at the site of Honda in Marysville.
776.02 Reliability Engineering II UGRD 4
Reliability of mechanical and electrical devices, systems, and engineering processes. 
Wi Qtr. 2-2 hr cl. Prereq: 776.01 or Elec Eng 776.01 or Ind Eng 776.01 or ISE 715.01 
or permission of instructor. Cross-listed in Electrical Engineering and Industrial 
and Systems Engineering. Repeatable for different titled topics only of 776.xx. Field 
experience at the site of Honda in Marysville.

776.03 Reliability Engineering Applications UGRD 1
Study and design of a complete reliability program for a selected engineering system. 
Wi Qtr. 1 cl. Prereq: 776.02 or Elec Eng 776.02 or Ind Eng 776.02 or ISE 715.02 or 
permission of instructor. Cross-listed in Electrical Engineering and Industrial 
and Systems Engineering. Repeatable for different titled topics only of 776.xx. Field 
experience at the site of Honda in Marysville.

777 Automotive Noise, Vibration, and 
Harshness Control I UGRD 3-4
An integrated study of acoustics, shock and vibration, and dynamic design issues with 
emphasis on automotive case studies and problem solving methodology. 
Au Qtr. 2 1-5 hr cl (3 cr or option); 4 hr for project work, arr. Prereq: Grad standing in 
mech eng, elec eng, or permission of instructor. Offered odd numbered years. Part of 
a sequence emphasizing automotive systems engineering designed for MS degree 
students and practicing engineers.

778 Automotive Noise, Vibration, and 
Harshness Control II UGRD 3-4
Continuation of 777 with focus on source-path-receiver identification, modal analysis 
passive-active control, and machinery diagnostics. 
Wi Qtr. 2 1-5 hr cl (3 cr or option); 4 hr for project work, time arr. Prereq: 777 or 
permission of instructor. Offered even numbered years. Part of a sequence 
emphasizing automotive systems engineering designed for MS degree students and 
practicing engineers.

779 Automotive Noise, Vibration, and 
Harshness Control III UGRD 3-4
Continuation of 778 with focus on advanced modeling and experimental methods, 
structural-acoustic interactions, and flow-induced noise and vibration. 
Sp Qtr. 2 1-5 hr cl (3 cr or option); 4 hr for project work, time arr. Prereq: 778. Offered 
even numbered years. Part of a sequence emphasizing automotive systems 
engineering designed for MS degree students and practicing engineers.

780 Lumped Parameter System Analysis UGRD 3
Lumped parameter system analysis of mechanical, thermal, hydraulic, pneumatic, 
and electromechanical systems; system response to periodic, transient, and random 
excitation; computer and physical system demonstrations. 
Au Qtr. 2 1-5 hr cl. Prereq: Math 415 or permission of instructor. Not open to students 
with credit for Mech Eng 880.

781 Powertrain Dynamics GRAD 4
Overview of the major dynamic phenomena that characterize powertrain behavior. 
Emphasis on interaction between subsystems. The predominant natural frequencies of 
the powertrain will be described. 
Au Qtr. 4 lec. Prereq: Grad standing or permission of instructor. Offered even 
numbered years. Distance learning version available.

782 Powertrain Control GRAD 4
Classical and modern control methods applied to automotive powertrains; overview of 
production hardware; sensors and actuators; modeling for control. 
Wi Qtr. 4 lec. Prereq: ECE 551 or grad standing. Not open to students with credit for 
ECE 753.01. Offered odd numbered years. Offered only as distance learning course.

783H Honors Program Research 
UGRD 1-3
Honors program students are offered the opportunity to pursue independent 
project/research. Student presentations and thesis writing included. 
Su, Au, Wi, Sp Qtr. Arr. Prereq: Sr standing in mech eng (or equiv). Students must 
have a CPHR of at least 3.4 or permission of instructor. Repeatable to a maximum of 
6 cr hrs.

784 Energy Modeling of Hybrid-Electric 
Vehicles GRAD 4
Energy conversion, storage, utilization and optimization of complete road vehicle 
systems (conventional or hybrid-electric). 
Au Qtr. 2-2 hr cl. Prereq: Grad standing or permission of instructor. Offered odd 
numbered years. This is the first course in a series of two courses.

785 Modeling, Simulation and Control of 
Hybrid-Vehicles UGRD 4
Mathematical modeling, computer simulation and control design with application to 
hybrid-electric vehicles. 
Wi Qtr. 2-2 hr cl. Prereq: 784 or permission of instructor. Offered even numbered 
years. This is the second course in a series of two courses.

786 Gas Turbine Combustion GRAD 3
Introduction to gas turbine combustion and related design considerations covering 
basic combustion phenomena, gas turbine combustor configurations, fuels, sprays, 
ignition and emissions. 
Au Qtr. Prereq: Graduate standing in Engineering or 726 or permission of instructor.

787 Neuromuscular Biomechanics UGRD 3
Mechanics and neural control of movement. Assessment of upper and lower extremity 
dynamics. Emphasis on rehabilitation and design of assistive devices for movement 
disorders. 
Wi Qtr. 2 1-5 hr cl. Prereq: 687 or permission of instructor.

788 Fuel Cell Systems for Automotive 
Applications GRAD 4
Description, energy analysis, system modeling, optimization and control of PEM fuel 
cell systems for automotive applications. 
* Sp Qtr. Prereq: Graduate standing in Engineering or Mech Eng 726 or permission of 
instructor.

794A Group Studies in Mechanical Engineering UGRD 1-5
Special topics in mechanical engineering. The particular topic, credit hours, and the 
instructor will be announced in the quarter previous to the one in which the course is 
offered.

Au, Wi, Sp Qtrns. Arr. Prereq: Written permission of instructor. Repeatable to a 
maximum of 12 cr hrs.

800 Methods of Engineering Analysis GRAD 3
Solution of boundary value, eigenvalue, and initial value problems arising in 
mechanics by approximate methods; weighted residual and stationary functional 
methods. 
Au Qtr. 3 cl. Prereq: 10 cr hrs of 700-level courses in Eng Mech or Mech Eng 
and Math 512 or equiv. Not open to students with credit for Eng Mech 800.

803 Fundamentals of Thermodynamics II GRAD 3
Introduction to the fundamentals of thermodynamics from the microscopic viewpoint. 
Au Qtr. 2 1-5 hr cl. Prereq: 702. Offered odd numbered years.

804 Fluid Physics GRAD 3
The physics of chemically reacting thermodynamically nonequilibrium fluid flows, 
with application to energy conversion systems, propulsion, plasma processors, high 
speed flows, and gas lasers. 
Wi Qtr. Prereq: 803 or equiv or permission of instructor. This course is part of a 
sequence of graduate instruction in the fluid and thermal science area of the Dept 
of Mechanical Engineering, which treat modern engineering systems for which 
understanding molecular-scale process is critical. Offered even numbered years.

805 Electrical Gas Discharges GRAD 3
Introduction to the physics of low-temperature plasmas involving electrical discharge 
in gases. Plasma chemistry and solid-state plasmas are also considered. 
Sp Qtr. 2 1-5 hr cl. Prereq: 803 or 804 or equiv or permission of instructor. Offered 
even numbered years.

806 Viscous Flow of Fluids GRAD 3
Theory of viscous fluids; exact solutions of the Navier Stokes equations, creeping 
flows, and boundary layers. 
Wi Qtr. 2 1-5 hr cl. Prereq: 504. Offered even numbered years.

807 Conduction Heat Transfer GRAD 3
A study of the general heat transfer equations and their application to heat transfer in 
solids. 
Sp Qtr. 2 1-5 hr cl. Prereq: 510. Offered even numbered years.

808 Laminar Convection Heat Transfer GRAD 3
Laminar forced convection in pipes; laminar thermal boundary layers and entrance 
effects; stagnation point heat transfer; free convection boundary layers and plumes. 
Wi Qtr. 2 1-5 hr cl. Prereq: 806 and 807. Offered odd numbered years.

809 Thermal Radiation Heat Transfer GRAD 3
Black body radiation, gray body approximation, radiation surface properties, radiation 
exchange in non-participating media, conduction-radiation interaction, convection-
radiation interaction, and introduction to radiation in participating media. 
Au Qtr. 2 1-5 hr cl. Prereq: 807. Offered even numbered years

810 Inviscid Flows GRAD 3
Kinematics of inviscid flows; circulation and vorticity; the structure of vortices; two 
and three dimensional vortex flows; the Euler equations and the effect of 
compressibility. 
Wi Qtr. 2 1-5 hr cl. Prereq: 705 or equiv. Offered odd numbered years.

811 Computational Methods for Incompressible 
Flows GRAD 4
Advanced numerical methods for solving the incompressible (low mach number) 
Navier-Stokes equations using pressure-based techniques. 
Sp Qtr. 2 2-3 hr cl. Prereq: 707 or Aero Eng 615. Offered odd numbered years.

813 Turbulent Flow and Heat Transfer GRAD 3
Study of turbulent flows, with emphasis on the calculation of heat transfer in turbulent 
internal and external flows. 
Sp Qtr. 3 cl. Prereq: 705 and 710. Offered even numbered years.
814 Optical Techniques in Reacting and Nonreacting Flows
Measurements and visualizations based on elastic and inelastic scattering and laser-induced fluorescence and background materials on optics, quantum mechanics, lasers, and detectors.
Wi Qtr. 2 1.5-hr cl. Prereq: Grad standing in engineering/science. Offered every numbered years.

815 Multiphase Flow, Heat, and Mass Transfer in Porous Media
Current theories on flow, heat, and mass transfer in porous media and an understanding of the mechanisms involved in multiphase transport in porous media.
Sp Qtr. 2 1.5-hr cl. Prereq: 806 or permission of instructor. Offered odd numbered years.

818 Advanced Analytical Methods in Mechanical Engineering
Transform and Green's function methods for solution of problems arising in heat conduction, vibration of continuous bodies, and mechanics of fluids; asymptotic evaluation of integral representations of these solutions.
Au Qtr. 2 1.5-hr cl. Prereq: 807 or 850 or equiv. Not open to students with credit for 881. Offered odd numbered years.

820 Wave Dynamics in Fluids
Small and finite amplitude wave propagation and attenuation in fluids, nonlinear flow acoustic coupling.
Sp Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 705 or permission of instructor. Offered odd numbered years.

826 Combustion
A study of chemical thermodynamics and kinetics, the basic equations of change, and application of fundamentals to combustion in engineering systems.
Sp Qtr. 2 1.5-hr cl. Prereq: 726 or permission of instructor. Offered odd numbered years.

827 Advanced Propulsion Problems
Course will emphasize a detailed discussion of current problems in the field of air breathing propulsion. Major emphasis on technical papers from current archival literature.
Wi Qtr. Prereq: 727 or Aero 751 or permission of instructor. Cross-listed in AeroEng 851.

832 Nonlinear Vibrations
Vibration of undamped and damped nonlinear systems, perturbation techniques, self-excited oscillations, forced vibrations, bifurcations, time-varying systems, Poincare maps, chaos.
Sp Qtr. 3 cl. Prereq: 731 or equiv or permission of instructor. Offered even numbered years.

833 Elastic Wave Propagation
Dispersion and group velocity; waves in extended media; propagation and reflection in half space; Lamb problem; waves in plates and rods by exact theory scattering of waves.
Sp Qtr. 3 cl. Prereq: 731 or 734 or Eng Mech 731 or 734. Not open to students with credit for Eng Mech 833. Offered odd numbered years.

834 Advanced Methods of Vibration Analysis
Analytical methods for the formulation, solution, and physical understanding of conservative and non-conservative vibratory systems. Gyroscopic and damped systems. Approximate methods.
Sp Qtr. 2 1.5-hr cl. Prereq: 731 or equiv. Offered odd numbered years.

835 Random Vibrations
Description of random processes; statistical properties of the response of mechanical systems; optimization of systems subjected to random inputs; instrumentation.
Au Qtr. 3 cl. Prereq: 731 or Eng Mech 731. Not open to students with credit for Eng Mech 835.

837 Advanced Topics in Tribology
Current and advanced research topics in friction, wear, and lubrication vital to the successful operation of machine elements.
Wi Qtr. 2 1.5-hr cl. Prereq: 765 and 767 or permission of instructor. Offered even numbered years.

838 Advanced Topics in Finite Element Methods
Introduces state-of-the-art advances in finite element methods including element stability, hourglass control, time integration methods, adaptive methods, mixed and hybrid element technology.
Sp Qtr. Prereq: MechEng/CivilEng 768 or equivalent.

839 Finite Element Method in Engineering
Science
Approximation of boundary value and initial value problems; variational methods, hybrid and mixed method; convergence and accuracy of finite element approximations; recent developments, advanced applications.
Sp Qtr. 5 cl. Prereq: 763 or 768 or Civil En 763 or 768 or Eng Mech 763, and Math 601 or equiv. Not open to students with credit for Civil En 839 or Eng Mech 839. Cross-listed in Civil Engineering.

840 Theory of Continuous Media
Equilibrium, compatibility, and strain displacement relationships for a general continuum; constitutive equations for problems of elasticity, fluid dynamics, and inelasticity.
Sp Qtr. 3 cl. Prereq: 740 or Eng Mech 740. Not open to students with credit for Eng Mech 840. Offered every numbered years.

842 Computational Mechanics for Nonlinear Deformation
Addresses development in computational mechanics for problems with geometric and material nonlinearities, e.g., elastoplasticity, viscoplasticity, contact-friction.
Applications like metal-forming, composites will be discussed.
Sp Qtr. Prereq: 768 and 743.

843 Advanced Elasticity
Complex variable methods; anisotropic elasticity; three-dimensional elasticity; mixed boundary value problems; variational methods.
Wi Qtr. 3 cl. Prereq: 740. Offered even numbered years.

844 Advanced Fracture Mechanics
Treatment of advanced topics in fracture mechanics; elastic-plastic fracture, dynamic crack propagation and arrest, time dependent fracture, fracture of composites, and fatigue crack growth.
Sp Qtr. 3 cl. Prereq: 744 or Eng Mech 644 or permission of instructor. Not open to students with credit for Eng Mech 844. Offered even numbered years.

847 Theory of Plasticity
Plastic range stress-strain relations; elasto-plastic behavior of beams and trusses; torsion of prismatic bars; plate strain; shear lines; limit analysis.
Wi Qtr. 3 cl. Prereq: 740 or Eng Mech 740 and Math 512. Not open to students with credit for Eng Mech 847. Offered odd numbered years.

851 Kinematic Geometry of Mechanisms
Kinematics and statics of spatial mechanisms including robotic mechanisms.
Sp Qtr. 2 1.5-hr cl. Prereq: 752 or permission of instructor. Offered odd numbered years.

859 Sliding Mode Control in Electromechanical Systems
Sliding mode control for decoupling of the design procedure and low sensitivity with respect to uncertainties, and application to control of electromechanical systems.
Au Qtr. 3 cl. Prereq: 571 or Elec Eng 551. Cross-listed in Electrical Engineering. Offered odd numbered years.

864 Theory of Viscoelasticity
Basic concepts of time dependent inelastic behavior; viscoelastic constitutive laws; correspondence principles; quasi-static and dynamic problems.
Sp Qtr. 3 cl. Prereq: 740 or Eng Mech 740. Not open to students with credit for Eng Mech 864. Offered odd numbered years.

870 Digital Signal Analysis of Mechanical Systems
Conceptual, measurement, and numerical aspects of digital data acquisition and signal processing, random data analysis, and system identification and diagnostic techniques used for mechanical systems.
Sp Qtr. 2 1.5-hr cl. Prereq: permission of instructor. Offered odd numbered years.

873 State Space Methods for Dynamic Systems
Application of state-space methods to the analysis and synthesis of dynamic systems with emphasis on control applications.
Sp Qtr. 2 1.5 cl. Prereq: Math 568 or equiv and Mech Eng 571 or equiv, or permission of instructor. Not open to students with credit for Elec Eng 750. Offered even numbered years.

874 Fault Diagnosis in Mechatronic Systems
Fault detection and diagnosis in engineering systems based on dynamic models. Theory and case studies drawn from industrial application.
Au Qtr. 2 1.5-hr cl. Prereq: 780 or Elec Eng 730 or Aero Eng 720 or permission of instructor. Offered odd numbered years.

888 Mechanical Engineering Seminar
Lecture and discussion of current topics related to mechanical engineering presented by graduate students, staff, and guest speakers.
Au, Wi, Sp Qtr. 2 1.5-hr cl. Prereq: Mech eng grad standing. Repeatable. Does not count toward course work required for MS or PhD degrees. This course is graded S/U.

890 Metal Forming Machines and Tooling
Design and application of mechanical and hydraulic presses. Advanced techniques (FEM) for estimating material flow, tool geometry and stresses for stamping and forging.
Sp Qtr. 2 1.5-hr cl. Prereq: Permission of instructor.

894 Group Studies in Mechanical Engineering
Special topics in mechanical engineering. The particular topic, credit hours, and the instructor will be announced in the quarter previous to the one in which the course is offered.
Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs.
201 Careers in Dietetics UGRD 1
Roles, responsibilities, and educational requirements for a career in dietetics; current employment opportunities.
Wi Qtr. 1 cl.

210H Interdisciplinary Research: Osteoporosis UGRD 3
Diagnosis, Prevention, and Treatment
An interdisciplinary team approach to research on the diagnosis, prevention, and treatment of osteoporosis is presented. Students will complete a pre-pilot project of their own design.
Wi Qtr. 2 hr cl, 4 hrs clinical. Prereq: 2nd yr standing honors student. Not open to students with credit for Rad Tech H210. Cross-listed in Radiologic Technology.

420 Management in Medical Dietetics UGRD 5
Application of management process to nutritional care of patients in the health care institution.
Sp Qtr. 5 cl. Prereq: Humn Ntr 310 and 314; Alli Med 630.

519 Introduction to Nutrition and Human Metabolism UGRD 3
Introduction to medical nutrition therapy; study of scientific rationale behind applying nutrition principles to disease.
Au Qtr. Chemistry 101 or 122; Molbiochem 312 or Biochem 212; Anatomy 199.04; EEOB 232; and Human Nutrition 310. Admission to Med Diet or Dietetics in Human Nutrition.

520.01 Nutrition and Human Metabolism I UGRD 4
Introduction to medical nutrition therapy in prevention and treatment of disease states Pathology, physiology, labs, procedures and drugs for the various disease states are covered.
Wi Qtr. 2.2-hr cl. Prereq: 545 or Humn Ntr 610 and biochemistry. Concur: 520.02 or permission of instructor.

520.02 Nutrition and Human Metabolism I Lab UGRD 1
Application of medical nutrition therapy in prevention and treatment of disease states. Case examples, presentations, development of teaching tools included.
Wi Qtr. 1.3-hr lab. Prereq: 545 or Humn Ntr 610 and biochemistry. Concur: 520.01 or permission of instructor.

521.01 Nutrition and Human Metabolism II UGRD 4
Continuation of medical nutrition therapy in prevention and treatment of disease states Pathology, physiology, labs, procedures and drugs for the various disease states are covered.
Sp Qtr. 2.2-hr cl. Prereq: 520.01, 520.02, 545 or Humn Ntr 610 and biochemistry. Concur: 521.02 or permission of instructor.

521.02 Nutrition and Human Metabolism II Lab UGRD 1
Application of medical nutrition therapy in prevention and treatment of disease states (part 2). Case examples, presentations, development of teaching tools included.
Sp Qtr. 1.3-hr lab. Prereq: 520.01, 520.02, 545 or Humn Ntr 610 and biochemistry. Concur: 521.01 or permission of instructor.

530 Nutritional Care Process UGRD 4
Sp Qtr. 3 cl, 1.3-hr lab. Prereq: 520 or 521.01 or 521.02 or Humn Ntr 612.01.

545 Human Nutrition and Dietetics UGRD 4
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.
Au Qtr. 4 cl. Prereq: Chem 102, Biology 101, and Humn Ntr 310 and 314. Admission to medical dietetics or human nutrition or permission of instructor.

546 Physical and Nutritional Assessment UGRD 2
Methods of gathering, interpreting, and reporting nutritional assessment information.
Au Qtr. 1 hr cl, 3-hr lab. Prereq: Humn Ntr 510; EEOB 232 or Zoology 232 or equiv.

595 Seminar UGRD 1-3
Conferences, group discussions, and presentations of selected topics.
Su, Au, Wi, Sp Qtrs. 1-3 cl. Prereq: Permission of instructor.

620 Management Applications in Dietetics UGRD 3
Emphasis on managerial skills in food service or nutrition care units in health care organizations.
Wi Qtr. 2.1.5-hr cl. Prereq: 420 or equiv. Admission to medical dietetics or permission of instructor.

622 Human Resource Management in Dietetics UGRD 3
Emphasis on human resource development in nutrition and food service environment.
Wi Qtr. 3 cl. Not open to students with credit for Alli Med 622. Cross-listed in Allied Medicine.

636 Nutrition Education and Counseling UGRD 3
Principles of individual and group teaching and nutrition counseling as applied to responsibilities of the dietitian.
Wi Qtr. 2 cl, 3-hr lab. Prereq: Humn Ntr 310. Admission to medical dietetics or permission of instructor.

637.01 Basic Concepts in Health Promotion and Community Nutrition UGRD 3
Study of nutrition and health risk appraisal, intervention strategies, and cost effectiveness of risk reduction for selected populations in public and private health programming.
Sp Qtr. Prereq: Humn Ntr 310.

637.02 Advanced Concepts in Health Promotion and Community Nutrition UGRD 3
Study of nutrition and health risk appraisal, intervention strategies, and cost effectiveness of risk reduction for selected populations in public and private health programming.
Wi Qtr. Prereq: Humn Ntr 310; 637.01 or Humn Ntr 704.

638 Maternal and Pediatric Nutrition UGRD 3
Physiological basis of nutritional needs for pregnancy, lactation, infancy, and childhood. Nutritional management of selected pediatric disorders in hospitalized and ambulatory infants and children.
Wi Qtr. 2.1.5-hr cl. Prereq: Humn Ntr 310 or 506 or permission of instructor.

639 Geriatric Nutrition UGRD 3
Study of nutritional requirements, nutritional status assessment, and other selected issues in delivery of health care to older adults.
Au Qtr. 3 cl. Prereq: Humn Ntr 506 or permission of instructor.

645 Advanced Medical Dietetics UGRD 3
Study of medical nutrition therapy in trauma and hypermetabolic conditions. Emphasis on enteral and parenteral nutrition.
Au Qtr. 2.1.5-hr cl. Prereq: 521 or Humn Ntr 612.02, or permission of instructor.

646 Medical Nutrition Therapy Practicum UGRD 10
Clinical experiences and post clinical conferences with emphasis on assuming responsibility for patient nutrition care in the acute care, community, and out-patient settings.
Su, Au, Wi, Sp Qtrs. 1 cl, 32 hrs clinic. Prereq: Sr standing in Medical Dietetics. May require travel to off-campus clinical facility. This course is graded S/U.

647 Complementary Nutrition Therapy: Supplements and Herbs UGRD 3
Uses, efficacy, safety, physiological function, and evidence-based recommendations for dietary supplements and herbs in the treatment of nutrition related diseases.
Wi Qtr. 2.1.5-hr cl. Prereq: Introductory nutrition course (Humn Ntr 310) or equiv and 10 hrs of science, intro biochem, physiology or permission of instructor.

680 Research Design in Medical Dietetics UGRD 1
Concepts related to the planning, conducting, tabulating and reporting of research in dietetics.
Wi Qtr. Prereq or concur: Allied Medicine 680. Admission into Medical Dietetics.

685.01 Long-Term/Subacute Nutrition Care Practicum UGRD 4
Clinical experience and post-clinical conferences with emphasis on observation and practice in pediatric, geriatric, community, and health promotion sites. Prereq: Sr standing in med diet. Not open to students with credit for 689. Not open to students with credit for 689.01. This course is graded S/U.

685.02 Community Dietetics Practicum UGRD 4
Clinical experience and post-clinical conferences with emphasis on observation and practice in pediatric, geriatric, community, and health promotion sites. Prereq: Sr standing in med diet. Not open to students with credit for 689. Not open to students with credit for 689.01. This course is graded S/U.

688.01 Medical Dietetics Professional Practice I UGRD 2-12
Supervised professional practice in various health care settings. U-4 cl hrs: 1 credit; G 8 cl hrs:2 credit. Prereq: Admission to the Medical Dietetics Program, Sr standing or Graduate Program. This course is graded S/U.

688.02 Medical Dietetics Professional Practice II UGRD 2-12
Supervised professional practice in various health care settings. U: 4hrs Cl -1 credit; G: 8 hrs Cl -2 credits. Prereq: Admission to the Medical Dietetics Program, Sr standing or Graduate Program. This course is graded S/U.
688.03 Medical Dietetics Professional Practice III UGRD 2-12
Supervised professional practice in various health care settings.
U- 4 cl hrs: 1 credit, G 8 cl hrs: 2 credit. Prereq: Admission to the Medical Dietetics Program, Sr standing or Graduate Program. This course is graded S/U.

688.04 Medical Dietetics Professional Practice IV UGRD 2-12
Supervised professional practice in various health care settings.
U- 4 cl hrs: 1 credit, G 8 cl hrs: 2 credit. Prereq: Admission to the Medical Dietetics Program, Sr standing or Graduate Program. This course is graded S/U.

693 Individual Studies in Nutrition or Dietetics UGRD 1-5
Problems in various phases of nutrition or medical dietetics not included in current course offerings.
Su, Au, Wi, Sp Qtrs. Prereq: Grad or Sr standing in med diet and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

695 Seminar UGRD 1-3
Conferences and group discussions of selected topics.
Su, Au, Wi, Sp Qtrs. 2.1-5-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

720 Management Applications in Dietetics GRAD 3
Emphasis on leadership skills for nutrition and dietetics in health care settings.
Sp Qtr. 2.1-5-hr cl. Prereq: Approved undergrad program in dietetics.

745 Nutritional Genomics UGRD 3
Introduction to the emerging field of nutritional genomics and translational medicine for the prevention and treatment of diseases.
Sp Qtr. Prereq: Introductory nutrition course (Humn Ntr 310 or equiv) and 10 cr hrs of science, intro biochem, physiology or permission of instructor.

838.01 Physiological and Theoretical Bases for Maternal and Pediatric Needs GRAD 3
Physiology of pregnancy and lactation including special needs; physiological changes in the neonate; normal growth and development during the first year; and nutritional disorders of the pediatric patient.
Sp Qtr. 3 cl. Prereq: Grad standing, 5 hrs physiology and biochemistry, Humn Ntr 310 or above, permission of instructor.

838.02 Clinical Applications in Maternal and Pediatric Nutrition GRAD 2
Experiences in the perinatal and pediatric setting to enhance the students' clinical assessment and counseling skills in these specialized settings.
6 hrs clinical. Prereq: Grad standing, 5 hrs physiology and biochemistry, Humn Ntr 310 or above, permission of instructor.

856.01 Nutrition in Critical Care: Lecture GRAD 3
The pathophysiological background in systemic disease, surgical intervention and nutritional interrelationships among disease, treatments, and nutrition.
Au Qtr. 2.1-5-hr cl. Prereq: Permission of instructor. Not open to students with credit for Prev Med 856.

856.02 Nutrition in Critical Care: Practicum GRAD 2
The pathophysiological background in systemic disease, surgical intervention and nutritional interrelationships among disease, treatments, and nutrition.
Au Qtr. 1.4-hr clinic. Prereq: Permission of instructor. Not open to students with credit for Prev Med 856. This course is graded S/U.

857 Nutrition and Metabolic Imbalance GRAD 3
The pathophysiological background of metabolic imbalances encountered in the clinical setting and the rationale for nutritional therapies.
* Sp Qtr. 2.1-5-hr cl. Prereq: 856.01, Fd Sc&Nu 761 or permission of instructor.

858 Community Nutrition GRAD 3
Methods of discovering problems in public health nutrition and practical application of nutrition information for improvement of nutritional status at various age levels.
* Au Qtr. 2.1-5-hr cl Prereq: 638 and 856, or permission of instructor. Not open to students with credit for Prev Med 858.

889.01 Clinical Practicum: Crisis Care Practicum GRAD 2-5
Advanced, specialized orientation to clinical dietetics including resource and patient management through individual conferences, group conferences, team conferences, and clinical practice.
Su, Au, Wi, Sp Qtrs. 3 clinic hrs/credit. Prereq: Permission of instructor. Subdivisions are repeatable to a maximum of 10 cr hrs. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

889.02 Clinical Practicum: Primary Care Practicum GRAD 2-5
Advanced, specialized orientation to clinical dietetics including resource and patient management through individual conferences, group conferences, team conferences, and clinical practice.
1 cl, 16-hrs clinic. Prereq: Permission of instructor. Subdivisions are repeatable to a maximum of 10 cr hrs. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

400 Principles of Phlebotomy UGRD 2
The principles and practice of sample collection as it relates to clinical laboratory testing.
Au Qtr. 1 cl, 1.5-hr lab. Prereq: Admission to Med Tech or permission of instructor.

480.01 Lecture UGRD 2
Overview of issues surrounding working in the modern laboratory environment. Topics include: safety, instrumentation, and quality assurance.
Lecture.
2 cl. Prereq: Chem 121, 122 and Biology 113.

480.02 Laboratory UGRD 1
Overview of issues surrounding working in the modern laboratory environment. Topics include: safety, instrumentation, and quality assurance.
Laboratory.
1.3-hr cl. Prereq: Chem 121, 122 and Biology 113.

500.01 Clinical Laboratory Microbiology: Lecture UGRD 3
Theory and application of clinical laboratory techniques used to identify microorganisms pathogenic to humans.
2.1-5-hr cl. Prereq: 480 or permission of instructor.

500.02 Clinical Laboratory Microbiology: Laboratory UGRD 3
Theory and application of clinical laboratory techniques used to identify microorganisms pathogenic to humans.
3.3-hrs labs. Prereq: Admission to Med Tech or permission of instructor.

510.01 Clinical Laboratory Hematology: Lecture UGRD 3
Basic theory and application of clinical laboratory techniques used to evaluate the formed elements in blood and the hemostatic mechanism.
2.1-5-hr cl. Prereq: 480 or permission of instructor.

510.02 Clinical Laboratory Hematology: Laboratory UGRD 2
Basic theory and application of clinical laboratory techniques used to evaluate the formed elements in blood and the hemostatic mechanism.
2-3 hrs labs. Prereq: 480 or permission of instructor.

525.01 Clinical Laboratory Microbiology I: Lecture UGRD 3
Theory and application of clinical laboratory techniques used to identify microorganisms pathogenic to humans.
3.1-hr cl. Prereq: Admission into Med Tech or permission of instructor.

525.02 Clinical Laboratory Microbiology I: Laboratory UGRD 2
Theory and application of clinical laboratory techniques used to identify microorganisms pathogenic to humans.
2.3-hr labs. Prereq: Admission into Med Tech or permission of instructor.

570.01 Body Fluid Analysis: Lecture UGRD 2
Physical, chemical and microscopic analysis of urine and other body fluids including correlational pathophysiology.
2 cl. Prereq: Admission to Med Tech, 480 or permission of instructor.

570.02 Body Fluid Analysis: Laboratory UGRD 1
Physical, chemical and microscopic analysis of urine and other body fluids including correlational pathophysiology.
1.3-hr lab. Prereq: Admission to Med Tech, 480 or permission of instructor.

595 Seminar UGRD 1-3
Discussion of issues and trends in laboratory medicine; topics to be announced.
Su, Au, Wi, Sp Qtrs. 595H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Admission to Med Tcd and permission of instructor. Repeatable.

600.01 Molecular Investigations of Infectious Disease Outbreaks: Lecture UGRD 2
Basic theory of molecular techniques used to investigate infectious disease outbreaks.
2 cl. Prereq: Mol Gen 500 and admission to Med Tech or permission of instructor.
600.01E may be available for honors embedded experience.

600.02 Molecular Investigations of Infectious Disease Outbreaks: Laboratory UGRD 1
Application of molecular techniques used to investigate infectious disease outbreaks.
1.3-hr lab. Prereq: Admission to Med Tech or permission of instructor.

602 Clinical Correlations in Microbiology UGRD 2
Provides the student with a basic theory of the pathogenic mechanisms involved in diseases caused by microorganisms.
Sp Qtr. 1.1-hr cl, 1.1-5-hr recitation. Prereq: Admission to Med Tech or permission of instructor. E602 may be available for honors embedded experience.

604 Clinical Correlations in Chemistry UGRD 2
The study of pathologic conditions in chemistry with emphasis on problem-based study, group work, and written and oral presentation skills.
Au Qtr. 2.1-hr cl. Prereq: Admission to Med Tech or permission of instructor. E604 may be available for honors embedded experience.
605 Clinical Correlations in Immunohematology UGRD 2
A problem-based study of the pathological principles of transfusion medicine.
Wi Qtr. 1 1-hr cl, 1 2-hr recitation. Prereq: Admission to Med Tech or permission of instructor. E605 cr may be available for honors embedded experience.

610 Administration in Laboratory Medicine GRAD 3
Principles of administration applied to the management of health care services in laboratory medicine.
Wi Qtr. 3 cl. Prereq: Grad standing in Pathol or Alli Med, pathol resident or permission of instructor. Cross-listed in Pathology.

615.01 Advanced Clinical Laboratory Hematology: Lecture UGRD 4
Advanced theory and application of clinical laboratory techniques used to evaluate the formed elements of the blood and hemostatic mechanism.
2 1.5-hr cl, 1 1-hr cl. Prereq: 510.01 or permission of instructor. E615.01 may be available for honors embedded experience.

615.02 Advanced Clinical Laboratory Hematology: Laboratory UGRD 2
Advanced theory and application of clinical laboratory techniques used to evaluate the formed elements of the blood and hemostatic mechanism.
2 3-hr labs. Prereq: 510.01 or permission of instructor.

620 Management and Education in Clinical Laboratory Science UGRD 3
Theory and application of management and education principles directed specifically to the Clinical Laboratory Scientist.
Wi Qtr. Prereq: Admission to Med Tech program or permission of instructor.

630.01 Clinical Laboratory Immunology: Lecture UGRD 4
Theory and application of clinical laboratory techniques employing antigen-antibody reactions in the study of disease.
2 1.5-hr cl, 1 1-hr cl. Prereq: Admission to Med Tech or permission of instructor. E630.01 may be available for honors embedded experience.

630.02 Clinical Laboratory Immunology: Laboratory UGRD 1
Theory and application of clinical laboratory techniques employing antigen-antibody reactions in the study of disease.
1 3-hr lab. Prereq: Admission to Med Tech or permission of instructor.

635.01 Immunohematology: Lecture UGRD 5
Theory and practice of blood banking and transfusion medicine.
5 1-hr cl. Prereq: Admission to Med Tech or permission of instructor. E635.01 may be available for honors embedded experience.

635.02 Immunohematology: Laboratory UGRD 3
Theory and practice of blood banking and transfusion medicine.
3 3-hr labs. Prereq: Admission to Med Tech or permission of instructor.

640 Advanced Laboratory Techniques UGRD 4
Applications of theory in quality control, method selection and evaluation, and advanced diagnostic techniques with an emphasis on instrumentation, automation and problem solving.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Chem 121, Biology 113 or permission of instructor. Offered as a distance education course. E640 may be available for honors embedded experience.

645.01 Clinical Chemistry: Lecture UGRD 5
Principles in clinical chemistry with an emphasis on principles of analysis, correlation of biochemical parameters with disease, instrumentation and automation, and problem solving.
2 1.5-hr cl, 2 1-hr cl. Prereq: Admission to Med Tech or permission of instructor. E645.01 may be available for honors embedded experience.

645.02 Clinical Chemistry: Laboratory UGRD 2
Principles in clinical chemistry with an emphasis on principles of analysis, correlation of biochemical parameters with disease, instrumentation and automation, and problem solving.
2 3-hr labs. Prereq: Admission to Med Tech or permission of instructor. E645.02 may be available for honors embedded experience.

669 Clinical Practice in Laboratory Science UGRD 12
Application of medical laboratory techniques under supervision in clinical laboratory or other non-hospital laboratory settings.
Su, Au, Wi, Sp Qtrs. 280 hrs. Prereq: All Med Tech courses. OSU and/or non-OSU laboratory sites available. This course is graded S/U.

679 Clinical Practice in Transfusion Service UGRD 2
Application of medical laboratory techniques under supervision in immunohematology and transfusion service.
Su, Au, Wi, Sp Qtrs. Prereq: 605, 635.01, 635.02. Not open to students with credit for 579. OSU and non-OSU laboratory sites available. This course is graded S/U.

689 Interdisciplinary Studies in Clinical Laboratory Science UGRD 1-5
The application of medical laboratory science in interdisciplinary settings.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: All Med Tech courses. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

693 Individual Studies UGRD 1-15
Guided study or individual readings, research, or experiences related to medical technology.
Su, Au, Wi, Sp Qtrs. Prereq: Admission to Med Tech or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

795 Graduate Seminar GRAD 1-3
Investigation of current topics in clinical laboratory medicine.
Su, Au, Wi, Sp Qtrs. 1 3-hr cl. Prereq: Admission to Med Tech coordinated graduate program or permission of instructor. Repeatable to a maximum of 15 cr hrs.

885 Clinical Education Practicum GRAD 2-5
Supervised experience in clinical education and training.
Su, Au, Wi, Sp Qtrs. Prereq: Admission to Med Tech coordinated grad program or permission of instructor. Repeatable to a maximum of 15 cr hrs.

**Medicine, College of**

600 Introduction to Medicine MED 0
An introductory course describing curriculum choices and requirements, support services, and security procedures for new medical students in the College of Medicine and Public Health.
Au Qtr. Prereq: Enrollment in the College of Medicine. Registered, first-year medical students only. This course is graded S/U.

651 Patient-Centered Medicine MED 2-4
A multidisciplinary study of human behavior and the patient's central role in the practice of medicine.
Au, Wi, Sp Qtrs. Prereq: Enrollment in College of Medicine. Registered medical students only. Repeatable to a maximum of 12 cr hrs. This course is Progress ('P') graded. 12 hours required for all medical students with a grade rendered each spring quarter. This course is graded S/U.

660 Physician Development MED 2-4
A multidisciplinary study of the interpersonal, examination, and diagnostic skills necessary to be a practicing physician.
Au, Wi, Sp Qtrs. Prereq: Enrollment in College of Medicine. Registered medical students only. Repeatable to a maximum of 12 cr hrs. This course is Progress ('P') graded. 12 hours required for all medical students. Personal transportation for community practice. This course is graded S/U.

661.01 Clinical Assessment and Problem Solving I MED 4-8
Multidisciplinary study of competencies necessary to be a practicing physician: interpersonal, professional, clinical reasoning, reflection and knowledge of clinical medicine and healthcare systems.
Au, Wi, Sp Qtrs. Prereq: Enrollment in College of Medicine. Registered medical students only. Repeatable to a maximum of 24 cr hrs. This course is Progress ('P') graded. This is a progress course with grade rendered each spring quarter. Personal transportation to community practicals. This course is graded S/U.

661.02 Clinical Assessment and Problem Solving II MED 4-8
Multidisciplinary study of competencies necessary to be a practicing physician: interpersonal, professional, clinical reasoning, reflection and knowledge of clinical medicine and healthcare systems.
Au, Wi, Sp Qtrs. Prereq: Enrollment in College of Medicine. Registered medical students only. Repeatable to a maximum of 24 cr hrs. This course is Progress ('P') graded. This is a progress course with grade rendered each spring quarter. Personal transportation to community practicals. This course is graded S/U.

662 MED I: Medical Sciences MED 5-20
Study of human biology and pathophysiology in a patient-oriented organ-system interdisciplinary manner.
Au, Wi, Sp Qtrs. Concur: 660, 661. Registered medical students only. Repeatable. This course is Progress ('P') graded. Grade rendered in SP. This course is graded S/U.

663 MED II: Medical Sciences MED 5-20
Study of human biology and pathophysiology in a patient-oriented organ-system interdisciplinary manner.
Au, Wi, Sp Qtrs. Prereq: 660, 661. Registered medical students only. Repeatable. This course is Progress ('P') graded. Grade rendered in SP. This course is graded S/U.

664 MED III and IV: Clinical Medicine MED 4-24
Didactic and clinical instruction in family medicine, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery; experience in outpatient, community, and inpatient services.
Su, Au, Wi, Sp Qtrs. Prereq: 663. Repeatable. This course is Progress ('P') graded. Must repeat 152 cr hrs. This course is graded S/U.
670 Patient-Centered Research MED 2
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.
Au, Wi, Sp Qtrs. Arr. Prereq: Enrollment in the College of Medicine. Repeatable to a maximum of 12 cr hrs. This course is Progress (P) graded. Cross-listed in Integrated Biomedical Science. This is a progress course with a grade rendered each SP quarter. This course is graded S/U.

689 Practicum in Medicine MED 0
Applied experiences in medicine for 3rd and 4th year medical students rotating through clinical disciplines, externship experiences for medical students chosen for competitive programs at various agencies for field experience. Su, Au, Wi, Sp Qtrs. Arr cl. Prereq: Med students with permission of Dean's Office. Repeatable to a maximum of 4 quarters. This course is graded S/U.

693 Individual Studies MED 1-24
Special studies in introduction to medicine; nature of life processes; the pathophysiology and manifestation of disease; and supervised individualized program
Su, Au, Wi, Sp Qtrs. Arr cl. Prereq: Permission of instructor. Limited to students working toward the MD degree. Repeatable to a maximum of 96 cr hrs. This course is graded S/U.

700.01 Interprofessional Education: MED 3
Interprofessional Care
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Treatment of the whole person through the analysis of the interrelated problems of actual cases.
Wi Qtr. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

700.02 Interprofessional Education: Changing Societal Values MED 3
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Identification and clarification of values considerations as they relate to professional problems in dealing with consumer/clients/patients.
Sp Qtr. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

700.03 Interprofessional Education: Ethical Issues MED 3
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Ethical issues of concern to the professions and arising out of advanced technology: euthanasia, mind control, malpractice, and social responsibility of the professions.
Au Qtr. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

700.04 Interprofessional Education: MED 3-5
Interprofessional Practicum in Clinical Settings
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Interprofessional teamwork in clinical settings.
Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

700.07 Interprofessional Education: MED 3
Interprofessional Approaches to Child Abuse and Neglect
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Interprofessionally explores issues in the identification, treatment, and prevention of child abuse and neglect.
Au Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology.

710 Health Literacy MED 3
Examines the issues and challenges of low health literacy, including research, development and testing of information in plain language; health communication techniques; and organizational approaches to meet these challenges.
Au Qtr. Not open to students with credit for Nursing 710, Alli Med 710, Pharmacy 709 or Arts&Sci 709. Cross-listed with Nursing 710 and Alli Med 710, Pharmacy 709 and Arts&Sci 709.

797 Interdepartmental Seminar MED 1-5
Two or more departments may collaborate in presenting seminars in subjects of mutual interest; topics to be announced. Repeatable by permission.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. This course is graded S/U.

Medieval and Renaissance Studies
631 Survey of Latin Literature: Medieval and Renaissance UGRD 5
Survey of selected authors representative of the medieval and renaissance periods of Latin literature with discussion of historical background and critical approaches. Prereq: Latin 104 or equiv. Repeatable to a maximum of 10 cr hrs. 692 Workshop UGRD 1-8
Workshop. Prereq: Varies with the topic offered. Repeatable to a maximum of 15 cr hrs. This course is graded S/U. 693 Individual Studies UGRD 1-5
Students may register for individual directed study under this number for work not normally offered in courses. Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Open only to majors in medieval. Repeatable to a maximum of 15 cr hrs. This course is graded S/U. 694 Group Studies UGRD 2-5
Interdisciplinary group studies selected in topics in Medieval and Renaissance culture and civilization. Prereq: 10 cr hrs in medieval at the 200 level. Repeatable to a maximum of 15 cr hrs. 695 Advanced Seminar in Medieval and Renaissance Studies UGRD 5
A seminar in interdisciplinary research and analysis providing experience in presentin ideas in oral and written form. 1 or 2 2-hr cl. Repeatable to a maximum of 15 cr hrs. 783H Honors Research UGRD 3-5
A program of study will be arranged for each student, with individual conferences, reports, and Honors thesis. Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing with a grade of A in at least half of the courses in the student's major area of study 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. At least 2 qtrs are required of the BA degree with distinction in Medieval and Renaissance studies. Failure to receive a mark of S in this course is a disqualification for special honors. Repeatable to a maximum of 15 cr hrs. This course is graded S/U. 792 Interdepartmental Studies in the Humanities UGRD 5
Two or more departments may collaborate in presenting colloquia on studies of mutual interest; topics to be announced. 1 or 2 2-hr cl. Repeatable to a maximum of 15 cr hrs. 899 Interdepartmental Seminar in the Humanities UGRD 5
Two or more departments may collaborate in presenting seminars on subjects of mutual interest; topics to be announced. 1 or 2 2-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs. 522.02 Immunobiology Laboratory UGRD 3
Methods in immunobiology. Wi Qtr. 1 cl, 2 2-hr lab. Prereq or concurs: 522.01. Not open to students with credit for 522. 524.01 Mechanisms of Microbial Disease UGRD 4
Overview of microbe-host interactions with an emphasis on pathogenic mechanisms of microorganisms; the influence of the etiologic agent, route of contact, host species, and the environment. 2 2-hr cl. Prereq: 522 or 522.01. Not open to students with credit for 724. 581.01 Microbial Genetics Lecture UGRD 3
Structure, maintenance, expression, and exchange of genetic materials in microbial cells. Au, Sp Qtrs. Prereq: 520 or Mol Gen 500. Not open to students with credit for 581 or 680. 581.02 Microbial Genetics Laboratory UGRD 3
Structure, maintenance, expression and exchange of genetic materials in microbial cells laboratory. Au, Wi, Sp Qtrs. Prereq: 581 or Mol Gen 500. Not open to students with credit for 581M. 591 DNA Finger Printing Workshops in Columbus Public Schools UGRD 2
A service learning course whereby undergraduates mentor high school students in molecular biology workshops. Sp Qtr. Repeatable to a maximum of 6 cr hrs. Undergraduates present workshops in Columbus Public Schools. Cross-listed in Biochemistry and Molecular Genetics. Service learning course. This course is graded S/U. 610H Bioinformatics and Molecular Microbiology UGRD 5
Application of computational tools to the analysis of genomes and their gene products. Au Qtr. 2.5 2-hr labs. Prereq: 581 or Mol Gen 605, and Biochem 511; or permission of instructor. 629 Cellular and Molecular Biology of Pathogenic Eukaryotes UGRD 5
Cellular biology and molecular aspects of parasitism. Sp Qtr. 4 cl, 1-hr recitation. Prereq: 522 or and/or 522 or permission of instructor. 647.01 Food Microbiology: Lecture UGRD 3
Cellular and molecular mechanisms of the immune response; characterization of cell products elaborated subsequent to antigenic stimulation; significance of these product in immunologic response. Sp Qtr. 3 cl. Prereq: 522 or equiv with permission of instructor. 636.01 Food Microbiology Lecture UGRD 3
Microorganisms in relation to the production, processing and handling of food with emphasis on food transmitted pathogens and minimizing public health risks. Au, Sp Qtrs. 2 2-hr labs, 1 cl. Prereq: 636.01 or concurs. Not open to students with credit for 636 or Fd Sc&Te 636. Cross-listed in Food Science and Technology. 647 Eukaryotic Pathogens UGRD 3
Pathogenesis, virulence factors, host-parasite interactions, ecology, epidemiology, immunity, laboratory diagnosis, and chemotherapy of eukaryotic pathogens. Au Qtr. 2 1.5-hr cl. Prereq: 520 or 524.01, or Biochem 511, or Mol Gen 500 or 605, or permission of instructor. Not open to students with credit for MVIMG 647. Cross-listed in Molecular Virology, Immunology and Medical Genetics. 649 Introductory Virology UGRD 5
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. Wi Qtr. 2 2-hr cl, 1 hr rec. Prereq: 520. 661 General Microbial Physiology GRAD 5
Principles of microbial growth, metabolism, microbial structure and function, and regulation of microbial metabolism. Au Qtr. 5 cl. Prereq: 521 and Biochem 511. 664 Microbial Ecology UGRD 3
A study of microbial functions, interactions and diversity as influenced by biological, chemical and physical factors in the environment. Au Qtr. 2 1.5-hr cl. Prereq: 509 or equiv. 665 Environmental Microbiology UGRD 3
The role of microorganisms and underlying biological principles in elemental cycles and degradation of natural and man-made compounds. Au Qtr. 3 cl. Prereq: 509 or equiv. Not open to students with credit for H&CS 665. Not available for audit. Cross-listed in Horticulture and Crop Science.

Microbiology

294 Group Studies UGRD 1-5
Study of selected topics in microbial and cellular biology. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. 301 The Biology of Pollution UGRD 2
A general consideration of the interactions of environmental pollutants and biological systems. Au Qtr. 1 2-hr cl. Prereq: 5 cr biology. Credit counts toward a major in microbiology. NS Admis Cond course. 509 Basic and Practical Microbiology UGRD 5
Provides an understanding of microorganisms and their interaction with the human experience. Su, Au, Wi, Sp Qtrs. 509N: Sp Qtr. 3 cl, 2 2-hr labs. Prereq: Biology 101 or 113 or H115. GEC bio sci course. NS Admis Cond course. 520 General Microbiology I UGRD 5
Fundamental principles of microbiology and the characteristics of microorganisms with emphasis on their structure, molecular biology, growth and classification. Au, Sp Qtrs. 3 cl, 2 3-hr labs. Prereq: Biology 114 or H116. May not be taken concur with 509. 521 General Microbiology II UGRD 5
Continuation of 520; basic principles of microbiology with emphasis on physiology, ecology, biotechnology, ecology, and applied and pathogenic microbiology. Wi Qtr. 3 cl, 2 3-hr labs. Prereq: 520 and Chem 252, or concurs. 522.01 Immunobiology Lecture UGRD 3
Cellular and molecular properties of the immune system. Wi Qtr. 3 cl. Prereq: 520 for majors; 509 for nonmajors. Not open to students with credit for 522.
669H Microbial Evolution UGRD 5
Evolution and evolutionary ecology of bacteria, viruses, and other microorganisms: mutation, selection, gene exchange, macroevolution, social interactions, coevolution, endosymbioses, emerging virulence, and increasing complexity.
Au Qtr. 2-3 hr cl. Prereq: 10 cr hrs of biological sciences coursework taken at the 300 level or higher.

680 Advanced Microbial Genetics GRAD 3
Molecular mechanisms of gene regulation and gene transfer in prokaryotes.
Wi Qtr. 3 cl. Prereq: 581 or Mol Gen 605.

693 Individual Studies UGRD 1-5
Outlined by instructor to meet individual student's needs.
Su, Au, Wi, Sp Qtr. Prereq: Microbiol major or grad standing and permission of instructor. Not open to Plan B MS students. Repeatable to a maximum of 15 cr hrs. Not repeatable by graduates. No more than 5 cr hrs can be counted toward an undergrad microbiol major. This course is graded S/U.

694 Group Studies UGRD 2-5
Group work on special topics in microbial or cellular biology.
Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P') graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable for different titled study tours only.

699 Undergraduate Research in Microbiology UGRD 1-15
Laboratory and bioinformatics based research in all areas of microbiology.
Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

701 Cellular and Molecular Immunology UGRD 5
Cellular and molecular mechanisms of immune response, cell recognition and communication, molecular biology of cell recognition structures, cytokines, and effector mechanisms.
Au Qtr. 5 cl. Prereq: Biochem 613, Mol Gen 500 or 665. Not open to students with credit for MVMG 701. Cross-listed in Medical Virology, Immunology, and Medical Genetics.

720 Molecular Basis for Microbial Biodiversity GRAD 4
Introduction to the diversity of organisms found in the microbial world and molecular mechanisms by which select organisms adapt or modify the environment.
* Wi Qtr. 2-2 hr cl. Prereq: 521, Biochem 511, and Mol Gen 500; or equivs; or permission of instructor.

723.01 Molecular Immunology: Lecture UGRD 3
Molecular biological properties of antibodies, T-cell receptors, cytokines, complemen and MHC.
Au Qtr. 3 cl. Prereq: 522 or equiv with written permission of instructor.

724 Molecular Pathogenesis UGRD 5
In-depth presentation and discussion of the molecular and cellular mechanisms of pathogenesis, emphasizing current research in the field.
Au Qtr. 3 1.5-hr lec Prereq: Grad standing, advanced undergrads must have permission of instructor.

736 Advanced Food Microbiology GRAD 3
Microbiological aspects of food preservation, detection of microbiological contaminants, hazards, and microorganisms of public health significance.
* Wi Qtr. 3 cl. Prereq: 636 or Fd Sc&Te 636 and Chem 123. Not open to students with credit for Fd Sc&Te 736. Cross-listed in Food Science and Technology.

740 Selected Topics in Microbial Pathogenesis GRAD 2
Student led discussion of classic and current literature in microbial pathogenesis.
Sp Qtr. Prereq: Microbiol 724 or IBGP 724 or permission of instructor. Repeatable to a maximum of 6 cr hrs. Cross-listed in IBGP.

750 Fermentation Biotechnology UGRD 5
Fundamentals of modern fermentation technology and industrial microbiology; with emphasis on product formation, culturing techniques and computer-controlled fermentation.
* Su Qtr. 3 cl, 2-3 hr labs. Prereq: 521 or equiv with permission of instructor.

760 Advanced Bacterial Physiology GRAD 3
Specialized metabolic pathways, regulation and control mechanisms, and bacterial biochemistry.
* Sp Qtr. 3 cl. Prereq: 661 or permission of instructor.

783H Honors Research UGRD 1-5
Laboratory and bioinformatics based research culminating in an Honors thesis.
Su, Au, Wi, Sp Qtr. Prereq: 3rd or 4th yr standing and permission of instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee. Repeatable to a maximum of 15 cr hrs. At least 8 cr hrs are required of candidates for completion of honors thesis for BS degree and distinction in microbiology. This course is graded S/U.

795 Host-Pathogen Interactions: Research Seminar UGRD 1
Faculty, students and outside speakers will give research presentations on microbial-host interactions.
Su, Au, Sp Qtr. 1 hr cl. Prereq: Registration as a graduate student or permission from both course director and undergraduate major advisor for undergraduates. Repeatable to a maximum of 12 cr hrs. Cross-listed in Integrated Biomedical Science. This course is graded S/U.

799 Microbiology Colloquium UGRD 1
Microbiology Colloquium.
Su, Au, Sp Qtr. 1 cl. Repeatable. This course is graded S/U.

832 Advanced Cellular Immunology GRAD 3
Student presentations of primary literature with emphasis on genetic, biochemical, and cellular aspects of signal transduction by receptors of hematopoietic cells.
* As Qtr. 3 cl. Prereq: 701 or permission of instructor.

850 The RNA World GRAD 3
Evolution, structure and function of RNA with topics including RNA catalysis, RNA editing and modification, ribosymes, ribozymes, iRNA, telomerase, tRNA and alternative translation strategies.
* Sp Qtr. 1-1 hr cl. Prereq: 12 cr hrs of completed graduate level course work in the sciences.

880 Seminar in Microbiology GRAD 1-3
Seminar in Microbiology.
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.

893 Individual Studies GRAD 3-5
Individual Studies.
Au, Wi, Sp Qtr. Prereq: Enrollment in Plan B master's program and written permission of instructor. Not open to Plan A MS candidates or PhD candidates. Repeatable to a maximum of 10 cr hrs. Outlined by instructor to meet individual student's needs for Plan B library research. This course is graded S/U.

894 Group Studies GRAD 2-5
Group work on special topics in microbial or cellular biology.
Su, Au, Wi, Sp Qtr. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

999 Research in Microbiology GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.

Military Science

100 Boot Camp Style Physical-Fitness Training UGRD 1
Introduction to U.S. Army "Boot Camp" style physical-fitness training.
Au, Wi, Sp Qtr. Repeatable to a maximum of 11 cr hrs. This course is graded S/U. U.S. Army Boot Camp style physical-fitness training. "The Only Easy Day was Yesterday." Teamwork and motivation combine with U.S. Army instructors to generate tough, no-nonsense, non-stop mental and physical training.

101 Introduction to Leadership and Military Officership Foundations I UGRD 2
Introductory course to leadership and first course in Army ROTC. Review of basic life skills, introduction to, and organization of the Army; the Army value system and ethical behavior are covered.
Au, Wi, Sp Qtr. 1-1 hr cl, 1-2 hr leadership lab. Prereq: Wi, Sp Qtrs. Permission of the instructor.

102 Introduction to Leadership and Military Officership Foundations II UGRD 2
Continuation of 101 and open to all university students who want to become an Army officer, world leader or to learn more about the Army. Builds on lessons learned from 101 and develops problem-solving skills.
Wi Qtr. 1-1 hr cl, 1-2 hr leadership lab.

103 Introduction to Leadership and Military Officership Foundations III UGRD 2
The cumulation of topics taught in 101-102, although they do not need to be taken first. Focuses on leadership theory, decision-making, factors that influence leadership.
* "Life Skills" continue to be developed.
Sp Qtr. 1-1 hr cl, 1-2 hr leadership lab.
110 Basic Mountaineering Course UGRD 1
Training in the fundamental knowledge and skills required to successfully conduct basic U.S. Army mountaineering and rappelling. Au, Wi, Sp Qtr. Students will be asked to sign waivers provided by The OSU Area Recreation Center (ARC) and the Department of Military Science according to U.S. Army Cadet Command regulations. This course is graded S/U.

201 Individual Leadership I UGRD 3
Develops knowledge of self, self-confidence and individual leadership skills. Instruction includes practical exercises in and out of the classroom to develop problem solving and critical thinking skills. Au, Wi, Sp Qtr. 2 1-hr cl, 1 2-hr leadership lab. Prereq: Wi, Sp Qtr. Permission of instructor.

202 Individual Leadership II UGRD 3
Continuation of 201 focusing on developing knowledge of self, self-confidence and individual leadership skills. Instruction includes practical exercises in and out of the classroom to develop problem solving and critical thinking skills. Wi Qtr. 2 1-hr cl, 1 2-hr leadership lab.

203 Leadership and Teamwork UGRD 3
Focuses on self-development guided by knowledge of self and group processes. Challenges student's current beliefs, knowledge, and skills. Provides equivalent preparation for the ROTC Advance Course as the Leader's Training Course. Sp Qtr. 2 1-hr cl, 1 2-hr leadership lab.

301 Military Operations at Small Unit Level UGRD 4
Overview of military tactics conducted at the infantry squad, platoon, and company level; analyze military missions and plan military operations, train and lead squad in execution of battle drills. Au Qtr. 3 1-hr cl, 1 2-hr leadership lab, 3 1-hr physical training labs. Prereq: 203 or department position.

302 Leadership and Problem Solving UGRD 4
Develops knowledge of self, self-confidence and individual leadership skills; provides overview of national defense policy and analyzes role players in the transition of the Army from Vietnam to the 21st Century; practical exercises in application of general problem-solving model. Wi Qtr. 3 1-hr cl, 1 2-hr leadership lab, 3 1-hr physical training labs, 1 1-day field training exercise. Prereq: 301 or permission of the professor of military science.

303 Leadership and Ethics UGRD 4
Develops an understanding of the Army's core values and ethical principles. The study of ethical dilemmas, decision making, and professional ethical standards. Prereq: 302 or permission of the professor of military science.

401 Military Operations, Training Management UGRD 4
Designs and administers basic military training and field exercises. Students will be asked to sign waivers provided by The OSU Area Recreation Center (ARC) and the Department of Military Science according to U.S. Army Cadet Command regulations. This course is graded S/U.

402 Military Leadership, Operations and Administration UGRD 4
Develops knowledge of tactics, strategy, and operations at the divisional level; analyze military missions and plan military operations, train and lead in execution of battle drills. Au Qtr. 3 1-hr cl, 1 2-hr leadership lab, 3 1-hr physical training labs, 1 4-day field training exercise. Prereq: 302 or permission of the professor of military science.

403 Army Officership UGRD 4
The study of military leadership and contemporary military subjects that will prepare the student to perform the duties of a commissioned officer. This course focuses on final preparation for commissioning. Student will participate in spring Field Training Exercise (FTX) at local training area. Sp Qtr. 3 1-hr cl, 1 2-hr leadership lab, 3 1-hr physical training labs, 1 4-day field training exercise. Prereq: 401, 402 or permission of professor of military science.

693 Military Science Individual Studies UGRD 1
Military Science Individual Studies. Au, Wi, Sp Qtr. Prereq: must be a contracted Cadet and have permission of the chairman. Repeatable to a maximum of 5 cr hrs.

Modern Greek

101 Elementary Modern Greek I UGRD 5
Introduces students to the language, covering the basic skills of reading, understanding and writing. Au Qtr. 5 cl. Not open 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 instructor. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

102 Elementary Modern Greek II UGRD 5
Offers intensive study of grammar and syntax, with extensive oral and written practice. Wi Qtr. 5 cl. Prereq: 101. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

103 Intermediate Modern Greek I UGRD 5
Offers grammar review and introduces longer prose texts. Sp Qtr. 5 cl. Prereq: 102. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course.

104 Intermediate Modern Greek II UGRD 5
Continues the previous year's 101-103 sequence. The course helps students expand their vocabulary and improve their fluency in speaking the language. Au Qtr. 5 cl. Prereq: 103. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course.

200 Athens: The Modern City UGRD 5
The history and culture of modern Athens. The way events such as wars and migration transformed the urban fabric of the city.

241 Culture of Contemporary Greece UGRD 5
A general survey of socio-cultural trends and issues in modern Greece through close analysis of literature and the other arts. Wi, Sp Qtr. 5 cl. 241H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for 341.

250H Greek Identities: Ancient and Modern UGRD 5
This class explores how Greeks defined themselves by comparing ethnic and national identity in ancient and modern Greece. What does it mean to be Greek?. 2 2-hr cl. Prereq: Honors standing. Taught in English. GEC arts and hums lit course.

268 Folklore of Contemporary Greece UGRD 5
A general survey of socio-cultural trends and issues in modern Greece through close examination of ethnographies and other folk expressions.

293 Individual Studies UGRD 1-3
Individual Studies.

294 Group Studies UGRD 1-5
Topics in Modern Greek studies.

367 Issues in Greek-American Society and Culture UGRD 5
Exploration of representative features of Greek-American culture and reflection on the social diversity in the United States. Wi Qtr. 2 2-hr cl. Prereq: English 110 or 111 or equiv, and soph standing. GEC second writing and social diversity course.

371 Review of the Modern Greek literature of the last two centuries through representative works and from a theoretical perspective.

401 Advanced Modern Greek I UGRD 5
Introduces journalism, literary prose, and media. Students practice discussion and composition. Wi Qtr. 5 cl. Prereq: 104.

402 Advanced Modern Greek II UGRD 5
Completes the language sequence. Students develop translation skills and continue practicing conversation and composition.

628 Byzantine Greek Prose UGRD 5
Reading and analysis of prose texts representative of major developments and trends in Byzantine Greek prose from the 4th to the 15th century.

651 Contemporary Greek Prose UGRD 5
Reading and analysis of short stories and novels representative of major developments and trends in Greek prose of the 19th and 20th centuries.

652 Contemporary Greek Poetry UGRD 5
Reading and analysis of short and longer poems representative of major developments and trends in Greek poetry of the 19th and 20th centuries.

321
693 Individual Studies UGRD 1-6
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-6
Group Studies.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 5 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

721 Studies in Modern Greek Literature UGRD 5
Advanced study of specific literary periods, figures, and/or topics, involving extensive reading and discussion of appropriate primary and secondary source materials.
Wi, Sp Qtrs. 4-5 cr. Prereq: 5 cr hrs of Modern Greek literature at the 600 level or equiv. Repeatable to a maximum of 15 cr hrs.

783H Honors Research UGRD 3-5
A program of research for each student which includes individual conferences and which culminates in an honors thesis or oral defense.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Approved candidacy for graduation with distinction, which includes faculty adviser and ASC Honors Committee approval of project, a minimum 3.50 G.P.A. ratio in the field of distinction, sr standing, and CHPR commensurate with honors program membership. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

811 Seminar in Modern Greek Studies GRAD 5
Intensive, in-depth exploration of a selected topic or issue in Modern Greek literature, criticism, or intellectual culture.
Wi, Sp Qtrs. 3-5 cr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

998 Research in Modern Greek GRAD 1-10
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

Molecular and Cellular Biochemistry

311 Fundamentals of Medical Biochemistry UGRD 5
Basic structures and interactions of biomolecules in health and disease. Relevant organic chemistry included. Topics essential to human nutrition, dietetics, clinical chemistry, nursing, premedical education.
Au Qtr. 3 1.5-hr cl. Prereq: Chem 102 or 122.

312 Fundamentals of Medical Biochemistry and Molecular Biology UGRD 5
A continuation of 311.
Wi Qtr. 3 1.5-hr cl. Prereq: 311.

641 Dental Biochemistry MED 4
Chemistry and metabolism of carbohydrates, lipids, and proteins; digestion and absorption; elements of nutrition as they relate to dentistry, especially mineral and bone metabolism.
Au Qtr. 4 cl. Prereq: Chem 252 and enrollment in college of Dentistry.

642 Dental Biochemistry MED 3
Continuation of 641.
Wi Qtr. 3 cl. Prereq: 641 and enrollment in College of Dentistry.

733 Human Genetics GRAD 3
The principles of human genetics covering mapping of disease genes, defects causing human disease, the cloning of disease genes, gene therapy and transgenes.
Sp Qtr. 3 cl. and cptr time arr. Prereq: Mol Gen 500 or 606 or equiv. Not open to students with credit for Mol Gen 733 or Pathol 733. Cross-listed in Pathology and Mol Gen.

761 Advanced Biochemistry: Proteins GRAD 3
An advanced treatment of protein biochemistry.
Au Qtr. 3 cl. Prereq: Biochem 614 and Chem 253, 255 and 521; or equivs. Not open to students with credit for Biochem 761, or Chem 761. Cross-listed in Biochemistry and Chemistry.

762 Advanced Biochemistry: Enzymes UGRD 3
An advanced treatment of enzymology.
Au Qtr. 2.5-hr cl. Prereq: Biochem 615 and Chem 253, 255, and 521; or equivs. Not open to students with credit for Biochem 762, or Chem 762. Cross-listed in Biochemistry and Chemistry.

763 Advanced Biochemistry: Membranes and Bioenergetics UGRD 2
An advanced treatment of membranes and bioenergetics.
Sp Qtr. 2 cl. Prereq: Biochem 615 and Chem 253, 255, and 521; or equivs. Not open to students with credit for Biochem 763 or Chem 763. Cross-listed in Biochemistry and Chemistry.

764 Advanced Biochemistry: Integration of Metabolism GRAD 3
An advanced treatment of the regulation and integration of mammalian biochemical systems.
Sp Qtr. 3 cl. Prereq: Chem 253, 255, 521 and Biochem 615 or equivs. Not open to students with credit for Biochem 764 or Chem 764. Cross-listed with Biochemistry and Chemistry.

765 Advanced Biochemistry: Physical Biochemistry UGRD 2
Diffusion, electrophoresis, sedimentation, light and x-ray scattering, x-ray and neutron diffraction, fluorescence, polarimetry, mass spectroscopy, and nuclear magnetic resonance.
Wi Qtr. 2 cl. Prereq: Chem 253, 255, 521 and Biochem 615; or equivs. Not open to students with credit for Biochem 765 or Chem 765. Cross-listed with Biochemistry and Chemistry.

766 Advanced Biochemistry: Nucleic Acid Chemistry and Structure UGRD 2
Reactions, synthesis, and conformations of nucleosides, nucleotides, oligonucleotides and polynucleotides.
Sp Qtr. 2 cl. Prereq: Chem 253, 255, 521, and Biochem 615; or equivs. Not open to students with credit for Biochem 766 or Chem 766. Cross-listed with Biochemistry and Chemistry.

781 Animal Models of Human Disease GRAD 1
Transgenic and knockout mouse technology and examples of models for genetic diseases with each pattern of inheritance.
Wi Qtr. 1 cl. Prereq: Mol Gen 701 or IBGP 701.

785 DNA Microarray Technology MED 2
This course will cover all the major areas of microarray technology including theory, target preparation and labeling, manufacturing methods, imaging and data analysis/mining.
Sp Qtr. 2 hr cl. Prereq: Biochem 511 or equiv.

793 Individual Studies UGRD 2-16
Qualified students can conduct a minor investigation under the direction of a faculty member.
Su, Au, Wi, Sp Qtrs. Prereq: A previous biochemistry course and permission of instructor. Repeatable to a maximum of 16 cr hrs. This course is graded S/U.

823 Control of Cell Growth and Proliferation GRAD 3
Role of cell surface receptors, cytoplasmic signaling molecules, transcription factors and chromatin remodeling complexes in the regulation of cell growth and in mechanisms causing cancer.
* Wi Qtr. 2.5-hr cl. Prereq: 1 yr of grad biochem or permission of instructor.

824 Enzymology GRAD 3
Selected topics in structure/function relationships, mechanisms of catalysis, kinetics, and metabolic interrelations of enzyme systems.
* Sp Qtr. 3 cl. Prereq: 1 yr of grad biochem or permission of instructor.

828 Signaling Pathways and Human Disease GRAD 3
Current concepts of biological signaling pathways and the biochemical defects in these pathways that lead to cardiovascular disease, cancer, diabetes and neurodegenerative diseases in humans.
* Sp Qtr. 2.5-hr cl. Prereq: 1 yr of grad biochemistry or permission of instructor.
Course is offered every other year.

831 Eukaryotic Genome: Structure and Expression GRAD 3
Current research on the structure and expression of genes in higher eukaryotes.
Wi Qtr. 3 cl. Prereq: Biochem 702 or equiv. Not open to students with credit for Biochem 781. Repeatable to a maximum of 6 cr hrs. Cross-listed in Biochemistry and Molecular Genetics.

840 Practical Macromolecular Crystallography GRAD 3
Practical aspects of using x-ray crystallography to determine the three dimensional structures of macromolecules.
Sp Qtr. 2.5-hr cl. Prereq: One yr of grad biochem or permission of instructor.

850 Seminar GRAD 1-2
Seminar.
Prereq or conc: One yr of biochem. Repeatable. This course is graded S/U.
880.07 Gene Expression: Post-Transcriptional Control
Intensive study of problems in graduate fields of specialization
Sp Qtr. 3 cl. Prereq: 10 grad cr hrs or permission of instructor. Not open to students with credit for Mol Gen 880.07 or Vet Biost 880.07. Cross-listed in Molecular Genetics and Veterinary Biosciences.

999 Research GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

**Molecular Genetics**

220H Introduction to Molecular Life Sciences: Research Opportunities and Career Options
Faculty presentations and facility tours to introduce first- and second-year students to research opportunities in molecular life sciences.
Au Qtr. 1 cl. Prereq: Biology 113 or H115. This course is graded S/U.

500 General Genetics UGRD 5
The principles of genetics, including molecular genetics, transmission genetics of prokaryotes and eukaryotes, developmental and non-chromosomal genetics, and the genetics and evolution of populations.
Su, Au, Wi, Sp Qtrs. 3 1.5-hr cl. Prereq: Biology 101 or 113 or H115, plus 5 additional cr hrs in biological sciences.

500H General Genetics UGRD 6
The principles of genetics, including transmission, molecular, developmental and population genetics; class presentations and laboratory.
^ Au Qtr. 3 1.5-hr cl, 1.3-hr lab. Prereq: Biology 101 or 113 or H115, plus 5 additional cr hrs in biological sciences.

503 Molecular Genetics Writing Project UGRD 2
Practice in searching, reading, and analyzing literature in molecular genetics, and in written and oral presentation.
Su, Au, Wi, Sp Qtrs. 2 cl. Open to mol gen majors only or by permission of instructor.

591 DNA Finger Printing Workshops in Columbus Public Schools
A service learning course whereby undergraduates mentor high school students in molecular biology workshops.
Sp Qtr. Repeatable to a maximum of 6 cr hrs. Undergraduates present workshops in Columbus Public Schools. Cross-listed in Biochemistry and Microbiology. Service learning course. This course is graded S/U.

601 Eukaryotic Molecular Genetics Laboratory UGRD 5
Current laboratory techniques used in the genetic and molecular analyses of Saccharomyces cerevisiae and Drosophila.
Wi Qtr. 1 cl, 3-3.5-hr labs. Prereq: Biochem 511 or permission of instructor.

602 Eukaryotic Cell and Developmental Biology Laboratory UGRD 5
Laboratory course emphasizing recent advances in techniques and methods central to cell biology and developmental biology of eukaryotes.
Sp Qtr. 2 cl, 2.4-hr labs. Prereq: Biochem 511 or permission of instructor.

605 Molecular Genetics I UGRD 4
Hereditary information as sequence information; DNA replication, transcription, and translation; analysis and manipulation of genes at the molecular level; axenic culture, sexual reproduction in eukaryotes.
Wi Qtr. 3 1.5-hr cl, 1-hr recitation. Prereq: Math 152. Not open to students with credit for 500.

606 Molecular Genetics II UGRD 4
Sexual reproduction in prokaryotes, viruses and organelles; molecular mechanisms of DNA replication, repair, mutation, recombination, and expression; genome structure; molecular evolution.
Sp Qtr. 3 1-hr cl, 1.1-hr recitation. Prereq: 500 or 605.

607 Cell Biology UGRD 3
Analysis of the structure and function of cells and their components stressing molecular genetic and biochemical approaches.
Au Qtr. 3 1-hr cl. Prereq: 500 or 606.

607H Honors Cell Biology UGRD 4
Analysis of the structure and function of cells and their components stressing molecular genetic and biochemical approaches.
Au Qtr. 3 1-hr cl. Prereq: 500 or 606.

608 Genes and Development UGRD 3
Analysis of development using modern genetic approaches.
Wi Qtr. 3 1-hr cl. Prereq: 500 or 606.

622 Plant Molecular Biology UGRD 4
An in-depth survey of molecular biology of plants with emphasis on current research topics.
Wi Qtr. 3 cl, 1.2-hr discussion. Prereq: 500 and Biochem 511; or 605; or permission of instructor. Not open to students with credit for 632 or PCMB 622. Cross-listed in Plant Cellular and Molecular Biology.

632 Insect Molecular Genetics UGRD 3
Structure, genetics and methodology of insect genes and genomes.
Wi Qtr. Prereq: Biochem 511, Mol Gen 500 or equiv. Cross-listed in Entomology.

640 The Genetic Basis of Evolution UGRD 5
The modern theory of evolution and its underlying genetic basis.
Sp Qtr. 3 1.5-hr cl. Prereq: 500 or 606 or equiv. Not open to students with credit for EEB 640. Cross-listed in Evolution, Ecology, and Organismal Biology.

650 Analysis and Interpretation of Biological Data I UGRD 5
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.
Au Qtr. 3 1-hr lec, 1 1-hr rec, 1 hr arr for computer analysis of data. Prereq: Math 150 or equiv. and 15 cr hrs at 300-level or higher in a dept of agriculture or in biological sciences.

660 Integrated Molecular and Cellular Biology UGRD 5
for Non-Biologists I
Overview of molecular and cellular biology, focusing on molecular biology, biochemistry and genetics of single cells.
Au Qtr. Prereq: Bio 101 or permission of instructor. Not open to students with credit for Mol Gen 500 or 605 or 606.

661 Integrated Molecular and Cellular Biology UGRD 5
for Non-Biologists II
Overview of molecular and cellular biology focuses on tissues, organisms and their interactions.
Wi Qtr. Prereq: 660. Not open to students with credit for 500 or 605 or 606.

693 Individual Studies GRAD 2-10
Individual work in the field of the chosen problem.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 35 cr hrs. This course is graded S/U.

699 Undergraduate Research in Molecular Genetics UGRD 1-15
Undergraduate research in molecular genetics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 35 cr hrs. This course is graded S/U.

700 Systems of Genetic Analysis UGRD 3
Analysis of several major systems used in modern experimental genetics.
Au Qtr. 3 1-hr cl. Prereq: 606 or equiv.

701 Molecular Genetics: DNA Transactions UGRD 3
Survey of experimental methods of molecular genetics and their application to the elucidation of pathways of DNA replication, mutation, repair, and recombination.
Au Qtr. 3 cl. Prereq: 500 or 606, Biochem 511 or equiv; and 10 additional cr hrs in the bio sci above the 300 level.

705 Advances in Cell Biology UGRD 3
An advanced study of selected key areas of research in eukaryotic cell biology.
Wi Qtr. 3 1-cl. Prereq: 607 and 701 or equiv.

711 Molecular Evolution UGRD 3
Evolution and population genetics as seen at the molecular level: phenomena, concepts, methods of study, and implications for molecular biology and other disciplines.
^ Wi Qtr. 3 cl. Prereq: 500 or 606, and 640 or 701 or EEB 640 or EEB 640 or equivs or permission of instructor. Not open to students with credit for EEB 711. Cross-listed in Evolution, Ecology, and Organismal Biology.

715 Developmental Genetics UGRD 3
A study of the regulation of developmentally significant genes and cellular interaction involved in differentiation and pattern formation in Drosophila and metazoans.
Sp Qtr. 3 1-cl. Prereq: 608, 700, and 701 or equiv.

733 Human Genetics UGRD 3
The principles of human genetics covering mapping of disease genes, defects causing human disease, the cloning of disease genes, gene therapy and transgenes.
Sp Qtr. 3 cl. Prereq: 500 or 606 or equiv. Not open to students with credit for MolBioch 733 or Pathol 733. Cross-listed in MolBioch and Pathol.

734 Cancer Genetics: High Throughput Technologies UGRD 4
An introduction to the high throughput technologies and bioinformatics in Cancer Genetics.
^ Sp Qtr. 2 2-hr cl. Prereq: Biochem 511 or equiv. Not open to students with credit for MVIMG 734. Offered every two years. Cross-listed in Molecular Virology, Immunology and Medical Genetics.

323
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<td>Molecular Biology of Animal and Plant Viruses</td>
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<td>Special Topics in Molecular Genetics</td>
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<td>801</td>
<td>Research Opportunities in Molecular Genetics</td>
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<td>Molecular Genetics Laboratory Rotations</td>
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<td>Eukaryotic Genome: Structure and Expression</td>
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<td>Research in Genetics</td>
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**Molecular Virology, Immunology, and Med Genetics**

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<td>610</td>
<td>Fundamental Concepts in Medical Microbiology</td>
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<td>647</td>
<td>Eukaryotic Pathogens</td>
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<td>Individual Studies</td>
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<td>Group Studies</td>
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<td>701</td>
<td>Cellular and Molecular Immunology</td>
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<td>727</td>
<td>Epidemiologic Methods for Medical Genetics</td>
<td>GRAD</td>
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<tr>
<td>734</td>
<td>Cancer Genetics: High Throughput Technologies</td>
<td>MED</td>
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747 Molecular Biology of Eucaryotic Microbial Pathogens GRAD 3
Antigenic variation, composition of non-mammalian surfaces, responses to environmental signals, mechanisms leading to damage and survival within the host; emphasis on yeast and parasitic protozoa.

750 Principles of Neuroimmunology MED 3
Research and clinical applications of inflammatory processes within the central nervous system with special emphasis on neurodegenerative disorders, autoimmune disease and neutrotrauma (e.g., spinal injury).

754 Fundamentals of Molecular Virology GRAD 5
Primary emphasis is on molecular biology of animal/human viruses. Covers the strategy of virus replication with special emphasis on the molecular biology of genomic replication and virus gene expression.

757 Diagnostic and Clinical Virology MED 5
Laboratory procedures used for the diagnosis of viral infections.

793.01 Individual Studies: Student Seminar in Molecular Virology, Immunology, and Medical Genetics GRAD 1
Student and post-doctoral presentations of research.

793.06 Individual Studies: Problems in Molecular Virology, Immunology and Medical Genetics MED 3-18
Problems in Molecular Virology, Immunology and Medical Genetics.

793.07 Individual Studies: Diagnostic and Clinical Microbiology MED 6-18
Diagnostic and Clinical Microbiology.

801 Selected Topics in Advanced Immunology MED 3
Specific topics will vary from year to year in the general areas of neuroimmunology, molecular immunology, immune regulation, and cellular immunity.

804 Instrumentation and Techniques in Molecular Virology, Immunology, and cancer genetics.

814.01 Current Topics Molecular Virology GRAD 1
Discussion of current literature in the field of molecular virology.

814.02 Current Topics Immunology GRAD 1
Discussion of current literature in the field of immunology.

814.03 Current Topics Human Genetics GRAD 1
Discussion of current literature in the field of human genetics.

814.04 Current Topics in Microbial Pathogenesis GRAD 1
Discussion of current literature in the field of microbial pathogenesis.

831 Eukaryotic Genome: Structure and Expression GRAD 3
Current research on the structure and expression of genes in higher eukaryotes.

833 Current Immunological Techniques GRAD 4
Current techniques in cellular and humoral immunity as applicable in research conducted by students.

841 Viral Pathogenesis and Oncogenesis GRAD 5
Cellular, immunological and molecular mechanisms involved with virus pathogenesis in animals and humans.

845 History of Immunology GRAD 3
To understand immunology and pertinent research, students must understand its history so to appreciate where the field of immunology started, the progress and discoveries made.

847 Cellular Mechanisms and Pathogenesis of Inflammation GRAD 3
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.

850 Advanced Seminar in Molecular Virology, Immunology and Medical Genetics GRAD 3
Advanced seminar topics related to molecular virology, immunology, pathogenesis or genetics.

874 Advanced Topics in Molecular Biology of Eukaryotes GRAD 3
Graduate level course to highlight advanced topics in molecular biology of eukaryotes particularly as it relates to cancer.
audition scores indicate the need for systematic instruction to prepare for 201: Piano.

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Piano.

Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

Developmental Biology

999 Research in Molecular Virology, Immunology and Medical Genetics

Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing in mvng. Repeatable. This course is graded S/U.

Molecular, Cellular, and Developmental Biology

693 Individual Studies

Individual research and problem solving in the field of molecular, cellular, and developmental biology.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 35 cr hrs. This course is graded S/U.

697 Study at a Foreign Institution

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of program director. This course is Progress (PR) graded. Repeatable to a maximum of 45 cr hrs. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

800 Seminar in Molecular, Cellular, and Developmental Biology

Seminars will be presented by faculty, graduate students, and outside speakers.
Au, Wi, Sp Qtrs. 1 cr. Prereq: Grad standing. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

890 Interdepartmental Seminar in Molecular, Cellular, and Developmental Biology

Students will present oral reports and lead discussion on research progress in specific areas of molecular, cellular, and developmental biology.
Au, Wi, Sp Qtrs. 1-2 hr. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

999 Research in Molecular, Cellular, and Developmental Biology

Research for thesis and dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Music

101.01 Applied Music for Nonmajors Group Instruction I: Beginning Piano

Group instruction for students who have had no previous piano study.

9 Open only to non-music majors. VPA Admis Cond courses.

101.02 Applied Music for Nonmajors Group Instruction I: Voice

Voice.
Open only to non-music majors. VPA Admis Cond courses. Repeatable to a maximum of 4 cr hrs.

101.37 Applied Music for Nonmajors Group Instruction I: Guitar

Introduction course in guitar for nonmusic major. Includes chording, strumming and melodic playing.

9 Su, Au, Wi, Sp Qtrs. 2 cl, 2 contact hrs. Open only to non-music majors. VPA Admis Cond course. Repeatable to a maximum of 4 cr hrs. May be used towards the minor in music.

101.41 Applied Music for Nonmajors Group Instruction I: Secondary Flute

Proper technique, standard repertoire, and play in flute ensemble.
Prereq: Intermediate level flute skills. Open only to non-music majors. VPA Admis Cond courses. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

102.01 Applied Music for Nonmajors Group Instruction II: Piano

Piano.
Prereq: 101.01. Open only to non-music majors. VPA Admis Cond courses. Repeatable to a maximum of 4 cr hrs.

102.02 Applied Music for Nonmajors Group Instruction II: Voice

Voice.
Prereq: 101.02. Open only to non-music majors. VPA Admis Cond courses.

110.11 Applied Music (Prospective Music Majors): Piano

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Piano.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.12 Applied Music (Prospective Music Majors): Jazz Piano

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Jazz Piano.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major.

110.21 Applied Music (Prospective Music Majors): Voice

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Voice.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major.

110.31 Applied Music (Prospective Music Majors): Violin

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Violin.
Prereq: Audition and approval of the director of the School of Music.

110.32 Applied Music (Prospective Music Majors): Viola

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Viola.
Prereq: Audition and approval of the director of the School of Music.

110.33 Applied Music (Prospective Music Majors): Cello

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Cello.
Prereq: Audition and approval of the director of the School of Music.

110.34 Applied Music for Nonmajors Group Instruction II: Double Bass

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Double Bass.
Prereq: Audition and approval of the director of the School of Music.

110.35 Applied Music for Nonmajors Group Instruction II: Guitar

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Guitar.
Prereq: Audition and approval of the director of the School of Music.

110.41 Applied Music for Nonmajors Group Instruction II: Flute

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Flute.
Prereq: Audition and approval of the director of the School of Music.

110.42 Applied Music for Nonmajors Group Instruction II: Oboe

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Oboe.
Prereq: Audition and approval of the director of the School of Music.

110.43 Applied Music for Nonmajors Group Instruction II: Clarinet

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Clarinet.
Prereq: Audition and approval of the director of the School of Music.

110.44 Applied Music for Nonmajors Group Instruction II: Bass Clarinet

An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Bass Clarinet.
Prereq: Audition and approval of the director of the School of Music.

326
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Saxophone.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.46 Applied Music for Nonmajors Group UGRD 2
Instruction II: Bassoon
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Bassoon.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.47 Applied Music for Nonmajors Group UGRD 2
Instruction II: Jazz Saxophone
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Jazz Saxophone.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.51 Applied Music for Nonmajors Group UGRD 2
Instruction II: Horn
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Horn.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.52 Applied Music for Nonmajors Group UGRD 2
Instruction II: Trumpet
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Trumpet.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.53 Applied Music for Nonmajors Group UGRD 2
Instruction II: Trombone
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Trombone.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.54 Applied Music for Nonmajors Group UGRD 2
Instruction II: Euphonium
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Euphonium.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.55 Applied Music for Nonmajors Group UGRD 2
Instruction II: Tuba
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Tuba.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.56 Applied Music for Nonmajors Group UGRD 2
Instruction II: Jazz Trumpet
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Jazz Trumpet.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.57 Applied Music for Nonmajors Group UGRD 2
Instruction II: Jazz Trombone
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Jazz Trombone.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.71 Applied Music for Nonmajors Group UGRD 2
Instruction II: Percussion
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Percussion.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.72 Applied Music for Nonmajors Group UGRD 2
Instruction II: Jazz percussion
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Jazz percussion.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.91 Applied Music for Nonmajors Group UGRD 2
Instruction II: Harp
An elementary applied music course restricted to prospective music majors whose audition scores indicate the need for systematic instruction to prepare for 201: Harp.
Prereq: Audition and approval of the director of the School of Music. Does not count toward a music major. Repeatable to a maximum of 4 cr hrs.

110.98 Applied Music for Nonmajors Group UGRD 2
Instruction II: variable subject
An elementary applied music course restricted to prospective music majors; taken as a companion course to 110.xx when needed.

121 Elementary Music Theory and Aural Training
An introduction to the fundamentals of music, music reading, and aural musicianship.
Au Qtr. 5 cl. Not open for credit to music majors. May not be substituted for 270. VPA Admis Cond course.

200.11 Applied Music (Secondary): Piano UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Piano.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Prereq: 266.01. Repeatable to a maximum of 12 cr hrs.

200.12 Applied Music (Secondary): Jazz Piano UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Jazz Piano.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.21 Applied Music (Secondary): Voice UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Voice.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.31 Applied Music (Secondary): Violin UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Violin.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.32 Applied Music (Secondary): Viola UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Viola.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.33 Applied Music (Secondary): Cello UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Cello.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.34 Applied Music (Secondary): Double Bass UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Double Bass.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.35 Applied Music (Secondary): Guitar UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Guitar.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.
200.36 Applied Music (Secondary): Jazz Bass UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Jazz Bass.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.37 Applied Music (Secondary): Jazz Guitar UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Jazz Guitar.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.41 Applied Music (Secondary): Flute UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Flute.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.42 Applied Music (Secondary): Oboe UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Oboe.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.43 Applied Music (Secondary): Clarinet UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Clarinet.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.44 Applied Music (Secondary): Bass Clarinet UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Bass Clarinet.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.45 Applied Music (Secondary): Saxophone UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Saxophone.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.46 Applied Music (Secondary): Bassoon UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Bassoon.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.47 Applied Music (Secondary): Jazz Saxophone UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Jazz Saxophone.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.51 Applied Music (Secondary): Horn UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Horn.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.52 Applied Music (Secondary): Trumpet UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Trumpet.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.53 Applied Music (Secondary): Trombone UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Trombone.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.54 Applied Music (Secondary): Euphonium UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Euphonium.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.55 Applied Music (Secondary): Tuba UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Tuba.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.56 Applied Music (Secondary): Jazz Trumpet UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Jazz Trumpet.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.57 Applied Music (Secondary): Jazz Trombone UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Jazz Trombone.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.58 Applied Music (Secondary): Jazz Percussion UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Jazz Percussion.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.71 Applied Music (Secondary): Percussion UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Percussion.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.72 Applied Music (Secondary): Jazz Percussion UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Jazz Percussion.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

200.73 Applied Music (Secondary): Bass Percussion UGRD 1-2
Fundamental applied music instruction in areas other than a student's major or principal area: Bass Percussion.
Prereq: Music major; open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 12 cr hrs.

201.11 Applied Music (Principal): Piano UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading knowledge of music literature: Piano.
Prereq: Passing of School of Music entrance audition and test. Required of students in all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors. This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.12 Applied Music (Principal): Jazz Piano UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Piano.
Prereq: Passing of School of Music entrance audition and test. Required of students in all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors. This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.13 Applied Music (Principal): Voice UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading knowledge of music literature: Voice.
Prereq: Passing of School of Music entrance audition and test. Required of students in all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors. This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.31 Applied Music (Principal): Violin UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading knowledge of music literature: Violin.
Prereq: Passing of School of Music entrance audition and test. Required of students in all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors. This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.32 Applied Music (Principal): Viola UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading knowledge of music literature: Viola.
Prereq: Passing of School of Music entrance audition and test. Required of students in all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors. This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.33 Applied Music (Principal): Cello UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading knowledge of music literature: Cello.
Prereq: Passing of School of Music entrance audition and test. Required of students in all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors. This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.34 Applied Music (Principal): Bass UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading knowledge of music literature: Bass.
Prereq: Passing of School of Music entrance audition and test. Required of students in all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors. This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

328
201.33 Applied Music (Principal): Cello
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Cello.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.34 Applied Music (Principal): Double Bass
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Double Bass.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.36 Applied Music (Principal): Jazz Bass
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Jazz Bass.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.37 Applied Music (Principal): Jazz Guitar
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Jazz Guitar.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.41 Applied Music (Principal): Flute
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Flute.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.42 Applied Music (Principal): Oboe
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Oboe.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.43 Applied Music (Principal): Clarinet
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Clarinet.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.44 Applied Music (Principal): Bass Clarinet
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Bass Clarinet.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.45 Applied Music (Principal): Saxophone
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Saxophone.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.46 Applied Music (Principal): Bassoon
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Bassoon.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.47 Applied Music (Principal): Jazz Saxophone
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Jazz Saxophone.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.51 Applied Music (Principal): Horn
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Horn.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.52 Applied Music (Principal): Trumpet
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Trumpet.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.53 Applied Music (Principal): Trombone
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Trombone.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.54 Applied Music (Principal): Euphonium
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Euphonium.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.55 Applied Music (Principal): Tuba
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Tuba.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.56 Applied Music (Principal): Jazz Trombone
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Jazz Trombone.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.57 Applied Music (Principal): Jazz Percussion
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Jazz Percussion.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.71 Applied Music (Principal): Percussion
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Percussion.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
This course available for EM credit. Repeatable to a maximum of 8 cr hrs.

201.91 Applied Music (Principal): Harp
UGRD 2
Instruction in applied music to develop musicianship, performance, and a wide reading
knowledge of music literature: Harp.
Prereq: Passing of School of Music entrance audition and test. Required of students in
all music curricula, except BA, to a minimum of 6 qtr hrs. Open only to music majors.
These courses are available for EM credit. Repeatable to a maximum of 8 cr hrs.

203.01 University Choirs: Chorale
UGRD 1
A selected group of mixed voices which performs an extensive repertoire in concerts
both on and off campus.
4 or more hrs rehearsal each wk. Prereq: Admission by audition and permission of
instructor. VPA Admis Cond course. Repeatable to a maximum of 18 cr hrs.

203.02 University Choirs: Symphonic Choir
UGRD 1
Symphonic Choir is a concert organization singing a variety of literature.
4 or more hrs rehearsal each wk. Prereq: Admission by audition only. VPA Admis
Cond course. Repeatable to a maximum of 18 cr hrs.

203.03 University Choirs: University Chorus
UGRD 1
Oratorio and large choral works are studied and performed.
3 or more hrs rehearsal each wk. Prereq: Admission by audition only. VPA Admis
Cond course. Repeatable to a maximum of 18 cr hrs.

203.04 University Choirs: Men's Glee Club
UGRD 1
Study and performance of choral literature for men's voices.
3 or more hrs rehearsal each wk. Prereq: Admission by audition and permission of
director. Membership in this concert group is open to all men students in the
University by audition only. Repeatable to a maximum of 18 cr hrs.
203.05 University Choirs: Women's Glee Club UGRD 1
Study and performance of choral literature for women's voices.
3 or more hrs rehearsal each wk. Prereq: Admission by audition and permission of director. Membership in this concert group is open to all women students in the University by audition. VPA Admis Cond course. Repeatable to a maximum of 18 cr hrs.

204.02 University Bands: University Wind Symphony UGRD 1
Preparation and performance of traditional and contemporary literature for symphonic band.
Open to all students by audition and permission of conductor. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

204.03 University Bands: University Symphonic Band UGRD 1
Preparation and performance of traditional and contemporary literature for symphonic band.
VPA Admis Cond courses. Open to all students by audition and permission of conductor. Repeatable to a maximum of 18 cr hrs.

204.04 University Bands: University Band UGRD 1
Offers the nonmusic major an opportunity to enjoy creating music with limited performance demands.
VPA Admis Cond courses. Open to all students with prior high school instrumental experience; no formal audition required. Instruments available if needed. Repeatable to a maximum of 18 cr hrs.

204.05 University Bands: University Repertory Band UGRD 1-3
Designed as an educational band literature laboratory, sight-reading and discussing approximately 24 band works each quarter.
Wi, Sp Qtr. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

204.06 University Bands: Collegiate Winds UGRD 1
Preparation and performance of traditional, contemporary, and educational literature for concert band. Open by audition.
2 1.5-hr cl. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

205.01 Athletic Bands: University Marching Band UGRD 2
The University Marching Band is a selected group of brass and percussion players which performs at football games and rallies during Autumn Quarter.
Au Qtr. 6 or more hrs rehearsal each wk. Prereq: Audition by audition and permission of director. No audit. VPA Admis Cond course. Repeatable to a maximum of 10 cr hrs.

205.02 Athletic Bands: Athletic Band UGRD 2
Athletic band provides spirited music for various sporting events (men's and women's basketball, spring football game), as well as several concerts.
Au, Wi, Sp Qtr. Open to all students with prior high school instrumental experience, no formal audition required. including cr hrs earned in 105. Some instruments may be available if needed. VPA Admis Cond course. Repeatable to a maximum of 18 cr hrs.

206.01 Jazz Ensembles: University UGRD 1
A selected group devoted to playing, arranging, and rehearsing with emphasis on contemporary jazz literature.
Au, Wi, Sp Qtrs. 4 or more hrs rehearsal each wk. Prereq: Permission of instructor. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

206.02 Jazz Ensembles: Laboratory UGRD 1
A selected group devoted to the study and performance of music in various styles of jazz.
Au, Wi, Sp Qtrs. 3 or more hrs rehearsal each wk. Prereq: Permission of instructor. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

206.03 Jazz Ensembles: Workshop UGRD 1
A selected group devoted to the study and performance of music in various jazz, rock, blues, and pop styles.
Wi, Sp Qtrs. 3 or more hrs rehearsal each wk. Prereq: Permission of instructor. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

207.01 Percussion Ensemble: University Percussion Ensemble UGRD 1
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.
2 or more hrs rehearsal each wk. Prereq: Permission of instructor. including cr hrs earned in 195. VPA Admis Cond course. Repeatable to a maximum of 18 cr hrs.

207.02 Percussion Ensemble: Steel Pan Ensemble UGRD 1
A laboratory and performance experience on authentic steel pans, concentrating on traditional musics of Trinidad, as well as contemporary arrangement.
Au, Wi, Sp Qtrs. 2 1.5-hr rehearsals. Prereq: Permission of instructor. including cr hrs earned in 192. Repeatable to a maximum of 18 cr hrs.

208.01 Small Ensembles: Piano UGRD 1
Piano.
Prereq: Admission by audition and permission of instructor. including cr hrs earned in 199.01. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

208.02 Small Ensembles: Voice UGRD 1
Voice.
Prereq: Admission by audition and permission of instructor. including cr hrs earned in 199.02. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

208.03 Small Ensembles: Strings UGRD 1
Strings.
Prereq: Admission by audition and permission of instructor. including cr hrs earned in 199.03. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

208.04 Small Ensembles: Woodwinds UGRD 1
Woodwinds.
Prereq: Admission by audition and permission of instructor. including cr hrs earned in 199.04. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

208.05 Small Ensembles: Brass UGRD 1
Brass.
Prereq: Admission by audition and permission of instructor. including cr hrs earned in 199.05. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

208.07 Small Ensembles: Percussion UGRD 1
Percussion.
Prereq: Admission by audition and permission of instructor. including cr hrs earned in 199.07. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

208.15 Small Ensembles: Early Music Ensemble UGRD 1
Early Music Ensemble.
Au, Wi Qtr. Prereq: Admission by audition and permission of instructor. including cr hrs earned in 199.01. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

208.21 Small Ensembles: Slavic Performing Ensemble UGRD 1
Slavic Performing Ensemble.
Wi, Sp Qtrs. Prereq: Admission by audition and permission of instructor. including cr hrs earned in 199.21. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

208.40 Small Ensembles: Jazz Combos UGRD 1
Small groups devoted to the study and performance of music in the various jazz combo styles.
3 or more hrs rehearsal each wk. Prereq: Admission by audition and permission of instructor. Prereq: Permission of instructor. including cr hrs earned in 196.04. VPA Admis Cond courses. Repeatable to a maximum of 18 cr hrs.

209 Jazz Improvisation I UGRD 3
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.
Wi Qtr. 3 cl. Prereq: 221. This course is available for EM credit.

210 Jazz Improvisation II UGRD 3
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.
Sp Qtr. 3 cl. Prereq: 209. This course is available for EM credit.

211 Jazz Improvisation III UGRD 3
Continuation of 210; technique development utilizing fourth patterns; concepts in modal and linear improvisations; increasing emphasis on post-bop literature; extensive practice in playing changes of bebop tunes.
Au Qtr. 3 cl. Prereq: 210.

212 Introduction to Phonetic Alphabet UGRD 2
Introduction to the International Phonetic Alphabet and its application to singing in foreign languages.
Wi Qtr. 3 cl. Prereq: Minimum of 2 cr hrs of applied study in voice or written permission of instructor.
216.01 University Orchestra: University Symphony UGRD 1
Orchestra
The University Orchestra is an 85-piece orchestra of full instrumentation devoted to the preparation of standard and modern literature; the group gives at least three concerts each year. 6 or more hrs rehearsal each wk. Prereq: Admission by audition and permission of director. Membership is open to all University students by audition. VPA Admis Conc course. Repeatable to a maximum of 18 cr hrs.

216.02 University Orchestra: First Year Orchestra UGRD 1
Rehearsal and performance experience for nonmusic majors who played an orchestral instrument in high school. 1-2-hr cl. Not open to music majors. Credit may count towards minor in music program. Repeatable to a maximum of 3 cr hrs.

216.11 Applied Music (Non major and minor): UGRD 2
Piano
Course provides fundamental studio instruction in piano for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.12 Applied Music (Non major and minor): UGRD 2
Jazz Piano
Course provides fundamental studio instruction in jazz piano for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.21 Applied Music (Non major and minor): UGRD 2
Voice
Course provides fundamental studio instruction in voice for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.31 Applied Music (Non major and minor): UGRD 2
Violin
Course provides fundamental studio instruction in violin for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.32 Applied Music (Non major and minor): UGRD 2
Viola
Course provides fundamental studio instruction in viola for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.33 Applied Music (Non major and minor): UGRD 2
Cello
Course provides fundamental studio instruction in cello for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.34 Applied Music (Non major and minor): UGRD 2
Double bass
Course provides fundamental studio instruction in double bass for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.35 Applied Music (Non major and minor): UGRD 2
Guitar
Course provides fundamental studio instruction classical guitar for non majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.36 Applied Music (Non major and minor): UGRD 2
Jazz bass
Course provides fundamental studio instruction in jazz bass for non-majors and minor Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.37 Applied Music (Non major and minor): UGRD 2
Jazz guitar
Course provides fundamental studio instruction in jazz guitar for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.41 Applied Music (Non major and minor): UGRD 2
Flute
Course provides fundamental studio instruction in flute for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.42 Applied Music (Non major and minor): UGRD 2
Oboe
Course provides fundamental studio instruction in oboe for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.43 Applied Music (Non major and minor): UGRD 2
Clarinet
Course provides fundamental studio instruction in clarinet for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.44 Applied Music (Non major and minor): UGRD 2
Bass clarinet
Course provides fundamental studio instruction in bass clarinet for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.45 Applied Music (Non major and minor): UGRD 2
Saxophone
Course provides fundamental studio instruction in saxophone for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.46 Applied Music (Non major and minor): UGRD 2
Bassoon
Course provides fundamental studio instruction in bassoon for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.47 Applied Music (Non major and minor): UGRD 2
Jazz saxophone
Course provides fundamental studio instruction in jazz saxophone for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.51 Applied Music (Non major and minor): UGRD 2
Horn
Course provides fundamental studio instruction in horn for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.52 Applied Music (Non major and minor): UGRD 2
Trumpet
Course provides fundamental studio instruction in trumpet for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.53 Applied Music (Non majors and minor): UGRD 2
Trombone
Course provides fundamental studio instruction in trombone for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.54 Applied Music (Non majors and minor): UGRD 2
Euphonium
Course provides fundamental studio instruction in euphonium for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.55 Applied Music (Non major and minor): UGRD 2
Tuba
Course provides fundamental studio instruction in tuba for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.56 Applied Music (Non major and minor): UGRD 2
Jazz trumpet
Course provides fundamental studio instruction in jazz trumpet for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.57 Applied Music (Non major and minor): UGRD 2
Jazz trombone
Course provides fundamental studio instruction in jazz trombone for non-majors and minors. Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.
216.71 Applied Music (Non major and minor): Percussion
Course provides fundamental studio instruction in percussion for non-majors and minors.
Au, Wi, Sp Qtr. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.72 Applied Music (Non major and minor): Jazz Percussion
Course provides fundamental studio instruction in jazz percussion for non-majors and minors.
Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

216.91 Applied Music (Non major and minor): Harp
Course provides fundamental studio instruction in harp for non-majors and minors.
Au, Wi, Sp Qtrs. Prereq: Non-major; permission of the instructor. Repeatable to a maximum of 6 cr hrs.

220 Introduction to Music Technology
Introduction to the use of technology in the practice and study of music.
Au, Wi, Sp Qtrs. 3 cl. Prereq: Passing placement tests.

221 Music Theory I
Elements of music and musical notation; analytical concepts and terminology; fundamentals of counterpoint and melody; extensive practice through written drill and creative projects.
Au, Wi Qtr. 3 cl. Prereq: Passing of placement tests. This course is available for EM credit.

222 Music Theory II
Principles of diatonic harmony, nonchordal melodic elements, and homophonic phrasing structures; extensive practice in part-writing, analysis, and creative application.
Wi, Sp Qtrs. 3 cl. Prereq: 221. This course is available for EM credit.

223 Music Theory III
Continuation of 222, including diatonic modulation and secondary dominant functions (emphasis on creative projects).
Su, Sp Qtrs. 3 cl. Prereq: 222. This course is available for EM credit.

224 Aural Training I
Training in aural musicianship and music reading: practical application through solfege, dictation and keyboard drill.
Au, Wi Qtr. 2-1 hr cl. Prereq: Passing placement test.

225 Aural Training II
A continuation of 224 introducing more challenging diatonic materials.
Wi, Sp Qtrs. 2 cl. Prereq: 221 and 224. This course is available for EM credit.

226 Aural Training III
A continuation of 225, with attention to harmonic, contrapuntal, and rhythmic problems.
Su, Sp Qtrs. 2 cl. Prereq: 225 and 226. This course is available for EM credit.

231 Jazz Theory
The forms and compositional techniques of jazz, including chord progression formulas, chord alteration, lead-sheet paraphrasing, counter-melody and bass-line construction, and creative application.
Au Qtr. 2 cl. Prereq: 222 and 225.

232 Jazz Keyboard Harmony
Designed to provide students with piano skills that directly relate to other jazz areas such as composition, arranging, and improvisation.
* Wi Qtr. 3 cl. Prereq: 231 and 261.01.

240 Music History I
The development of European art music from the earliest times through the 16th century.
Sp Qtr. 3 cl. 1-1 hr rec. Open only to music majors.

241 Music History II
The development of European and American art music from ca. 1600 to ca. 1780.
Au Qtr. 3 cl. 1-1 hr lab. Prereq: 240. Open only to music majors.

242 Music History III
The development of European and American art music from ca.1780 to ca.1900.
Wi Qtr. 3 cl. 1-1 hr lab. Prereq: 241.

243 Music History IV
The development of European and American art music in the 20th and 21st centuries.
Sp Qtr. 3 cl. 1-1 hr lab. Prereq: 242.

244 Survey of African and African-Derived Music in the Western World
An introduction to traditional African music and its role in the history and development of Afro-American music with its concomitant sociopolitical milieu.
Wi Qtr. 3 cl. Not open to students with credit for AA&KASI 244. Cross-listed in African-American and African Studies. VPA Admis Cond course.

250 Music Cultures of the World
A survey of musical cultures outside the Western European tradition of the fine arts.
Su, Au, Wi, Sp Qtrs. 5 cl. Not open to students with credit for 140. GEC arts and hums VPA and global focus course. VPA Admis Cond course.

251 The World of Classical Music
An introduction to the world of classical music and to its genres, composers, styles, societies and historical periods.
Au, Wi, Sp Qtrs. 5 cl. 251H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open for credit to music majors. Not open to students with credit for 141. H251: Sp Qtr (offered on the regional campuses only). A musical background is not required. E251 may be offered for honors embedded experience. GEC arts and hums VPA and western (non-US) course. VPA Admis Cond course.

252 History of Rock and Roll
The history and culture of rock and roll.
Su, Au, Wi, Sp Qtrs. 2 2-3 hr cl., 1-1 hr lab. Not open to students with credit for 142. GEC arts and hums VPA course.

261.01 Applied Music Methods and Materials I:
Piano.
Au Qtr. 2 cl. Prereq: Music major and prereq or concur: 221. Not open to keyboard majors. These courses are available for EM credit.

261.02 Applied Music Methods and Materials I:
Voice.
* Sp Qtr. 4 cl. Not open to voice majors. These courses are available for EM credit.

261.03 Applied Music Methods and Materials I:
Strings.
Au Qtr. 4 cl. These courses are available for EM credit.

261.05 Applied Music Methods and Materials I:
Brass.
Au Qtr. 4 cl. Not open to brass majors. These courses are available for EM credit.

261.07 Applied Music Methods and Materials I:
Percussion.
Wi, Sp Qtrs. 4 cl. These courses are available for EM credit.

261.11 Applied Music Methods and Materials I:
Basic Conducting Laboratory
Basic conducting skill development emphasizing pulse, rhythm and physical coordination.
Au, Wi Qtrs. 4 cl. Prereq: 223. These courses are available for EM credit.

261.35 Applied Music Methods and Materials I:
Guitar.
Wi Qtr. 3 cl. Prereq: 269. Open only to mus ed majors. Not open to music majors with guitar specializations. These courses are available for EM credit.

261.42 Applied Music Methods and Materials I:
Oboe.
Au, Wi, Sp Qtrs. 4 cl. 5-wk course. Prereq: 261.41 or 261.43. Limited to dept majors. These courses are available for EM credit.

261.46 Applied Music Methods and Materials I:
Bassoon.
Au, Wi, Sp Qtrs. 4 cl. 5-wk course. Prereq: 261.41 or 261.43. Limited to dept majors. These courses are available for EM credit.

261.99 Applied Music Methods and Materials I:
Wind, Strings, and Percussion
Functional knowledge of wind, strings, and percussion instruments.
Sp Qtr. 4 cl. Prereq: 170 Limited to dept majors; not open to instrumental majors. These courses are available for EM credit.

262.01 Applied Music Methods and Materials II:
Piano.
Wi Qtr. 2 cl. Prereq: Music major and 261.01. Not open to keyboard majors. These courses are available for EM credit.
262.02 Applied Music Methods and Materials II: UGRD 2
Voice
Voice.
* Au Qtr. 4 cl. Prereq: 261.02 Not open to voice majors. These courses are available for EM credit.

262.03 Applied Music Methods and Materials II: UGRD 2
Strings
Strings.
Wi Qtr. 4 cl. Prereq: 261.03. These courses are available for EM credit.

262.04 Applied Music Methods and Materials II: UGRD 2
Woodwinds
Pedagogical and performance techniques for flute, clarinet, and saxophone.
Wi, Sp Qtrs. 4 cl. Prereq: Music major. These courses are available for EM credit.

262.05 Applied Music Methods and Materials II: UGRD 2
Brass
Brass.
Wi, Sp Qtrs. 4 cl. Prereq: 261.05. These courses are available for EM credit.

262.11 Applied Music Methods and Materials II: UGRD 2
Conducting (Instrumental)
Conducting instruction applied to band, orchestra and ensemble literature and performance.
Wi, Sp Qtrs. 4 cl. Prereq: 261.11. These courses are available for EM credit.

262.12 Applied Music Methods and Materials II: UGRD 2
Conducting (Choral)
Conducting instruction applied to choral literature and performance problems.
Wi Qtr. 4 cl. Prereq: 261.11. These courses are available for EM credit.

263.01 Applied Music Methods and Materials III: UGRD 1
Piano
Piano.
Sp Qtr. 2 cl. Prereq: Music major and 262.01 or equiv. These courses are available for EM credit.

263.02 Applied Music Methods and Materials III: UGRD 3
Voice
Vocal pedagogy, anatomy and physiology of the vocal mechanism.
Wi Qtr. 3 cl. Prereq: 262 or equiv. These courses are available for EM credit.

264.01 Applied Music Methods and Materials IV: UGRD 1
Piano
Piano.
Au Qtr. 2 cl. Prereq: 263.01 or equiv and passage of Level Change Proficiency by a score of 70 or better. These courses are available for EM credit.

264.02 Applied Music Methods and Materials IV: UGRD 2
Voice
Voice.
Sp Qtr. 4 cl. Prereq: 263 or equiv. These courses are available for EM credit.

265.01 Applied Music Methods and Materials V: UGRD 1
Piano
Functional keyboard skills for the music major, including sight-reading, harmonization, open score reading, accompanying and improvisation.
Wi Qtr. 2 cl. Prereq: Music major and 264.01 or equiv.

266.01 Applied Music Methods and Materials VI: UGRD 1
Piano
Functional keyboard skills for the music major, including sight-reading, harmonization, open score reading, accompanying and improvisation.
Sp Qtr. 2 cl. Prereq: Music major and 265.01 or equiv. Repeatable to a maximum of 2 cr hrs.

267 String Pedagogy for the Applied Studio UGRD 2
The organization, development, and pedagogy for the applied string instrument studio.
* Au Qtr. 1-2 hr cl, 5-hr lab. Prereq: 201 or permission of instructor.

268 Instrument Repair UGRD 1
Development of practical skills in identifying and correcting minor repair problems or band and orchestral instruments and their accessories.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 262.04, 262.05, and permission of instructor. Repeatable to a maximum of 2 cr hrs.

269 Orientation to Music Education UGRD 1
Overview of career options in music education; includes clinical/field observation in a variety of settings.
Sp Qtr. 1 cl, 1-2 hr lab. Prereq: Enrollment in School of Music. Not open to students with credit for 170.

270 Basic Experiences in Music UGRD 4
Basic and extended experiences in elements of music through singing, listening to music, playing instruments, and reading and creating music.
Au, Wi, Sp Qtrs. 5 cl. Prereq: Soph standing. This course is available for EM credit.

271 Introduction to Music Enterprise UGRD 3
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. Not open to students with credit for 591.

288 Bebop to Doowop to Hiphop: The Rhythm and Blues Tradition
Examines the aesthetic and historical evolution of Rhythm and Blues: Black music tradition including Bebop, Rock and Roll and Hiphop redefining American popular culture post WWII.
Su, Au, Wi, Sp Qtrs. 2.2-3 hr cl. Not open to students with credit for AfAm&SAS 288.

293.01 Individual Studies: Composition
Not open to students with credit for 591.
Au, Wi, Sp Qtrs. Prereq: Permission of coordinator. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

294 Group Studies UGRD 1-5
Supervised group studies of special problems.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.

297 Music Education Laboratory Ensemble UGRD 1
Laboratory ensembles which provide performance experience on secondary instruments.
Sp Qtr. 2 or more hrs rehearsal each wk. Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs. including cr hrs earned in 197. VPA Admin Cond course.

310 Introduction to Operatic Stage Techniques UGRD 2
An introductory course to stage movement techniques, character analysis, role preparation, as applied to the operatic stage.
Au Qtr. 3 cl. Prereq: 401.21 or 402.21 or permission of instructor.

311 Opera Scenes UGRD 2
A performance ensemble class devoted to the rehearsing and performing of opera scenes; basic rehearsal and performing techniques for operatic literature.
Au Qtr. 3 1.5-hr cl. Prereq: 310 or permission of instructor. Open only to music majors by audition. Repeatable to a maximum of 8 cr hrs.

312 Opera Performance UGRD 2
Instruction and experience in preparation for opera performance, including study of operatic literature and coaching of operatic roles.
Au, Wi, Sp Qtrs. 12 lab hrs. Prereq: 310 or permission of instructor. Admission by audition only. Repeatable to a maximum of 10 cr hrs.

330 Music Production and Reception: Institutions, Patterns, and Practices
Intermediate survey of the interrelationships of music, media, and commerce in society, emphasizing technology, economics, law, and the public purposes of the musical arts.
Wi Qtr. Prereq: 271 or permission of instructor.

341 American Popular Music UGRD 5
Historical survey of American popular music, with emphasis on the 20th century.
* Sp Qtr. 4 cl. Prereq: English 110 or 110.01 or 110.02 or 110.03 or equiv. Not open to students with credit for 252. E341 may be available for honors embedded experience at the regional campuses. GEC arts and hums VPA course.

342 Introduction to Opera UGRD 5
An introduction to the dramatic and musical conventions of opera.
* Wi Qtr. 4 cl, 1 3-hr lab hr. Prereq: English 110 or 111 or equiv. GEC arts and hums VPA course.

345.01 Topics: Music History UGRD 3-5
Topic varies; study of selected topics in the history of Western music.
Prereq for 345.01: 141 or 251. Not offered at the Columbus Campus. GEC arts and hums VPA course. Repeatable to a maximum of 15 cr hrs.

347 From Bach to Beethoven UGRD 3
The styles and genres of five eminent composers of the 18th century: Bach, Handel, Mozart, Haydn, and Beethoven.
* Wi Qtr. 3 cl. Prereq: English 110 or 111 or equiv. GEC arts and hums VPA course.

348 Music on the Move in a Globalized World UGRD 5
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.
Au Qtr. 2.2-3 hr cl. Prereq: English 110 or 110.01 or 110.02 or 110.03. GEC arts and hums VPA and international issues (non-western or global) course.

349 20th-Century Music UGRD 3
The main trends in Western art music from Debussy to the avant garde.
Wi Qtr. 3 cl. Prereq: English 110 or 111 or equiv. GEC arts and hums VPA course.

351 The World of Music UGRD 3
Introduction to music in non-Western cultures and societies and to the concepts, vocabulary, and methodology for dealing with this music.
Au Qtr. 3 cl, 1 1-hr lab. Prereq: Soph standing or higher. Not open to students with credit for 250. Open only to music majors.
352 Selected World Musics, Group I UGRD 3
An introduction to music in various Native American, African, and Eastern European cultures.
Wi Qtr. 3 cl. Prereq: 250 or 351. Not open to students with credit for 251.

353 Selected World Musics, Group II UGRD 3
An introduction to music in various South Indian, Indonesian, and Latin American cultures.
Wi Qtr. 3 cl. Prereq: 250 or 351. Not open to students with credit for 252.

370 Music for Elementary Teachers UGRD 3
Music literature and teaching aids for children, including singing, rhythmic, creative, and listening experiences, and their presentation.
Au, Wi, Sp Qtrn. 5 cl. Prereq: 270 and professional standing.

372 Music for Teachers of Young Children UGRD 3
Instructional materials, methods, and musical skills needed for guiding young children's music and movement learning experiences applied to preschools and kindergartens.
Au Qtr. 2 1.5-hr cl. Not open to music majors. Designed for prospective teachers of young children and personnel of preschools and kindergartens.

373 Music for Special Education Teachers UGRD 3
Music literature and teaching strategies for exceptional children, including singing, rhythmic, creative, and listening experiences.

401.11 Applied Music (Principal): Piano UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Piano.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.12 Applied Music (Principal): Jazz Piano UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Piano.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.21 Applied Music (Principal): Voice UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Voice.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.31 Applied Music (Principal): Violin UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Violin.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.32 Applied Music (Principal): Viola UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Viola.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.33 Applied Music (Principal): Cello UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Cello.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.34 Applied Music (Principal): Double Bass UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Double Bass.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.36 Applied Music (Principal): Jazz Bass UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Bass.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.37 Applied Music (Principal): Jazz Guitar UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Guitar.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.41 Applied Music (Principal): Flute UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Flute.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.42 Applied Music (Principal): Oboe UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Oboe.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.43 Applied Music (Principal): Clarinet UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Clarinet.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.44 Applied Music (Principal): Bass Clarinet UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Bass Clarinet.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.45 Applied Music (Principal): Saxophone UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Saxophone.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.46 Applied Music (Principal): Bassoon UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Bassoon.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.47 Applied Music (Principal): Jazz Saxophone UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Saxophone.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.51 Applied Music (Principal): Horn UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Horn.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.52 Applied Music (Principal): Trumpet UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Trumpet.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.53 Applied Music (Principal): Trombone UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Trombone.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.54 Applied Music (Principal): Euphonium UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Euphonium.
Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.
401.55 Applied Music (Principal): Tuba UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Tuba. Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.56 Applied Music (Principal): Jazz Trumpet UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Trumpet. Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.57 Applied Music (Principal): Jazz Trombone UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Trombone. Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.71 Applied Music (Principal): Percussion UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Percussion. Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.72 Applied Music (Principal): Jazz Percussion UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Percussion. Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

401.91 Applied Music (Principal): Harp UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Harp. Prereq: 201 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of the School of Music. Repeatable to a maximum of 8 cr hrs.

402.11 Applied Music (Major): Piano UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Piano. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.21 Applied Music (Major): Voice UGRD 3
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Voice. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.31 Applied Music (Major): Violin UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Violin. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.32 Applied Music (Major): Viola UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Viola. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.33 Applied Music (Major): Cello UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Cello. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.34 Applied Music (Major): Double Bass UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Double Bass. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.41 Applied Music (Major): Flute UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Flute. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.42 Applied Music (Major): Oboe UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Oboe. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.43 Applied Music (Major): Clarinet UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Clarinet. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.44 Applied Music (Major): Bass Clarinet UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Bass Clarinet. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.45 Applied Music (Major): Saxophone UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Saxophone. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.46 Applied Music (Major): Bassoon UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Bassoon. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.51 Applied Music (Major): Horn UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Horn. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.52 Applied Music (Major): Trumpet UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Trumpet. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.53 Applied Music (Major): Trombone UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Trombone. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.54 Applied Music (Major): Euphonium UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Euphonium. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.55 Applied Music (Major): Tuba UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Tuba. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.71 Applied Music (Major): Percussion UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Percussion. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

402.91 Applied Music (Major): Harp UGRD 2-4
Instruction required in BM curriculum in performance to develop professional qualities of musicianship, technique, and knowledge of music literature: Harp. Prereq: 201 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

412 Italian Diction for Singers UGRD 2
Advanced study of phonetics and sound production as applied to singing in Italian. Sp Qtr. 3 cl. Prereq: 212.

413 German Diction for Singers UGRD 2
Advanced study of phonetics and sound production as applied to singing in German. Au Qtr. 3 cl. Prereq: 212.

414 French Diction for Singers UGRD 2
Advanced study of phonetics and sound production as applied to singing in French. Wi Qtr. 3 cl. Prereq: 212.

421 Music Theory IV UGRD 3
Principles of 18th- and 19th-century chromatic harmony and modulation; extensive practice in part-writing, analysis, and creative application. Au Qtr. 3 cl. Prereq: 223.
422 Music Theory V UGRD 3
Introduction to the study of the structural principles and forms of homophonic music. Extensive practice through written drill, analysis and creative projects. Wi Qtr. 3 cl. Prereq: 421.

423 Music Theory VI UGRD 3
Compositional techniques in 20th-century music; extensive practice through written drill, analysis, and creative projects. Sp Qtr. 3 cl. Prereq: 422.

424 Aural Training III UGRD 2
Intensive training in aural musicianship and music reading; practical application through solfège, dictation, and keyboard drill. Au Qtr. 2 cl. Prereq: 226.

425 Aural Training IV UGRD 2
A continuation of 424 at a more advanced level. Wi Qtr. 2 cl. Prereq: 424.

426 Aural Training V UGRD 2
A continuation of 425; aural training at an advanced level. Sp Qtr. 2 cl. Prereq: 425.

427 Keyboard Harmony I UGRD 2
Systematic review and utilization of basic harmonic materials at the keyboard. * Au Qtr. 2 cl. Prereq: 201.01 (6 cr hrs), 261.01, 262.01, and 263.01 (6 cr hrs).

428 Keyboard Harmony II UGRD 2
Introduction to score reading at the keyboard. * Wi Qtr. 2 cl. Prereq: 427.

429 Keyboard Harmony III UGRD 2
Continued practical experience in score reading at the keyboard. * Sp Qtr. 2 cl. Prereq: 428.

430 Protest in American Music UGRD 5
Examines the relationship between and among music, media technologies, and both mass and social media from musical, textual, political, economic and social perspectives. Wi Qtr.

432 Spectacle: Music and Public Amusements in America UGRD 5
Examines the relationship between public amusements and music essential to understanding American entertainment and commerce, the changing character of leisure, and the evolving American identity. Au Qtr.

433.02 Scoring for Jazz Ensembles: Small Jazz Ensembles UGRD 3
Scoring projects for jazz combos of various sizes and instrumentation. * Wi Qtr. 3 cl. Prereq: 223 and 231.

433.03 Scoring for Jazz Ensembles: Large Jazz Ensembles UGRD 3
Scoring projects for the stage band, with concentration on voicing, ranges, doublings, balance, and notational procedures. * Wi Qtr. 3 cl. Prereq: 433.02. Not open to students with credit for 433.01.

446 Survey of Jazz Styles UGRD 3
Stylistic variants of jazz involving technical and structural aspects so that the student may recognize, play, and score them authentically. * Sp Qtr. 3 cl. Prereq: Permission of instructor.

470 Introduction to Music Education UGRD 4
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. Au, Wi Qtrs. 2 cl, 2-2 hr labs. Prereq: Soph standing in music educ and Psych 100.

489 Internship in Music UGRD 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 10 cr hrs. This course is graded S/U.

500.01 Review of Music Analysis Techniques GRAD 3
Review of notation symbology, nomenclature, part-writing practices, and analytic techniques related to Western music composed from the mid-18th through the mid-20th centuries. Su, Sp Qtr. Prereq: Grad standing in music. Not open to students with credit for 620. Repeatable to a maximum of 9 cr hrs.

500.02 Review of Music History GRAD 3
Review of Western music history from ancient Greek times to the present; study of genres, composers, and elements of musical styles. Su, Wi Qtrs. Prereq: Grad standing in music. Repeatable to a maximum of 9 cr hrs.
Prereq: 401 and permission of applied area faculty. Open to other qualified students.

501.44 Applied Music (Principal): Bass Clarinet UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Bass Clarinet.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.45 Applied Music (Principal): Saxophone UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Saxophone.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.46 Applied Music (Principal): Bassoon UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Bassoon.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.47 Applied Music (Principal): Jazz Saxophone UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Saxophone.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.51 Applied Music (Principal): Horn UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Horn.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.52 Applied Music (Principal): Trumpet UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Trumpet.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.53 Applied Music (Principal): Trombone UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Trombone.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.54 Applied Music (Principal): Euphonium UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Euphonium.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.55 Applied Music (Principal): Tuba UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Tuba.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.56 Applied Music (Principal): Jazz Trumpet UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Trumpet.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.57 Applied Music (Principal): Jazz Trombone UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Trombone.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.71 Applied Music (Principal): Percussion UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Percussion.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.72 Applied Music (Principal): Jazz Percussion UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Jazz Percussion.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

501.91 Applied Music (Principal): Harp UGRD 2
Applied music instruction required in the BME curriculum to develop musicianship, performance, and a wide reading knowledge of music literature: Harp.
Prereq: 401 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of the director of School of Music. Repeatable to a maximum of 8 cr hrs.

502.11 Applied Music (Major): Piano UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Piano.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.21 Applied Music (Major): Voice UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Voice.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.31 Applied Music (Major): Violin UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Violin.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.32 Applied Music (Major): Viola UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Viola.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.33 Applied Music (Major): Cello UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Cello.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.34 Applied Music (Major): Double Bass UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Double Bass.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.36 Applied Music (Major): Jazz Bass UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Jazz Bass.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.37 Applied Music (Major): Jazz Guitar UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Jazz Guitar.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.41 Applied Music (Major): Flute UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Flute.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.
502.42 Applied Music (Major): Oboe UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Oboe.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.43 Applied Music (Major): Clarinet UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Clarinet.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.44 Applied Music (Major): Bass Clarinet UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Bass Clarinet.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.45 Applied Music (Major): Saxophone UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Saxophone.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.46 Applied Music (Major): Bassoon UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Bassoon.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.47 Applied Music (Major): Jazz Saxophone UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Jazz Saxophone.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.51 Applied Music (Major): Horn UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Horn.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.52 Applied Music (Major): Trumpet UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Trumpet.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.53 Applied Music (Major): Trombone UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Trombone.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.54 Applied Music (Major): Euphonium UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Euphonium.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.55 Applied Music (Major): Tuba UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Tuba.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.56 Applied Music (Major): Jazz Trumpet UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Jazz Trumpet.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.57 Applied Music (Major): Jazz Trombone UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Jazz Trombone.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.71 Applied Music (Major): Percussion UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Percussion.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.72 Applied Music (Major): Jazz Percussion UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Jazz Percussion.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

502.91 Applied Music (Major): Harp UGRD 3-4
Instruction required in BM curricula in performance to develop professional qualities of musicianship, technique, and knowledge of music literature; half recital required in junior year: Harp.
Prereq: 402 and written permission of applied area faculty. Repeatable to a maximum of 16 cr hrs.

505 Junior Recital UGRD 0
Required junior recital for the bachelor of music performance and bachelor of music education degrees.
Au, Wi, Sp Qtrs. Arr. Prereq: Two quarters of 501 and 502. This course is graded S/U.

510 Advanced Jazz Improvisation UGRD 3
Advanced techniques of improvisation; the use of modal devices, complex meters, an innovative forms; concern for speed, endurance, energy levels, and problems of unaccompanied performance.
* Sp Qtr. 3 cl. Prereq: 211 or permission of instructor.

524 Orchestration I UGRD 3
A fundamental course in scoring for the instruments of the orchestra and band in arrangements.
Au, Wi Qtrs. 2 1.5-hr cl. Prereq: 423.

531 Elementary Studies in Counterpoint UGRD 3
A fundamental course in counterpoint including study of the basic principles of 16th-century polyphony.
Au Qtr. 3 cl. Prereq: 423.

533 Jazz Composition UGRD 3
Designed to develop the skills necessary for composing/arranging for small, mixed, and large jazz ensembles.
* Sp Qtr. 3 cl. Prereq: 433.03.

535 Composition I UGRD 3
A fundamental course in composition, with emphasis on creative writing in the small forms.
Au Qtr. 3 cl. Prereq: 423.

546 Modern and Contemporary Jazz Styles UGRD 3
Modern and contemporary jazz styles from the Be-bop School of the 1940's to the present day.
* Sp Qtr. 3 cl. Prereq: 446.

555.01 Studies in Musicology: Medieval Music UGRD 4
Introduction to specialized topics and issues in historical musicology and ethnomusicology: Medieval Music.
* Au Qtr. Prereq: Admission to BM in music history or permission of instructor.

555.02 Studies in Musicology: Renaissance Music UGRD 4
Introduction to specialized topics and issues in historical musicology and ethnomusicology: Renaissance Music.
* Wi Qtr. Prereq: Admission to BM in music history or permission of instructor.

555.03 Studies in Musicology: Baroque Music UGRD 4
Introduction to specialized topics and issues in historical musicology and ethnomusicology: Baroque Music.
* Sp Qtr. Prereq: Admission to BM in music history or permission of instructor.

555.04 Studies in Musicology: Classic Music UGRD 4
Introduction to specialized topics and issues in historical musicology and ethnomusicology: Classic Music.
* Au Qtr. Prereq: Admission to BM in music history or permission of instructor.

555.05 Studies in Musicology: Romantic Music UGRD 4
Introduction to specialized topics and issues in historical musicology and ethnomusicology: Romantic Music.
* Wi Qtr. Prereq: Admission to BM in music history or permission of instructor.
555.06 Studies in Musicology: 20th-Century Music UGRD 4
Introduction to specialized topics and issues in historical musicology and ethnomusicology: 20th-Century Music.
* Sp Qtr. Prereq: Admission to BM in music history or permission of instructor.

555.07 Studies in Musicology: 19th-Century Russian Music UGRD 5
Introduction to specialized topics and issues in historical musicology and ethnomusicology: 19th-Century Russian Music.
Sp Qtr. Prereq: Admission to BM in music history or permission of instructor.

555.08 Studies in Musicology: 20th-Century Russian Music UGRD 5
Introduction to specialized topics and issues in historical musicology and ethnomusicology: 20th-Century Russian Music.
* Au Qtr. Prereq: Admission to BM in music history or permission of instructor.

566 Jazz Ensemble Techniques UGRD 3
The organization and operation of the public school jazz ensemble.
** Wi Qtr. 3-hr cl. Prereq: Permission of instructor.

572 Teaching General Music in Secondary Schools UGRD 3
The role of music in adolescents' general education and the development of competencies essential to teaching.
Au, Wi Qtrns. 3 cl. Prereq: Professional standing in music education.

574 Teaching Choral Music I UGRD 3
Comprehensive choral music education, rehearsal techniques, and concert preparation quarter culminates in choral recital.
Au Qtr. 3 cl. Prereq: 262.12 and 264.02, and professional standing in music education

575 Teaching Choral Music II UGRD 3
Curriculum planning for elementary through high school choirs, ethical and social issues, and survey of OMEA and world choral music repertoire.
Wi Qtr. 3 cl. Prereq: 574 and professional standing in music education.

576 Teaching Instrumental Music in Elementary and Middle Schools UGRD 3
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.
Au Qtr. 3 cl. Prereq: 261.07, 261.41, 261.42, 261.43, 261.45, 261.46, 262.03, 262.05, 262.11, and professional standing in music education.

577 Teaching Instrumental Music in Secondary Schools UGRD 3
The role of instrumental music instruction in public education, techniques of teaching instrumental music, study of music appropriate to musical organizations in secondary schools.
Wi Qtr. 3 cl, 1 1-hr lab. Prereq: 576 and professional standing in music education.

578 Teaching General Music in Elementary Schools I: Introduction and Repertoire UGRD 3
Introduction to Dalcroze and Orff methodologies; study and analysis of music repertoire suitable for children in elementary schools.
Au Qtr. 2.5-hr cl, 1 lab hr. Prereq: Professional standing in music education. Not open to students with credit for 571.

579 Teaching General Music in Elementary Schools II: Planning and Practicum UGRD 3
A study of Kodaly and intermediate Orff methodologies; the planning and implementation of musical experiences for children in elementary schools.
Wi Qtr. 2.5-hr cl, 1 lab hr. Prereq: 578 and professional standing in music education. Not open to students with credit for 570.

586 Student Teaching in Music in Elementary UGRD 3-8
Assignment to area elementary schools for observation and teaching experiences with groups of students and cooperating teachers; students attend weekly seminars with University supervisors.
Au, Wi, Sp Qtrns. Repeatable to a maximum of 8 cr hrs.

587 Student Teaching in Music in Secondary UGRD 3-8
Assignment to area secondary schools for observation and teaching experiences with groups of students and cooperating teachers; students attend weekly seminars with University supervisors.
Au, Wi, Sp Qtrns. Repeatable to a maximum of 8 cr hrs.

591 Survey of the Music Industry UGRD 3
Economic aspects of music in America with reference to recordings, films, TV, radio, music theatre, booking, management, publishing, and manufacturing.
* Sp Qtr. 3 cl. Prereq: 3r standing or permission of instructor.

601.11 Applied Music (Principal): Piano UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Piano.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.12 Applied Music (Principal): Jazz Piano UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Jazz Piano.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.21 Applied Music (Principal): Voice UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Voice.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.31 Applied Music (Principal): Violin UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Violin.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.32 Applied Music (Principal): Viola UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Viola.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.33 Applied Music (Principal): Cello UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Cello.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.34 Applied Music (Principal): Double Bass UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Double Bass.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.35 Applied Music (Principal): Guitar UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Guitar.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.41 Applied Music (Principal): Flute UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Flute.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.42 Applied Music (Principal): Oboe UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Oboe.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.43 Applied Music (Principal): Clarinet UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Clarinet.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.44 Applied Music (Principal): Bass Clarinet UGRD 1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Bass Clarinet.
Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.
601.45 Applied Music (Principal): Saxophone  UGRD  1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Saxophone. Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.46 Applied Music (Principal): Bassoon  UGRD  1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Bassoon. Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.51 Applied Music (Principal): Horn  UGRD  1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Horn. Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.52 Applied Music (Principal): Trumpet  UGRD  1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Trumpet. Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.53 Applied Music (Principal): Trombone  UGRD  1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Trombone. Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.55 Applied Music (Principal): Tuba  UGRD  1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Tuba. Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.71 Applied Music (Principal): Percussion  UGRD  1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Percussion. Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

601.91 Applied Music (Principal): Harp  UGRD  1-2
Elective applied music instruction at the senior level for students in the BME curriculum; continuation of study of literature, technique, and musicianship: Harp. Prereq: 501 and permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 8 cr hrs.

602.11 Applied Music (Major): Piano  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Piano. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.21 Applied Music (Major): Voice  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Voice. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.31 Applied Music (Major): Violin  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Violin. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.32 Applied Music (Major): Viola  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Viola. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.33 Applied Music (Major): Cello  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Cello. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.34 Applied Music (Major): Double Bass  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Double Bass. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.41 Applied Music (Major): Flute  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Flute. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.42 Applied Music (Major): Oboe  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Oboe. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.43 Applied Music (Major): Clarinet  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Clarinet. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.44 Applied Music (Major): Bass Clarinet  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Bass Clarinet. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.45 Applied Music (Major): Saxophone  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Saxophone. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.46 Applied Music (Major): Bassoon  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Bassoon. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.51 Applied Music (Major): Horn  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Horn. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.52 Applied Music (Major): Trumpet  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Trumpet. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.53 Applied Music (Major): Trombone  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Trombone. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.54 Applied Music (Major): Euphonium  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Euphonium. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.55 Tuba  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Tuba. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.71 Applied Music (Major): Percussion  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Percussion. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

602.72 Applied Music (Major): Jazz Percussion  UGRD  4
Applied music instruction required in BM curricula in performance to develop professional qualities of musicianship; full recital required in senior year: Jazz Percussion. Prereq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.
602.91 Applied Music (Major): Harp  UGRD  4
Applied music instruction required in BM performance to develop professional qualities of musicianship; full recital required in senior year; Harp. PreReq: 502 and written permission of applied area faculty. Repeatable to a maximum of 24 cr hrs.

605 Senior Recital  UGRD  0
Required senior recital for the bachelor of music performance degree. Au, Wi, Sp Qtr. Arr. PreReq: Two quarters of 602. This course is graded S/U.

607 Performance Enhancement I  UGRD  1
Skills and techniques designed to enhance the quality of public performances. Au, Wi, Sp Qtr. 1 cl. Not limited to music majors. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

608 Performance Enhancement II  UGRD  1
Advanced skills and techniques designed to enhance the quality of public performances. Au, Wi, Sp Qtrs. 1 cl. PreReq: 607 or permission of instructor. Not limited to music majors. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

610 Alexander Technique  UGRD  1
The relationship of kinesthetic perception and the postural reflexes to physical coordination in performance. Au, Wi, Sp Qtr. 2 cl. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

611 Piano Pedagogy I  UGRD  2
An analysis of teaching techniques and materials for individual and group instruction in piano with an emphasis on the elementary and intermediate levels. Au Qtr. 2 cl. PreReq: 6 or cr hrs in 501.01 or 501.11 or permission of instructor.

612 Piano Pedagogy II  UGRD  2
An analysis of repertoire for piano study at the intermediate and early advanced levels Wi Qtr. 2 cl. PreReq: 611 or permission of instructor.

613 Piano Pedagogy III  UGRD  2
An analysis of the development of piano technique through readings in pedagogical treatises and applications in standard piano repertoire from various style periods. Sp Qtr. 2 cl. PreReq: 612 or permission of instructor.

617 Advanced Alexander Technique  UGRD  3
Advanced study in Alexander Technique. Au, Wi, Sp Qtrs. PreReq: Completion of Intro to Alexander Technique and permission of the instructor. Repeatable to a maximum of 18 cr hrs.

620 Extended Tonality from Wagner to Hindemith: Theory and Analysis  UGRD  3
Systematic analytic observation of tonal art music from the last decades of the nineteenth century to World War II. Au Qtr. 3 1-hr cl. PreReq: 423.

621 Theory and Analysis: 17th-18th Centuries  UGRD  3
Analysis of representative works from the 17th-18th century, introducing relevant theoretical concepts. Wi Qtr. 3 cl. PreReq: 423 or a score in the upper third on the grad placement exam.

622 Theory and Analysis: 19th Century  UGRD  3
Analysis of representative works from the 19th century, introducing relevant theoretical concepts. Sp Qtr. 3 cl. PreReq: 423 or a score in the upper third on the grad placement exam.

623 Theory and Analysis: 20th Century  UGRD  3
Analysis of representative works from the 20th century, introducing relevant theoretical concepts. Au Qtr. 3 cl. PreReq: 423 or a score in the upper third on the grad placement exam.

625 Orchestration II  UGRD  3
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. * Sp Qtr. 2 1.5-hr cl. PreReq: 524.

630 Composers Seminar  UGRD  1
Contemporary topics in composition and theory; presentation, performance, and criticism of student compositions and papers. Au, Wi, Sp Qtrs. 1.5-hr cl. PreReq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

631 Intermediate Studies in Counterpoint  UGRD  3
Counterpoint based on the polyphonic style of the 18th century; analysis of representative works and practice in writing two- and three-part inventions. Wi Qtr. 3 cl. PreReq: 531 or permission of instructor.

635 Composition II  UGRD  3-5
Practice in creative writing; analysis, and evaluation; employment of contemporary methods of composition. Au, Wi, Sp Qtrs. 3 cl. PreReq: 535 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

636 Introduction to Electronic Music Synthesis  UGRD  3
Techniques of composition with electronic media; history, literature, and criticism; score preparation; principles of audio engineering; relationships to other communications media. Au Qtr. 3 cl. PreReq: 423 and permission of instructor.

637 Composition with Electronic Media I  UGRD  3-5
Individual composition projects; further study of sound synthesis techniques, includin modification of natural sounds. Au, Wi, Sp Qtr. 3 cl. PreReq: 535, real time electro acoustical modification or equiv and 636. Repeatable to a maximum of 15 cr hrs.

638 Audio Recording  UGRD  3
Audio recording; microphones and microphone placement; multiple-track recording; mixing; equalization and special effects. * Wi Qtr. 3 cl. PreReq: Elec Eng 205 or equiv with written permission of instructor.

639 Audio Recording Laboratory  UGRD  2
Creating an audio recording; familiarity with the recording studio and console, use an placement of microphones; multiple-track recording equalization and special effects; mixing. * Sp Qtr. 1 cl, 1.5-hr lab. PreReq: 638. Repeatable to a maximum of 6 cr hrs.

645 Music's Meanings  UGRD  3-5
An exploration of approaches to ways that music conveys meaning; taught online. * Wi Qtr. 3-hr cl. PreReq: Jr or sr standing.

646 History of Music in the United States  UGRD  3
A survey of music in the United States from colonial times until the present. * Wi Qtr. 3-hr cl. PreReq: Jr or Sr standing.

647 Individual Composers: Their Lives and Works  UGRD  3
A comprehensive study of the works of an individual composer; topic varies from year to year. ^ 3 cl Req: 521 or 531, and 243.

648 History and Literature of Chamber Music  UGRD  3
A survey of the history and stylistic development of chamber music. * Au Qtr. 2 1.5-hr cl. PreReq: 243 and 521 or 531.

649 History and Literature of Symphonic Music  UGRD  3
A survey of the history and stylistic development of symphonic music. ^* Au Qtr. 2 1.5-hr cl. PreReq: 243 and 521 or 531.

650 History and Literature of Choral Music  UGRD  3
A survey of the history and stylistic development of choral music. ^* Wi Qtr. 2 1.5-hr cl. PreReq: 243 and 521 or 531.

651 History and Literature of Opera  UGRD  3
A survey of the history and stylistic development of opera. * Sp Qtr. 2 1.5-hr cl. PreReq: 243 and 521 or 531.

652 18th and 19th Century Song Literature  UGRD  3
The study of selected 18th and 19th century song literature. * Au Qtr. 3 cl. PreReq: 243 and 423 or grad standing in music.

653 Piano Literature  UGRD  3
A study of the piano sonata and other characteristic forms from the pre-piano period to the present time. Sp Qtr. 3 cl. PreReq: 243 and 521 or 531.

655 20th Century Song Literature  UGRD  3
The study of selected 20th century song literature. * Wi Qtr. 2 1.5-hr cl. PreReq: 652 or grad standing.

660 Advanced Conducting (Instrumental)  UGRD  3
An attempt to develop the power to interpret the larger forms of instrumental literature and to read from full score. Wi Qtr. 3 cl. PreReq: 262.11 and 521.

661 Advanced Conducting (Choral)  UGRD  3
Development of power to interpret the larger forms of choral literature and to read from full score. Sp Qtr. 3 cl. PreReq: 262.12 and 521.

662 Choral Repertoire  UGRD  2
Reading and study of sacred and secular choral literature. Su, Wi Qtr. 1 cl, 1.5-hr lab. Repeatable to a maximum of 6 cr hrs.

663 School Orchestra Literature  UGRD  3
Examines orchestral repertoire for study in elementary, middle, and high school orchestras, and develops strategies for teaching these pieces. Sp Qtr. 2 1.5-hr cl. PreReq: Music major.

664 School Wind Band Repertoire  UGRD  3
Examines wind band repertoire appropriate for study in elementary, middle and high school band programs and develops strategies for teaching these pieces. 2 1.5-hr cl. PreReq: Music major.
665  Content and Structure in Arts Education  UGRD  3
Students from art, dance, music, and theatre education engage in dialogue, research, and peer teaching focused upon the educational content and structure of each discipline.
Sp Qtr. 1.25-hr cl. Open only to majors in art, dance, music, and theatre education and to grad students seeking certification. Not open to students with credit for Art Educ 665.

666  Marching Band Techniques  UGRD  3
A study of the marching band including laboratory work in marching techniques, computerized charting, and show design.
Sp Qtr. 1.3-hr cl. Not open to freshmen. Open to non-music majors with written permission of instructor.

668  Instrument Repair  GRAD  3
Development of practical skills in identifying and correcting minor repair problems or band and orchestral instruments and their accessories.
Su Qtr. 5 days; 4 hrs/day. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs. Some musical knowledge an asset.

669  Music Methods for Elementary Classroom Teachers  GRAD  3
Analysis and appraisal of the music program in elementary schools; relationship of music to total school program; some emphasis on integrating the arts in education.
Su, Su Term 1 Qtr. 3 2-hr cl. Prereq: 270 or permission of instructor.

672  Introduction to Ethnomusicology  UGRD  3
General concepts of ethnomusicology applied to the study of different ways in which music has been used outside the Western European tradition of the fine arts.
Wi Qtr. 2.1.5-hr cl. Prereq: Jr or sr or grad standing.

674  Russian Opera: Meanings and Identities  UGRD  5
Study of Russian opera from 1836-1936 in relation to concurrent literary, cultural, and social developments.
* Wi Qtr. 2 1.5-hr cl. Not open to students with credit for Russian 674. Cross-listed in Russian.

675  Music of the Russian Folk Tradition  UGRD  3
An interdisciplinary study of traditional music of Russian peasants.
* Wi Qtr. 2 1.5-hr cl. Prereq: Jr or sr or grad standing.

676  Music Technology  GRAD  2
A graduate-level overview of music technology as used in research, education, performance and composition.
Su, Wi Qtrs. 2 1-hr cl. Prereq: Permission of instructor. Not open to students with credit for 220.

677  Multimedia for Musicians  UGRD  3
Designed to provide musicians with the tools to create multimedia works for use in music education, research, or as a creative medium.
Sp Qtr. 3 1-hr cl. Prereq: 220 or 676 or permission of instructor.

679  Music Theory and Composition Senior Project  UGRD  2
Composition students: preparation of senior composition and half recital of student's compositions; theory students: preparation of senior paper and presentation of paper.
Au, Wi, Sp Qtrs. Prereq: Admission into music theory and composition major and permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

692  Workshop in Music  GRAD  1-15
Concentrated study in an area of music; content of workshop depends on selected emphasis.
Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 15 cr hrs.

693  Individual Studies  UGRD  1-15
Individual studies in specified problems in the field of music.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

694  Group Studies  UGRD  1-5
Supervised group studies of special problems in the field of music.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

695  The Art of Teaching Strings in the Schools  GRAD  3
A graduate seminar on the key elements and research on teaching string instruments in K-12 schools.
Su Qtr. Prereq: Undergrad degree in music education.

697  Study at a Foreign Institution  UGRD  1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (‘P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic  UGRD  1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign  UGRD  1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

699  Undergraduate Scholarship: Research and Creative Activity in Music  UGRD  1-15
Undergraduate research or creative activities in varying topics.
Su, Au, Wi, Sp Qtrs. Arr. 699H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. H699 is letter graded. This course is graded S/U.

701.11 Applied Music (Non-Major): Piano  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Piano.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.21 Applied Music (Non-Major): Voice  GRAD  1-2
Applied music study with special emphasis on literature and performance practices: Voice.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.31 Applied Music (Non-Major): Violin  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Violin.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.32 Applied Music (Non-Major): Viola  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Viola.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.33 Applied Music (Non-Major): Cello  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Cello.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.34 Applied Music (Non-Major): Double Bass  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Double Bass.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.41 Applied Music (Non-Major): Flute  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Flute.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.42 Applied Music (Non-Major): Oboe  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Oboe.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.43 Applied Music (Non-Major): Clarinet  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Clarinet.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.44 Applied Music (Non-Major): Bass Clarinet  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Bass Clarinet.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.45 Applied Music (Non-Major): Saxophone  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Saxophone.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.46 Applied Music (Non-Major): Bassoon  UGRD  1-2
Applied music study with special emphasis on literature and performance practices: Bassoon.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.
701.51 Applied Music (Non-Major): Horn UGRD 1-2
Applied music study with special emphasis on literature and performance practices: Horn.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.52 Applied Music (Non-Major): Trumpet UGRD 1-2
Applied music study with special emphasis on literature and performance practices: Trumpet.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.53 Applied Music (Non-Major): Trombone UGRD 1-2
Applied music study with special emphasis on literature and performance practices: Trombone.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.54 Applied Music (Non-Major): Euphonium UGRD 1-2
Applied music study with special emphasis on literature and performance practices: Euphonium.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.55 Applied Music (Non-Major): Tuba UGRD 1-2
Applied music study with special emphasis on literature and performance practices: Tuba.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.71 Applied Music (Non-Major): Percussion UGRD 1-2
Applied music study with special emphasis on literature and performance practices.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

701.91 Applied Music (Non-Major): Harp UGRD 1-2
Applied music study with special emphasis on literature and performance practices: Harp.
Prereq: Placement exam or permission of applied area faculty. Repeatable to a maximum of 12 cr hrs.

710 Introduction to Operatic Stage Techniques GRAD 2
An introduction to stage movement techniques, character analysis, role preparation, and aria interpretation as applied to the operatic stage.

715 Structure and Function of the Singing Mechanism
Anatomy and acoustics of the voice as they relate to developmental vocal pedagogy.

727 Keyboard Harmony for Graduate Students GRAD 3
Application of keyboard musicianship, including sight reading, harmonization of melodies, improvisation, transposition, realization of figured bass and modulation.

730.01 The Musical Object: Toward Musical Sound GRAD 5
An introduction to musicology focused on sounding music.

730.02 The Musical Subject: Toward Musical Context
An introduction to musicology focused on music contexts.

740 Studies in Medieval Music GRAD 4
An introduction to scholarly issues in the music of the Middle Ages.
^* Au Qtr. 2.1-5-hr cl. Prereq: 241 or equiv; 521 or 531 or equiv; grad standing. Not open to students with credit for 640.

741 Studies in Renaissance Music GRAD 4
An introduction to scholarly issues in the music of the Renaissance.
^* Wi Qtr. 2.1-5-hr cl Prereq: 241 or equiv; 521 or 531 or equiv; grad standing. Not open to students with credit for 641.

742 Studies in Baroque Music GRAD 4
An introduction to scholarly issues in the music of the Baroque era.
^* Sp Qtr. 2.1-5-hr cl. Prereq: 242 or equiv; 521 or 531 or equiv; grad standing. Not open to students with credit for 642.

743 Studies in Classic Music GRAD 4
An introduction to scholarly issues in the music of the classic era.
^* Au Qtr. 2.1-5-hr cl. Prereq: 242 or equiv; 521 or equiv; grad standing. Not open to students with credit for 643.

744 Studies in Romantic Music GRAD 4
An introduction to scholarly issues in the music of the romantic era.
^* Wi Qtr. 2.1-5-hr cl. Prereq: 243 or equiv; 521 or equiv; grad standing. Not open to students with credit for 644.

745 Studies in 20th-Century Music GRAD 4
An introduction to scholarly issues in the music of the twentieth century.
^* Sp Qtr. 2.1-5-hr cl. Prereq: 243 or equiv; 521 or 531 or equiv; grad standing. Not open to students with credit for 645.

746 Studies in 19th-Century Russian Music GRAD 5
An introduction to scholarly issues in 19th-century Russian music.
Sp Qtr. 2.1-5-hr cl. Prereq: Grad standing in music or Slavic. Not open to students with credit for 673.

747 Studies in 20th-Century Russian Music GRAD 5
An introduction to scholarly issues in 20th-century Russian music.
^ Au Qtr. 2.1-5-hr cl. Prereq: Grad standing in music or Slavic. Not open to students with credit for 674.

748 Contemporary Art Music Traditions of Africa and the Diaspora UGRD 5
An examination of selected published and unpublished musical works by contemporary composers of sub-Saharan Africa and of African descent.
^ ^* Sp Qtr. 2.1-5-hr cl. Prereq: Jr or sr or grad standing. Not open to students with credit for AFAm&AS 748. Cross-listed in African-American and African Studies.

752.01 Performance Literature: Piano GRAD 3
Intensive study of representative literature for the instrument from each style period: Piano.
Au, Wi Qtr. Prereq: Admission to MM curriculum or permission of instructor. Repeatable to a maximum of 6 cr hrs.

752.02 Performance Literature: Voice GRAD 3
Intensive study of representative literature for the instrument from each style period: Voice.
Prereq: Admission to MM curriculum or permission of instructor. Repeatable to a maximum of 6 cr hrs.

752.03 Performance Literature: Strings GRAD 3
Intensive study of representative literature for the instrument from each style period: Strings.
Au, Wi, Sp Qtr. Prereq: Admission to MM curriculum or permission of instructor. Repeatable to a maximum of 6 cr hrs.

752.04 Performance Literature: Woodwinds GRAD 3
Intensive study of representative literature for the instrument from each style period: Woodwinds.
Au, Wi Qtr. Prereq: Admission to MM curriculum or permission of instructor. Repeatable to a maximum of 6 cr hrs.

752.05 Performance Literature: Brass GRAD 3
Intensive study of representative literature for the instrument from each style period: Brass.
Wi Qtr. Prereq: Admission to MM curriculum or permission of instructor. Repeatable to a maximum of 6 cr hrs.

752.07 Performance Literature: Percussion GRAD 3
Intensive study of representative literature for the instrument from each style period: Percussion.
^* Wi, Sp Qtr. Prereq: Admission to MM curriculum or permission of instructor. Repeatable to a maximum of 6 cr hrs.

753 Teaching the Technology-Centered Music Curriculum GRAD 3
The application of current technology to teaching music concept development in elementary and middle grade schools.
^* Su Qtr. Arcr. Prereq: Baccalaureate degree in music or music education.

754 Midwest Summer String Teachers Seminar GRAD 3
Annual seminar on current materials, music, assessment procedures, and strategies for teaching string/orchestra in the schools.
Su Qtr. Prereq: Grad standing. Open to only those with undergrad degrees in music. Repeatable to a maximum of 30 cr hrs.

756 Improvisation with Orff Instruments UGRD 3-5
A study of the development of children's musical concepts through improvisation experiences and the use of Orff instruments.
Su (2nd term), Sp Qtrs. 3 cl, 2.1-5 hr labs. Prereq: 570 or equiv with written permission of instructor.

757 Dalcroze Eurhythmics UGRD 3
A training in musical rhythm through body experience; eurhythmics is the process of educating the body to internalize rhythmic structures in music and dance.
Wi Qtr. 2.1-3-hr cl. Open to music, dance, and theatre majors. Repeatable to a maximum of 6 cr hrs.

759 Teaching Music to Culturally Diverse Learners GRAD 3
Examination of the importance of music as a cultural indicator in learners' responses and participation in music.
^ ^* Wi Qtr. 1.2-5-hr cl. Prereq: Grad standing or permission of instructor.
760 Basic Concepts in Music Education  GRAD  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.
Au Qtr. 3 cl. Prereq: 586 or 587 or equiv.

761 Principles of Music Learning  GRAD  3
Analysis of the learning process in music as related to problems of music instruction in the public school.
Sp Qtr. 3 cl. Prereq: 586 or 587 or equiv.

762 Principles and Practices in Elementary School Music  GRAD  3
Analysis and appraisal of the music program in elementary schools including the relationship of music to the total school program.
* Sp Qtr. 3 cl. Prereq: 578 or equiv.

763 Literature of Elementary School Music  GRAD  3
A critical study of folk and art music of various cultures and historic periods for the general vocal and listening activities of the integrated curriculum.
* Sp Qtr. 3 cl. Prereq: 571 or 578 or equiv.

764 Principles and Practices in Vocal Music  GRAD  3
Analysis and appraisal of the organization, purpose, and development of the vocal music program in secondary schools.
* Sp Qtr. 3 cl. Prereq: 575 or equiv.

765 Literature for Vocal Music Education  GRAD  3
A study of vocal literature of various cultures and historic periods for use with choral groups in the secondary music program.
* Sp Qtr. Prereq: 575 or equiv.

766 Teaching Practices in General Music  UGRD  3
Study of current concepts in organizing and teaching general music in the secondary school.
* Wi Qtr. 3 cl. Prereq: 572 or equiv.

768 Principles and Practices in Instrumental Music  GRAD  3
Role of instrumental music in the public schools; relationship to society and the total music program, historical development, evaluation, and future trends.
* Sp Qtr. 3 cl. Prereq: 577 or equiv.

769 Literature for Instrumental Music Education  GRAD  3
Relationship of teaching materials and performance repertory to education objectives: selection of literature, interpretation, rehearsal procedures, conducting problems, attainment of musical understanding through literature.
* Su, Su Term 1 Qtrs. 3 cl. Prereq: 577 or equiv.

770 Introduction to Research in Music Education  GRAD  3
A study of methods of research as applied to problems in school music.
Wi Qtr. 3 cl. Prereq: 586 or 587 or equiv.

771 Instrumental Techniques  GRAD  3
Introduces and reviews pedagogical techniques and instructional strategies for the teaching of brass, woodwind, percussion and string instruments.
Su Qtr. 3 hr cl. Prereq: Grad standing.

772 Music in Early Childhood  UGRD  3-5
Analysis of research, principles, and practices in early childhood music and application to programs of learning for young children.
* Sp Qtr. 2 1.5-hr cl, arr. Prereq: Advanced undergraduate standing or above and permission of instructor. For students interested in teaching or research in early childhood music and for experienced personnel in teaching young children.

773 Introduction to Music for Exceptional Learners  GRAD  3
Overview of issues, principles, practices, and research related to the music education of exceptional persons.
* Au Qtr. 1.25-hr cl. Prereq: Advanced undergraduate standing and permission of instructor.

774 Directive Teaching in Music  GRAD  3
Principles and practices of music classroom management; directive teaching emphasizing clarity of objectives, assessment, and systematic instructional procedures for skill and concept teaching.
* Su, Su Term 1 Qtrs. 1.25-hr cl. Prereq: Advanced undergraduate standing and permission of instructor.

775 Teaching Music for Exceptional Learners  GRAD  3
An analysis and concentrated study of materials and practices appropriate to teaching music for exceptional learners.
* Sp Qtr. Prereq: Advanced undergraduate standing and permission of instructor.

777 Practicum in Teaching Music for Handicapped Learners  UGRD  4-10
Assignment to area schools and institutions for observation and music teaching experiences with groups of handicapped learners and cooperating teachers.
Su, Au, Wi, Sp Qtrs. 5-15 hrs per wk in schools or institutions. Prereq: Advanced undergraduate standing and permission of instructor. Repeatable to a maximum of 10 cr hrs.

780.01 Ensemble: Choral  GRAD  1-2
Study and performance of repertoire determined by student's specific ensemble: Choral.
Prereq: Admission by audition and permission of instructor. Repeatable to a maximum of 24 cr hrs.

780.02 Ensemble: Orchestral  GRAD  1-2
Study and performance of repertoire determined by student's specific ensemble: Orchestral.
Prereq: Admission by audition and permission of instructor. Repeatable to a maximum of 24 cr hrs.

780.03 Ensemble: Band  GRAD  1-2
Study and performance of repertoire determined by student's specific ensemble: Band.
Prereq: Admission by audition and permission of instructor. Repeatable to a maximum of 24 cr hrs.

780.04 Ensemble: Chamber and Small Ensembles  GRAD  1-2
Study and performance of repertoire determined by student's specific ensemble: Chamber and Small Ensembles.
Prereq: Admission by audition and permission of instructor. Repeatable to a maximum of 24 cr hrs.

780.05 Ensemble: Piano Accompanying Practicum  GRAD  1-2
Study and performance of repertoire determined by student's specific ensemble: Piano Accompanying Practicum.
Prereq: Admission by audition and permission of instructor. Repeatable to a maximum of 24 cr hrs.

780.11 Ensemble: Opera Scenes  GRAD  1-2
Study and performance of repertoire determined by student's specific ensemble. A performance ensemble class devoted to the rehearsing and performing of full-length operas/advanced rehearsal and performance techniques for operatic literature. 3 1.5-hr cl Prereq: Admission by audition and permission of instructor. Prereq: 710 or permission of instructor, and admission by audition. Repeatable to a maximum of 24 cr hrs.

780.12 Ensemble: Opera Performance  GRAD  2
Study and performance of repertoire determined by student's specific ensemble. A performance ensemble class devoted to the rehearsing and performing of opera scenes; basic rehearsal and performing techniques for operatic literature. Repeatable to a maximum of 24 cr hrs. 5 2.5-hr cl, arr. Prereq: Admission by audition and permission of instructor. Prereq: 710 and permission of instructor, and admission by audition.

780.15 Ensemble: Early Music Ensemble  GRAD  1-2
Study and performance of repertoire determined by student's specific ensemble: Early Music Ensemble. Prereq: Admission by audition and permission of instructor. Repeatable to a maximum of 24 cr hrs.

780.20 Ensemble: African Performing Ensemble  GRAD  1
Au, Wi Qtrs. 1.2-hr cl. Prereq: Admission by audition and permission of instructor. Prereq: Permission of instructor, including cr hrs earned in AfAm&ASt 780.20. Repeatable to a maximum of 24 cr hrs. Cross-listed in African-American and African Studies.

780.21 Ensemble: Slavic Performing Ensemble  GRAD  1-2
Study and performance of repertoire determined by student's specific ensemble: Slavic Performing Ensemble.
Wi, Sp Qtrs. Prereq: Admission by audition and permission of instructor. Repeatable to a maximum of 24 cr hrs.

783H Honors Research  UGRD  3-5
A program of research for each student which includes individual conferences and which culminates in an honors thesis or oral defense.
Su, Au, Wi, Sp Qtrs. Arr. 783HH (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Approved candidacy for graduation with distinction, which includes faculty adviser and ASC or College of the Arts or College of Education Honors Committee approval of project, a minimum 3.50 pt-hr ratio in the field of distinction, sr standing, and CPHR commensurate with honors program membership. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

786 Music Research Methods and Bibliography  GRAD  3
Survey of the methods and materials for conducting research projects in today's interdisciplinary computerized environment.
Au, Wi, Sp Qtrs. 3 cl. Prereq: Grad standing in music.
787.01 Music Cultures in Asia and the Middle East: Chinese Music
An introduction to the history, theory and practice of Chinese music with special reference to the socio-cultural conditions of its development.
* Prereq: Grad standing.

787.02 Music Cultures in Asia and the Middle East: Indian Music
An introduction to the history, theory and practice of Indian music with special reference to the socio-cultural conditions of its development.

787.03 Music Cultures in Asia and the Middle East: Arabic Music
An introduction to the history, theory and practice of Arabic music with special reference to the socio-cultural conditions of its development.

790 Problems in Vocal Music Education UGRD 1-5
Study of problems encountered in the teaching and supervising of vocal music.

791 Problems in Instrumental Music Education UGRD 1-5
Study of problems encountered in teaching, supervising, and organizing of the instrumental music program.

792 Choral Problems UGRD 1-5
Study of the problems encountered in developing choruses and church choirs.

801.11 Applied Music (Principal): Piano GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Piano.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.21 Applied Music (Principal): Voice GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Voice.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.31 Applied Music (Principal): Violin GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Violin.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.41 Applied Music (Principal): Flute GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Flute.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.42 Applied Music (Principal): Oboe GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Oboe.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.43 Applied Music (Principal): Clarinet GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Clarinet.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.44 Applied Music (Principal): Bass Clarinet GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Bass Clarinet.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.45 Applied Music (Principal): Saxophone GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Saxophone.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.46 Applied Music (Principal): Bassoon GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Bassoon.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.51 Applied Music (Principal): Horn GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Horn.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.52 Applied Music (Principal): Trumpet GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Trumpet.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.53 Applied Music (Principal): Trombone GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Trombone.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.54 Applied Music (Principal): Euphonium GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Euphonium.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.55 Applied Music (Principal): Tuba GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Tuba.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

801.71 Applied Music (Principal): Percussion GRAD 2-4
Advanced applied music study with emphasis on musicianship, pedagogical techniques, and literature: Percussion.
Prereq: Placement exam or permission of applied area faculty. Open to other qualified students within the limits of instructional facilities by permission of director of School of Music. Repeatable to a maximum of 24 cr hrs.

802.11 Applied Music (Major): Piano GRAD 2-4
A specialized and intense study of literature and techniques of performance: Piano.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.
802.21 Applied Music (Major): Voice
A specialized and intense study of literature and techniques of performance: Voice.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.31 Applied Music (Major): Violin
A specialized and intense study of literature and techniques of performance: Violin.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.32 Applied Music (Major): Viola
A specialized and intense study of literature and techniques of performance: Viola.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.33 Applied Music (Major): Cello
A specialized and intense study of literature and techniques of performance: Cello.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.34 Applied Music (Major): Double Bass
A specialized and intense study of literature and techniques of performance: Double Bass.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.41 Applied Music (Major): Flute
A specialized and intense study of literature and techniques of performance: Flute.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.42 Applied Music (Major): Oboe
A specialized and intense study of literature and techniques of performance: Oboe.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.43 Applied Music (Major): Clarinet
A specialized and intense study of literature and techniques of performance: Clarinet.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.44 Applied Music (Major): Bass Clarinet
A specialized and intense study of literature and techniques of performance: Bass Clarinet.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.45 Applied Music (Major): Saxophone
A specialized and intense study of literature and techniques of performance: Saxophone.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.46 Applied Music (Major): Bassoon
A specialized and intense study of literature and techniques of performance: Bassoon.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.51 Applied Music (Major): Horn
A specialized and intense study of literature and techniques of performance: Horn.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.52 Applied Music (Major): Trumpet
A specialized and intense study of literature and techniques of performance: Trumpet.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.53 Applied Music (Major): Trombone
A specialized and intense study of literature and techniques of performance: Trombone.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.54 Applied Music (Major): Euphonium
A specialized and intense study of literature and techniques of performance: Euphonium.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.55 Applied Music (Major): Tuba
A specialized and intense study of literature and techniques of performance: Tuba.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

802.71 Applied Music (Major): Percussion
A specialized and intense study of literature and techniques of performance: Percussion.
Prereq: Placement exam. Repeatable to a maximum of 24 cr hrs.

803.01 Conducting: Choral
A specialized and intense study of conducting techniques: Choral.
Prereq: Placement exam. Open only to conducting majors in the MM curriculum.
Repeatable to a maximum of 12 cr hrs.

803.02 Conducting: Orchestral
A specialized and intense study of conducting techniques: Orchestral.
Prereq: Placement exam. Open only to conducting majors in the MM curriculum.
Repeatable to a maximum of 12 cr hrs.

803.03 Conducting: Band
A specialized and intense study of conducting techniques: Band.
Prereq: Placement exam. Open only to conducting majors in the MM curriculum.
Repeatable to a maximum of 12 cr hrs.

805 Masters Degree Recital
Intended for the graduate student who is preparing the master recital as a requirement for the Master of Music degree, and the Master of Arts in Music Pedagogy degree.
Au, Wi, Sp Qtrs. Arr. Prereq: Grad music major. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

810.11 Music Pedagogy: Practicum in Teaching
Application of theoretical knowledge in piano pedagogy (teaching applied music); supervised teaching assignments.
** Au, Wi, Sp Qtrs. 3-9 hrs per week of laboratory teaching. Prereq: 613 and Music grad standing. Repeatable to a maximum of 6 cr hrs.

810.21 Music Pedagogy: Vocal
An analysis of the principles and practices current in the teaching of voice.
* Wi Qtr. 3 cr. Prereq: Music grad standing and minimum of 6 cr hrs of applied study in voice.

810.22 Music Pedagogy: Vocal Practicum
Observation of applied voice instruction, participation in and discussion of voice teaching, development of teaching skills and fluency of communications.
* Sp Qtr. 3 cr. Prereq: 615.

810.30 Music Pedagogy: String Instrument
An analysis of the principles and practices current in the teaching of strings.
* Sp Qtr. 5 cr. Prereq: Music grad standing and minimum of 6 cr hrs of applied study in string instruments.

810.31 Pedagogy for Applied Teaching
Course examines pedagogy and repertoire for teaching beginning and intermediate string instrument lesson in an applied studio.
Au Qtr. Prereq: Music major.

810.32 Pedagogy for Beginning Lower Strings
Course examines pedagogy and instructional materials designed to teach first and second year cello and bass playing skills.
Wi Qtr. Prereq: Music major enrolled in the Masters of Arts String Pedagogy degree program.

810.33 Pedagogy for Beginning Upper Strings
Course examines pedagogy and instructional materials designed to teach first and second year violin and viola playing skills.
Prereq: Music major enrolled in the Masters of Arts String Pedagogy degree program.

810.40 Music Pedagogy: Woodwind Instrument
An analysis of the principles and practices current in the teaching of woodwinds.
* Sp Qtr. 5 cr. Prereq: Music grad standing and minimum of 6 cr hrs of applied study in woodwind instruments.

810.50 Music Pedagogy: Brass Instrument
An analysis of the principles and practices current in the teaching of brass instruments.
* Sp Qtr. 5 cr. Prereq: Music grad standing and minimum of 6 cr hrs of applied study in brass instruments.

810.70 Music Pedagogy: Percussion Instruments
An analysis of principles and practices in the teaching of percussion instruments.
* Au Qtr. 3 cr. Prereq: Music grad standing and a minimum of 6 cr hrs of applied study in percussion instruments, or permission of instructor.

812 Graduate Voice Dietion and Repertoire
Coaching
Coaching the singer in the authentic sound and production of the Italian, French and German languages.
Au Qtr. 3 cr. Prereq: Grad voice major. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

815 Seminar for Singing Health Specialist
Required seminar for candidates in the Singing Health Specialization to enable coordination of skills, concepts and practices necessary for successful SHS certification.
** Su, Wi Qtrs. 3 cl, 1 lab hr. Prereq: Admission to Singing Health Specialization; completion of Otolaryn 803, 804, 809. Open only to Singing Health Specialization candidates. Not open to students with credit for Sph&Hrgr 815. Cross-listed in Speech and Hearing Science. Some sessions in OSU Clinic, Hospital, Speech and Hearing Lab.

818.01 Theories of Heinrich Schenker: Foundations
Musical structural analysis of Schenker as expressed in his own writings; emphasis on his theories rather than on graphing techniques.
* Au Qtr. 3 cr. Prereq: 621 or 622 or 623. Not open to students with credit for 818.
818.02 Theories of Heinrich Schenker: Analysis and Practicum
Analysis of tonal music strictly following the theories and graphic notational conventions of Heinrich Schenker.
* Wi Qtr. 2 1.5-hr cl. Prereq: 818.01 and grad standing in music.

819 Levels Theory after Schenker
Concentration on specific concepts of commentators and successors as distinct from Schenker's.
* Sp Qtr. 3 cl. Prereq: 818. Not open to students with credit for 729.

820.01 Music Theory: Pedagogy
The teaching of music theory in colleges and secondary schools.
** Au Qtr. 3 cl. Prereq: Music grad standing.

820.02 Music Theory: Teaching Practicum
Evaluation and application of the most effective teaching methods and principles in teaching music theory.
* Sp Qtr. 2 1.5-hr cl. Prereq: 820.01.

823 Seminar: Atonal Theory
A study of atonal set theory and serial theory as developed by Babbitt, Forte, Lewin, Rahn, and others.
* Sp Qtr. 2 1.5-hr cl. Prereq: 623 or permission of instructor.

824.01 Computer Applications in Music Research and Instruction I
The use of computers in music research and instruction; music data structures and programming routines for music research and instruction.
* Au Qtr. Prereq: 621, 622, or 623, or equiv or permission of instructor. Not open to students with credit for 824.

826 Development of Music Theory I
A study of the principal treatises on music theory before 1400.
** Au Qtr. 3 cl.

827 Development of Music Theory II
A study of the principal treatises on music theory from 1400 to 1700.
** Wi Qtr. 3 cl.

828 Development of Music Theory III
Critical study of music and theory texts from 1700 to 1900.
** Sp Qtr. 3 cl.

829 Seminar: Contemporary Theories of Music 3-5
Critical examination of major contemporary theoretical viewpoints; concepts of theory construction; topics will vary each quarter offered.
Au, Wi, Sp Qtrns. 2 1.5-hr cl. Prereq: Music grad standing. Repeatable to a maximum of 20 cr hrs.

831 Advanced Studies in Counterpoint
Advanced counterpoint based on the polyphonic style of the 18th century; analysis and stylistic writing, including study of fugues, canons, and invertible counterpoint.
* Sp Qtr. 3 cl. Prereq: 631.

835 Composition III
Creative writing at an advanced level.
Au, Wi, Sp Qtrs. Prereq: 2 qtrs of 635 or equiv. Repeatable to a maximum of 20 cr hrs

837 Composition with Electronic Media II
Advanced composition using electronically generated sound material.
Au, Wi, Sp Qtrs. 15 cl. Prereq: 637. Repeatable to a maximum of 15 cr hrs.

838 Seminar in Music Perception
Investigation and application of experimental techniques for measuring music perception and musical behavior, including a critical survey of recent experimental literature.
Sp Qtr. 1-1 hr cl. Prereq: Permission of instructor.

839 Research Practicum in Music Perception
Supervised research in music perception with review of relevant theoretical and methodological literature.
Au, Wi, Sp Qtrs. Prereq: 838. Repeatable to a maximum of 6 cr hrs.

847 Development of Notation: 900-1600
A survey of notational principles from Gregorian neumes through the mensural system of the Renaissance, with exercises in transcription.
** Sp Qtr. 3 cl. Prereq: or concur: 640.

850 History of Performance Practices
A study of primary sources pertaining to contemporary attitudes and practices in the performance of music from the Middle Ages to the present.
** Sp Qtr. 3 cl.

852.01 Performance Literature: Piano
Concentrated study of representative literature from each style period: Piano.
Prereq: 752 and admission to DMA program. Repeatable to a maximum of 9 cr hrs.

852.02 Performance Literature: Voice
Concentrated study of representative literature from each style period: Voice.
Prereq: 752 and admission to DMA program. Prereq: Admission to DMA program. Repeatable to a maximum of 9 cr hrs.

852.03 Performance Literature: Strings
Concentrated study of representative literature from each style period: Strings.
Prereq: 752 and admission to DMA program. Repeatable to a maximum of 9 cr hrs.

852.04 Performance Literature: Woodwinds
Concentrated study of representative literature from each style period: Woodwinds.
* Prereq: 752 and admission to DMA program. Repeatable to a maximum of 9 cr hrs.

852.05 Performance Literature: Brass
Concentrated study of representative literature from each style period: Brass.
* Prereq: 752 and admission to DMA program. Repeatable to a maximum of 9 cr hrs.

852.07 Performance Literature: Percussion
Concentrated study of representative literature from each style period: Percussion.
Prereq: 752 and admission to DMA program. Repeatable to a maximum of 9 cr hrs.

860.01 Conducting Repertoire: Band
Concentrated study of instrumentation and repertoire of bands in Western music from the standpoint of the conductor.
Open only to DMA conducting majors or PhD students or by permission of instructor.

860.02 Conducting Repertoire: Choral
Concentrated study of choral literature from the Renaissance to the present.
Open only to DMA conducting majors or PhD students or by permission of instructor.

860.03 Conducting Repertoire: Orchestral
Concentrated study of orchestral repertoire from Monteverdi through the present from the standpoint of the conductor.
Open only to DMA conducting majors or PhD students or by permission of instructor.

874 Seminar: The Development of Music Education
The development of music education from the early Greek society to the present day tracing major trends and the influence of certain persons.
* Sp Qtr. 3 or 5 cl. Prereq: Written permission of instructor.

875 Seminar: Psychological Factors in Music Education 3-5
A study of the psychological factors, theory, and research in the musical development of children and adolescents with implications for school music education programs.
* Au Qtr. 3 or 5 cl. Prereq: 761.

877 Seminar: Social Factors in Music Education 3-5
A study of the social influences on music education and their relationship to school music programs and practices.
* Wi Qtr. 3 or 5 cl. Prereq: 760.

879 Seminar: Music in Higher Education 3-5
The role of music in higher education historically and in contemporary times, including its philosophical bases, degree programs, and organizations.
* Wi Qtr. 3 or 5 cl.

885 Fieldwork in Ethnomusicology 5
A study of the theory and practice of ethnomusicological fieldwork.
* Wi Qtr. 2 1.5-hr cl.

886 Theories and Methods of Ethnomusicology 5
A study of scholarly approaches and research methods in ethnomusicology.
* Sp Qtr. 2 1.5-hr cl.

887 Representations and Analyses of Musical Sound
An exploration of the relationship between musical sound and its non-acoustico- temporal representations.
* Sp Qtr. 2 1.5-hr cl.

893 Individual Studies 1-15
Individual research projects not connected with the dissertation.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

894.01 Seminar in Music Theory
Seminar in Music Theory.
Repeatable to a maximum of 15 cr hrs.

894.02 Seminar in Music Education
Seminar in Music Education.
Repeatable to a maximum of 15 cr hrs.

902.11 Applied Music (Major): Piano 2-4
Advanced study of music literature in performance including concert recital presentation: Piano.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.
Advanced study of music literature in performance including concert recital presentation: Voice.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.31 Applied Music (Major): Violin GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Violin.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.32 Applied Music (Major): Viola GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Viola.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.33 Applied Music (Major): Cello GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Cello.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.34 Applied Music (Major): Double Bass GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Double Bass.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.41 Applied Music (Major): Flute GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Flute.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.42 Applied Music (Major): Oboe GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Oboe.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.43 Applied Music (Major): Clarinet GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Clarinet.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.44 Applied Music (Major): Bass Clarinet GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Bass Clarinet.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.45 Applied Music (Major): Saxophone GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Saxophone.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.46 Applied Music (Major): Bassoon GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Bassoon.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.51 Applied Music (Major): Horn GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Horn.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.52 Applied Music (Major): Trumpet GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Trumpet.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.53 Applied Music (Major): Trombone GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Trombone.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.55 Applied Music (Major): Tuba GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Tuba.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

902.71 Applied Music (Major): Percussion GRAD 2-4
Advanced study of music literature in performance including concert recital presentation: Percussion.
Prereq: Placement exam. Open only to students admitted to DMA program. Repeatable to a maximum of 32 cr hrs.

903.01 Advanced Conducting: Band/Winds GRAD 4
Study of advanced conducting technique and application to appropriate repertoire: Band/Winds.
Prereq: Acceptance into the DMA conducting program. Repeatable to a maximum of 8 cr hrs.

903.02 Advanced Conducting: Choral GRAD 4
Study of advanced conducting technique and application to appropriate repertoire: Choral.
Prereq: Acceptance into the DMA conducting program. Repeatable to a maximum of 8 cr hrs.

903.03 Advanced Conducting: Orchestral GRAD 4
Study of advanced conducting technique and application to appropriate repertoire: Orchestral.
Prereq: Acceptance into the DMA conducting program. Repeatable to a maximum of 8 cr hrs.

905 Doctoral Degree Recital GRAD 2
Intended for the graduate student who is preparing the doctoral recital as a requirement for the Doctor of Music degree.
Au, Wi, Sp Qtrs. Arr. Prereq: Grad music major. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

950.01 Seminar in Musicology GRAD 5
Seminar in Musicology: Research topic to be announced.
Wi, 2.5-hr cl. Repeatable to a maximum of 45 cr hrs.

950.02 Seminar in Music Theory GRAD 5
Seminar in Music Theory: Research topic to be announced.
2.5-hr cl. Repeatable to a maximum of 45 cr hrs.

970 Masters Project - Plan B GRAD 2-6
Research and practical investigations of selected topics for purposes of the Plan B Masters Project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Grad standing in music. Repeatable to a maximum of 6 cr hrs. Required of students enrolled in Master of Arts - Plan B program.

995 Advanced Research Practicum GRAD 1-5
Utilization of research processes and creative techniques appropriate to the field of inquiry-analysis, survey, experimentation, historiography, philosophy.
Su, Au, Wi, Sp Qtrs. Prereq: 45 grad cr hrs and permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

998 Research in Music: Thesis GRAD 1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

999 Research in Music: Dissertation GRAD 1-18
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Naval Science
111 Survey of Naval Science UGRD 3
An introduction to and survey of disciplines peculiar to naval science including a discussion of naval tasks and missions, regulations, customs, traditions, and organizational relationships.
Au Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: Enrollment in NROTC Unit or permission of instructor. Students enrolling in this course are to contact the Naval Science Department (292-6015) to receive information about an orientation program.

121 Naval History UGRD 3
An analysis of maritime affairs as related to the United States naval forces, from pre-Revolutionary War through World War II.
Wi Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 111 or permission of instructor.

131 Sea Power and Maritime Affairs UGRD 3
A continuing analysis of sea power and maritime affairs as related to the naval forces of the United States from WW II to present day.
Sp Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 121 or permission of instructor.

211 Navigation I UGRD 4
A study of navigation and piloting vessels at sea, including the determination of position by dead reckoning, visual bearings, and electronic methods.
Wi Qtr. 2 2-hr cl, 1 2-hr lab. Prereq: 211 or permission of instructor.
### Near Eastern Languages and Cultures

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>231</td>
<td>Naval Leadership and Management</td>
<td>UGRD 2</td>
<td>A seminar study of naval leadership. Sp Qtr. 2 cl, 1 2-hr lab. Prereq: 221 or permission of instructor.</td>
</tr>
<tr>
<td>311</td>
<td>Naval Engineering</td>
<td>UGRD 4</td>
<td>Study of fundamental thermodynamics, conventional and nuclear ship propulsion systems. Au Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>321</td>
<td>Naval Engineering and Weapons</td>
<td>UGRD 3</td>
<td>This course completes naval engineering principles, transitions to applications of naval weapons systems as they relate to the ships of today's Navy. Wi Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 311 or permission of instructor.</td>
</tr>
<tr>
<td>331</td>
<td>Naval Weapons</td>
<td>UGRD 3</td>
<td>A continuation of 321, theoretical presentation of fundamental weapons concepts including electromagnetic principles, feedback controls, and basic ballistics. Sp Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 321 or permission of instructor.</td>
</tr>
<tr>
<td>351</td>
<td>Evolution of the Art of War, Part I</td>
<td>UGRD 3</td>
<td>A study of the evolution of weapons and tactics, illustrating the principles and variables of war used in certain battles from Alexander through the Prussian war. * Au Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 131 or permission of instructor.</td>
</tr>
<tr>
<td>352</td>
<td>Evolution of the Art of War, Part II</td>
<td>UGRD 3</td>
<td>A continuation of the study of evolution of the art of war from the age of Mahan through the present day. * Wi Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 351 or permission of instructor.</td>
</tr>
<tr>
<td>353</td>
<td>Modern Basic Military Strategy and Tactics</td>
<td>UGRD 1</td>
<td>A survey of modern strategic and tactical principles, and current military developments. Sp Qtr. 1 2-hr sem. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>411</td>
<td>Naval Leadership and Ethics</td>
<td>UGRD 2</td>
<td>A study of issues related to naval law and the UCMJ. Au Qtr. 2 1-hr cl, 1 2-hr lab. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>421</td>
<td>Naval Officer Senior Seminar</td>
<td>UGRD 2</td>
<td>A seminar study for preparing future Naval officers for commissioning. Wi Qtr. 2 cl, 1 2-hr lab.</td>
</tr>
<tr>
<td>431</td>
<td>Naval Operations and Seamanship</td>
<td>UGRD 3</td>
<td>A study of fleet operations and tactics focusing on case studies of successful operations and mishaps, also covering Coast Guard Rules of the Road. Sp Qtr. 2 1-hr cl, 1 2-hr lab. Prereq: 421 or permission of instructor.</td>
</tr>
<tr>
<td>451</td>
<td>Amphibious Warfare, Part I</td>
<td>UGRD 3</td>
<td>The history of amphibious warfare and its development from the battle of Marathon through the Marshalls Campaign. ** Au Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 131 or permission of instructor.</td>
</tr>
<tr>
<td>452</td>
<td>Amphibious Warfare, Part II</td>
<td>UGRD 3</td>
<td>A study of the doctrinal techniques and present concepts of amphibious warfare from the Marians Campaign through present day. ** Wi Qtr. 2 1.5-hr cl, 1 2-hr lab. Prereq: 451 or permission of instructor.</td>
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### The Middle East in the Media

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<tbody>
<tr>
<td>344</td>
<td>The Middle East in the Media</td>
<td>UGRD 5</td>
<td>Examination of contemporary Middle Eastern cultures through critical evaluation of the media which inform our understanding of international politics. Prereq: English 110 or 111. GEC arts and hums cultures and ideas course.</td>
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</table>

### Women in the Muslim Middle East

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<tbody>
<tr>
<td>345</td>
<td>Women in the Muslim Middle East</td>
<td>UGRD 5</td>
<td>Examination of position of women in the contemporary Middle East; impact of regional environment on gender identity; gender bias studies in various Middle Eastern countries. 2 2-hr cl. Prereq: English 110. GEC arts and hums cultures and ideas course.</td>
</tr>
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### Introduction to Islam

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<tbody>
<tr>
<td>351</td>
<td>Introduction to Islam</td>
<td>UGRD 5</td>
<td>Examination of Islam as a world religion, enabling an understanding of its major tenet and beliefs as they are envisioned by insiders and outsiders. Prereq: English 110 or 111. GEC arts and hums cultures and ideas course.</td>
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### Sufism

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<tbody>
<tr>
<td>358</td>
<td>Sufism</td>
<td>UGRD 5</td>
<td>Examination of the distinctively Islamic mystical and spiritual features of Sufism and the relevance of its historical and cultural context. Au Qtr. Prereq: English 110. GEC arts and hums cultures and ideas course.</td>
</tr>
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### Shehrazade and Company: Sex, Gender and Power in Middle Eastern Storytelling

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<tbody>
<tr>
<td>360</td>
<td>Shehrazade and Company: Sex, Gender and Power in Middle Eastern Storytelling</td>
<td>UGRD 5</td>
<td>Oral storytelling by adults in recent practice; its depiction in Middle Eastern literature from medieval to modern; how storytellers, male and female, treat gender relations. Prereq: English 110. GEC arts and hums cultures and ideas course.</td>
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### Literatures and Cultures of the Islamic World

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<tbody>
<tr>
<td>372</td>
<td>Literatures and Cultures of the Islamic World</td>
<td>UGRD 5</td>
<td>A survey of the Islamic world by way of literature and culture. Prereq: English 110 or 111 or equiv. GEC arts and hums lit course.</td>
</tr>
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</table>

### The Novel in the Middle East

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<tr>
<td>374</td>
<td>The Novel in the Middle East</td>
<td>UGRD 5</td>
<td>The emergence of the novel in the Middle East and development of its major themes and forms. 2 2-hr cl. Prereq: English 110. GEC arts and hums lit course.</td>
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### Everyday Life in South Asia

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<tbody>
<tr>
<td>380</td>
<td>Everyday Life in South Asia</td>
<td>UGRD 5</td>
<td>An examination of everyday life as experienced by members of the culturally diverse population of South Asia. Prereq: English 110. GEC arts and humanities culture and ideas course.</td>
</tr>
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</table>

### Grammar of Selected Ancient Near Eastern Languages

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<tbody>
<tr>
<td>603</td>
<td>Grammar of Selected Ancient Near Eastern Languages</td>
<td>UGRD 5</td>
<td>Fundamentals of grammar and reading in ancient Near Eastern languages (language to be announced, 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 20 cr hrs. Taught in English.</td>
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### Comparative Semitic Linguistics

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<tbody>
<tr>
<td>611</td>
<td>Comparative Semitic Linguistics</td>
<td>UGRD 5</td>
<td>An introduction to the study of comparative Semitic linguistics. Prereq: Permission of instructor.</td>
</tr>
</tbody>
</table>

### Languages and Cultures of the Middle East

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<tbody>
<tr>
<td>612</td>
<td>Languages and Cultures of the Middle East</td>
<td>UGRD 5</td>
<td>Wide overview of languages spoken in the ancient, medieval, and modern Middle East: their linguistic affiliation; main periods of their history; their different writing systems. Prereq: Permission of instructor.</td>
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</table>

### Biblical Aramaic

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<tbody>
<tr>
<td>620</td>
<td>Biblical Aramaic</td>
<td>UGRD 5</td>
<td>Introduction to the language and literature of Aramaic; readings in the Aramaic mythological literature. Prereq: Permission of instructor.</td>
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</table>

### Ugaritic

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<tbody>
<tr>
<td>630</td>
<td>Ugaritic</td>
<td>UGRD 5</td>
<td>Introduction to the language and literature of Ugaritic; readings in the Ugaritic mythological literature. Prereq: Permission of instructor.</td>
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</table>

### Phoenician Language and Culture

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<tbody>
<tr>
<td>632</td>
<td>Phoenician Language and Culture</td>
<td>UGRD 5</td>
<td>A survey of Phoenician-Punic texts in their cultural context. Wi Qtr. Prereq: Knowledge of Hebrew or another Semitic language (Arabic, Aramaic, Akkadian) or permission of instructor.</td>
</tr>
</tbody>
</table>
635.01 Akkadian I UGRD 5
Explanation and discussion of grammatical or literary topics followed by the study of elementary Akkadian texts to develop practical reading skills. Wi Qtr. 2-2 hr cl. Prereq: Permission of instructor.

635.02 Akkadian II UGRD 5
Reading texts in their original cuneiform script and understanding them within their historical and generic contexts. Sp Qtr. 2-2 hr cl. Prereq: 635.01 or permission of instructor.

642 Representing the Middle East in Film UGRD 5
Examination of the discourses of orientalism using film as the primary medium of expression and discussion. Prereq: Permission of instructor.

644 Culture and Politics in Central Asia UGRD 5
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: Rank 3 minimum or grad standing, or permission of instructor.

645 Contemporary Issues in the Middle East UGRD 5
Intensive examination of contemporary issues in the Middle East by applying an interdisciplinary approach. Prereq: Int Stds 245 or jr standing. Not open to students with credit for Int Stds 645. Cross-listed in International Studies.

646 Colonial Cities in Postcolonial Memory: The Politics of Urban Development in the Near East UGRD 5
Introduction to colonial and postcolonial studies through a comparative examination of various cities that developed in the Near East during the late nineteenth century. Prereq: Permission of instructor.

648 Studies in Orality and Literacy UGRD 5
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: Permission of instructor. Not open to students with credit for Comp Std 648. Cross-listed in Comparative Studies.

671 Canon and Communities in the Near East UGRD 5
Investigation of the process by which Near Eastern sacred texts (Bible, Qur'an, and others) become sacred and the interaction between texts and communities holding them sacred. Wi Qtr. Prereq: English 110 or 111, or grad standing. Not open to students with credit for Comp Std 672. Cross-listed in Comparative Studies.

672 Poetry and Politics in the 20th-Century Mediterranean UGRD 5
Exploration of several poets and poetic traditions around the Mediterranean in relation to modern political struggles: resistance to fascism; dilemmas of imperialism and underdevelopment. Wi Qtr. Prereq: English 110 or 111, or grad standing. Not open to students with credit for Comp Std 672. Cross-listed in Comparative Studies.

675 Intellectuals in the Middle East UGRD 5
Concerns and conditions of intellectuals in the modern Middle East. 2 2 -hr cl. Prereq: Permission of instructor.

678 Islamic Law and Society UGRD 5
Examination of the relationship between Islamic law and society; the concept of justice in Islam. Prereq: Permission of instructor. Not open to students with credit for 694, Sp 2007.

680 Basic Bibliographic and Reference Tools in Near Eastern Languages and Cultures UGRD 5
Basic Bibliographic and Reference Tools in Near Eastern Languages and Cultures. Prereq: 10 cr hrs in Middle Eastern history or literature or equiv. Not open to students with credit for Arabic 680.

692 Workshop UGRD 6
Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it. Su Qtr. Arr. Prereq: Teaching experience and written permission of workshop director. Repeatable to a maximum of 18 cr hrs.

694 Group Studies UGRD 1-5
Special topics to be announced in the quarter previous to the one in which the course is offered. Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Au, Su, Wi, Sp Qtr. Prereq: Permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress ("P") graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

702 Introduction to Topics in Cell Biophysics GRAD 2
This is a team taught introductory course for the first year students of the Biophysics Graduate Program. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Cross-listed in Biophysics.

705 Neurobiology of Disease GRAD 3
Neurobiology of Disease will explore the basis of major diseases affecting the nervous system. Sp Qtr. 3 1-hr cl. Prereq: Permission of instructor. Not open to students with credit for Pharmac 705. Cross-listed in Pharmacology.

723 Cellular and Molecular Neurobiology GRAD 5
Introduction to cellular components of nervous system, cell and molecular biology of nervous tissue, membrane properties and function in neural cells, brief overview of nervous system development. Au Qtr. 2 2-hr lectures. Prereq: Permission of instructor. Not open to students with credit for Neurosci 723. Cross-listed in Neuroscience Graduate Studies Program.

724 Neurophysiology GRAD 3
Interdisciplinary approach to the physiology and neurobiology of the nervous system. Au Qtr. 2-4 cl. Prereq: Permission of instructor. Not open to students with credit for Neurosci 724 or Dent 724. Cross-listed in Neuroscience Graduate Studies Program and Dentistry.

725 Structure and Function of the Nervous System GRAD 6
Interdisciplinary approach to the anatomy, neurobiology, physiology, and biochemistry of the nervous system. Wi Qtr. 2-4 cl. Prereq: Permission of instructor. Not open to students with credit for Neurosci 725 or Dent 725. Cross-listed in Neuroscience Graduate Studies Program and Dentistry.
790 Developmental Neurobiology GRAD 3
Interdisciplinary approach to the development of neural cells and the formation and maturation of vertebrate and invertebrate nervous systems.
* Sp Qtr. 2 1.5-hr cl. Prereq: Neurosci 723, 724 and 725, or permission of instructor. Cross-listed in Neuroscience Graduate Studies Program.

797 Seminar Topics in Neuroscience GRAD 1
Selected topics in current neuroscience department research.
Su, Au, Wi, Sp Qtr. 1 hr cl. Prereq: Grad standing and permission of instructor. Not open to students with credit for Neurosci 797. Repeatable to a maximum of 24 cr hrs. Cross-listed in Neuroscience. This course is graded S/U.

800 Molecular Neurobiology GRAD 3
Survey of recent advances in the understanding of the structure and function of molecules known to be of key importance in the nervous system.
* Sp Qtr. 3 1-hr cl. Prereq: Permission of instructor. Not open to students with credit for Neurosci 800. Cross-listed in Neuroscience Graduate Studies Program.

999 Research in Neuroscience Department GRAD 1-15
Research in neuroscience department.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing in neuroscience and permission of instructor. Repeatable to a maximum of 180 cr hrs. This course is graded S/U.

**Neuroscience Graduate Studies Program**

723 Cellular and Molecular Neurobiology GRAD 5
Introduction to cellular components of nervous system, cell and molecular biology of nervous tissue, membrane properties and function in neural cells, brief overview of nervous system development.
Au Qtr. 3 2-hr lectures. Prereq: Permission of instructor. Not open to students with credit for Neuro Sc 723. Cross-listed in Neuroscience Department.

724 Neurophysiology GRAD 3
Interdisciplinary approach to the physiology and neurobiology of the nervous system.
Au Qtr. 2-4 cl. Prereq: Permission of instructor. Not open to students with credit for Neuro Sc 724 or Dent 724. Cross-listed in Neuroscience Department and Dentistry.

725 Structure and Function of the Nervous System GRAD 6
Interdisciplinary approach to the anatomy, neurobiology, physiology, and biochemistry of the nervous system.
Wi Qtr. 4 1-hr lec, 2 2-hr lab. Prereq: Permission of instructor. Not open to students with credit for Neuro Sc 725 or Dent 725. Cross-listed in Neuroscience Department and Dentistry.

726 Behavioral Neuroscience GRAD 5
Concepts in behavioral neuroscience (motivation, cognition, development, aging, sensory systems, and homeostasis).
Sp Qtr. 2 1.5-hr cl. Prereq: 725 or permission of instructor. Not open to students with credit for Psych 726. Cross-listed in Psychology.

750 Principles of Neuroimmunology GRAD 3
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).
* Sp Qtr. 2 1.5-hr cl. Prereq: MVMIG 701, NeuroGSP 725 or equiv, or permission of instructor. Not open to students with credit for MVMIG 750. Cross-listed in Molecular Virology, Immunology and Medical Genetics.

790 Developmental Neurobiology GRAD 3
Interdisciplinary approach to the development of neural cells and the formation and maturation of vertebrate and invertebrate nervous systems.
* Wi Qtr. 2 1.5-hr cl. Prereq: Neurosci 723, 724 and 725, or permission of instructor. Not open to students with credit for Anat & Me 790, Neuro Sc 790 or Chn&Anat 790. Cross-listed in Anatomy and Medical Education and Neuroscience Department.

797 Seminar Topics in Neuroscience GRAD 1
Selected topics in current neuroscience research.
Au, Wi, Sp Qtrs. 1-2 hr cl. Prereq: Grad standing and permission of instructor. Not open to students with credit for Neuro Sc 797. Repeatable to a maximum of 24 cr hrs. Cross-listed in Neuroscience Department. This course is graded S/U.

824 Neuropharmacology GRAD 3
A study of the central nervous system including neurochemistry, neurotransmission, receptors, signal transduction, CNS disorders, treatments and the pharmacology of drugs that act on the CNS.
Sp Qtr. 2 cl arr. Prereq: Pharmcol 600 and IBGP 702.02 or permission of instructor/course director. Not open to students with credit for Pharmcol 824. Cross-listed in Pharmacology.

294 Group Studies in Nuclear Engineering UGRD 1-5
Special group studies of a selected area of nuclear engineering not provided in other courses.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.

505 Introduction to Nuclear Science and Engineering UGRD 3
Discussion of nuclear energy and nuclear radiation; sources, methods of utilization, and projections for future engineering uses.
Au, Sp Qtrs. 2 1.5-hr cl. Prereq: Math through Math 153 and Physics 133, or permission of instructor. Not open to students with credit for Mech Eng 505. Cross-listed in Mechanical Engineering.

606 Radiological Safety UGRD 3
General principles of radiation, radioactivity, and protection methodology with emphasis on approved operating, handling, and waste disposal procedures, and regulations and biological interactions.
Au Qtr. 2 2-hr cl.

610 Reactor Safety I UGRD 3
Introductory course covering concepts of reactor safety, the history of reactor accidents and methods of safety analysis.
Wi Qtr. Prereq: 505 or Mech Eng 505 or permission of instructor. Available to undergrad minor students.

694 Group Studies in Nuclear Engineering UGRD 1-5
Special group studies of a selected area of nuclear engineering not provided in other courses.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs.

701 Introduction to Nuclear Power Engineering UGRD 3
A course for advanced undergraduate/graduate students in nuclear engineering focusing on the physics and engineering of nuclear reactors and nuclear power plants.
Prereq: 505 or permission of instructor.

704 Reactor Theory I UGRD 3
Introduction to the concepts of neutron flux, neutron current, fission chain reactions, diffusion theory, criticality of nuclear assemblies and time dependent behavior.
Au Qtr. Prereq: 505 or equiv; Math 255 or 415 or equiv with permission of instructor. Not open to students with credit for 605.

705 Reactor Theory II GRAD 3
An analytical and mathematical treatment of multi-energy, multi-dimension neutron diffusion theory including reactivity, criticality and rigorous deviation of power reactor kinetics.
Wi Qtr. 2 1.5-hr cl. Prereq: 704 or equiv or permission of instructor.

707 Numerical Methods in Particle Diffusion, Heat Transfer, and Radiation Transport UGRD 3
Computer solutions of neutron diffusion, heat conduction, and radiation transport equations based on finite difference methods using marching, iterative, and direct solution schemes.
Wi Qtr. 2 1.5-hr cl. Prereq: 605 or 708, or Math 512 or Mech Eng 510 and Cptr/Inf 541. Not open to students with credit for Mech Eng 707. Cross-listed in Mechanical Engineering.

708 Reactor Theory UGRD 4
Methods for the design and analysis of nuclear reactor cores. Covers both time-dependent and steady state analysis.
Wi Qtr. 2 2-hr cl. Prereq: 505 or equiv. Required course.

710 Reactor Safety II UGRD 3
Provides experience with three computer codes that are widely used for safety analysis in the nuclear industry: Relap/Trace, Saphire and Melcor/Maccs.
Sp Qtr. Prereq: 610 and 505 or Mech Eng 505 or permission of instructor.

716 Probabilistic Reliability and Safety Analysis UGRD 3
Modeling techniques for probabilistic reliability and safety analysis of large process systems such as found in nuclear, chemical and mechanical systems.
Sp Qtr. 2 1.5-hr cl. Prereq: Grad standing in nuclear or mech eng or permission of instructor. Not open to students with credit for Mech Eng 716.

720 Reactor Dynamics and Control UGRD 3
Nuclear reactor and nuclear reactor system operation; control system performance requirements and control mechanisms; automatic control systems and their performance with transient and with steady state operation.
Au Qtr. 3 1.5-hr cl. Prereq: 701 or 705.

735 Power Plant Operations I UGRD 3
Introduction to power plant systems, regulatory requirements, and integrated plant operations.
Sp Qtr. 2 1.5-hr cl. Prereq: 505 or permission of instructor. Repeatable to a maximum of 6 cr hrs.
Nuclear Power Plants

A study of thermal and mechanical design aspects and economics of nuclear power plants and processes. The thermodynamics of operating nuclear power plants (BWR and PWR) are emphasized.

Wi Qtr. 2 1.5-hr cl. Prereq: 505 and Mech Eng 501 or 500 with permission of instructor. Not open to students with credit for 636 or Mech Eng 636 or 736. Cross-listed in Mechanical Engineering.

Heat Transfer Applications in Nuclear Reactor Systems

The heat transfer applications in nuclear reactor systems include but are not limited to heat transfer in PWR and BWR fuel rods, coolant, and reactor internals.

Sp Qtr. 2 1.5-hr cl. Prereq: 736, or Mech Eng 736, and Mech Eng 510 or 500 with permission of instructor. Not open to students with credit for Mech Eng 637 or 737. Cross-listed in Mechanical Engineering.

Introduction to Two-phase Flow and Heat Transfer

Introduction to two-phase flow and heat transfer in mechanical and nuclear engineering applications. Students learn analytical tools for system design and performance evaluation.

Au Qtr. 2 1.5-hr cl. Prereq: Mech Eng 510 or ChBE 521 or equiv or permission of instructor. Not open to students with credit for Mech Eng 738. Cross-listed in Mechanical Engineering. Introduction to gas-liquid two-phase flow phenomena.

Nuclear Radiations and Their Measurement

A theoretical and experimental study of nuclear radiation sources, interactions with matter, and detection.

Wi Qtr. 2 1.5-hr cl, 1.3-hr lab. Prereq: 606 and 704 or permission of instructor.

Nuclear Radiations and Their Shielding

A theoretical and experimental study of nuclear radiation, interactions with matter, and shielding.

Sp Qtr. 2 1.5-hr cl, 1.3-hr lab. Prereq: 742.

Nuclear Reactor Laboratory

An experimental study of nuclear reactor operating characteristics and fundamental concepts of reactor design.

Sp Qtr. 1 cl, 1.4-hr lab. Prereq: 704 or 705, 720, and 742 or permission of instructor.

Power Plant Operations II

Provides experience with integrated plant operations at a nuclear power plant simulator.

Sp Qtr. Arr. Prereq: 735 or permission of instructor. Repeatable to a maximum of 6 cr hrs.

Nuclear Engineering Design

Practice in the analysis and design of nuclear systems and the use of nuclear engineering principles.

Au Qtr. 1 cl, 2.2-hr lab. Prereq: 704 or 705, 720, and 742 or permission of instructor.

Radioactive Waste Management

Overview of radioactive waste management. Covers waste categories, sources, treatment and disposal methods, minimization, transportation and current research topics.

Au Qtr. Prereq: 505 or 606 or permission of instructor. Not open to students with credit for Env Eng 771 or Civ En 771. Cross-listed in Environmental Engineering.

Nuclear Fuel Cycles

A study of the production, utilization, waste disposal, safeguards, and economic aspects of nuclear fuel cycles of importance in nuclear power technology.

Au Qtr. 2 1.5-hr cl. Prereq: 505 and 736 or permission of instructor.

Individual Studies in Nuclear Engineering

Affords the qualified student the opportunity for independent reading, study, or laboratory work in a specialized field of interest.

Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

Group Studies in Nuclear Engineering

Special group studies of a selected area of Nuclear Engineering not provided in other courses.

Su, Au, Wi, Sp Qtr. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs. May be taught in distance learning format. This course is graded S/U.

Advanced Laboratory Studies

Experimental treatment of advanced nuclear engineering concepts.

Su, Au, Wi, Sp Qtrs. Prereq: 743 or 744, and permission of instructor.

Neutron Slowing Down and Thermalization

Neutron slowing down in infinite and finite media, thermal spectrum calculations, and cell calculations in heterogeneous core lattices.

Sp Qtr. 3 1-hr cl. Prereq: 704 or 705, and Math 512 or equiv with permission of instructor.

Advanced Topics: Reactor Kinetics, Dynamics and Controls

An advanced course of study for special topics in nuclear engineering; topics will be announced each quarter: Reactor Kinetics, Dynamics and Controls.

Au Qtr. Prereq: Permission of instructor. Offered as demand warrants. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

Advanced Topics: Reactor Design

An advanced course of study for special topics in nuclear engineering; topics will be announced each quarter: Reactor Design.

Au Qtr. Prereq: Permission of instructor. Offered as demand warrants. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

Advanced Topics: Fuel Management

An advanced course of study for special topics in nuclear engineering; topics will be announced each quarter: Fuel Management.

Au Qtr. Prereq: Permission of instructor. Offered as demand warrants. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

Advanced Topics: Radiation Effects

An advanced course of study for special topics in nuclear engineering; topics will be announced each quarter: Radiation Effects.

Au Qtr. Prereq: Permission of instructor. Offered as demand warrants. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

Advanced Topics: Nuclear Instrumentation

An advanced course of study for special topics in nuclear engineering; topics will be announced each quarter: Nuclear Instrumentation.

Au Qtr. Prereq: Permission of instructor. Offered as demand warrants. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

Advanced Topics: Special Studies in Radioactive Waste Management

An advanced course of study for special topics in nuclear engineering; topics will be announced each quarter: Special Studies in Radioactive Waste Management.

Au Qtr. Prereq: Permission of instructor. Offered as demand warrants. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

Nuclear Engineering Seminar

Current topics in nuclear engineering.

Au, Sp Qtrs. 1 cl. Prereq: Grad standing in nuclear engineering. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

Group Studies in Nuclear Engineering

Special group studies of a selected area of nuclear engineering not provided in other courses.

Su, Au, Wi, Sp Qtrs. 1 cl. Prereq: Written permission of instructor. Repeatable to a maximum of 20 cr hrs.

Research in Nuclear Engineering

Research for thesis or dissertation purposes only.

Nursing Survey

Introduction to the University Community, the College of Nursing and the profession of nursing. Emphasis on strategies for success, resources and procedures.

Au, Wi, Sp Qtrs. 100H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Enrollment in the College of Nursing as a pre-nursing student. Not open to students with credit in other freshman survey courses. Designed for students admitted as freshman or lower division transfer students.

Introduction to the Profession of Nursing

An introduction to the profession of nursing; exposure to personal and professional boundaries; analysis of trends in nursing and health care.

Wi, Sp Qtrs. 2 cl.

Introduction to Therapeutic Communication for Health Professionals

An introduction to the process of therapeutic communication in health care settings.

Sp Qtr. 2 cl.

Individual Studies in Nursing

Individual investigation of selected areas in introductory nursing studies.

Su, Au, Wi, Sp Qtrs. Prereq: 1st or 2nd year standing in nursing and written permission of instructor. Repeatable to a maximum of 16 cr hrs. This course is graded S/U.

Group Studies in Nursing

Selected topics in Nursing.

Su, Au, Wi, Sp Qtrs. Prereq: 1st or 2nd yr standing in nursing, or permission of instructor. Repeatable to a maximum of 15 cr hrs.
301.01 Foundational Nursing Concepts for Health UGRD 6
Promotion and Restoration across Lifespan Cultures and Sett
Introduction to the profession, nursing process, and natural history model for disease as a framework for disease prevention, health promotion and restoration across the lifespan.
Au Qtr. 4 cl, 4 lab, 4 clinical and 2 sem. Prereq: Soph standing in nursing major; concur 385.01.

301.02 Foundational Nursing Concepts for Health UGRD 6
Promotion and Restoration across Lifespan Cultures and Sett
Assessment of health and nursing interventions to maintain or restore health or prevent disease using the natural history model. Additional focus on the health care delivery system.
Wi Qtr. 4 cl, 4 lab, 4 clinical and 2 sem. Prereq: 301.01; concur 385.02.

301.03 Foundational Nursing Concepts for Health UGRD 6
Promotion and Restoration across Lifespan Cultures and Sett
Assessment of health and nursing interventions to maintain or restore health or prevent disease using the natural history model. Additional focus on political processes that affect health care delivery.
Sp Qtr. 4 cl, 4 lab, 4 clinical and 2 sem. Prereq: 301.02; concur 385.03.

302 Transition into Baccalaureate Nursing UGRD 4
Provides the framework for transition for registered nurses pursuing a baccalaureate degree in nursing.
Su (1st term) Qtr. Prereq: Admission to nursing major, Registered Nurse status. Co-requisite 390. Required in the Bachelor of Science in Nursing degree program for Registered Nurse students. Distance learning course (web taught).

320.01H Honors Seminar I UGRD 1
Discussion of topics relevant to academic, professional, and personal development for nursing.
First in a series of three sophomore Honors Seminars.
Au Qtr. Prereq: Soph standing in nursing major, enrolled in Honors Program.

320.02H Honors Seminar II UGRD 1
Discussion of topics relevant to academic, professional, and personal development in nursing.
Second in a series of three sophomore honors seminars.
Wi Qtr. Prereq: Soph standing in nursing major, enrolled in Honors Program. Prereq: H320.01.

320.03H Honors Seminar III UGRD 1
Discussion of topics relevant to academic, professional, and personal development in nursing.
Third in a series of three sophomore honors seminars.
Sp Qtr. Prereq: Soph standing in nursing major, enrolled in Honors Program. Prereq: H320.02.

337 A Nursing Perspective: Life Span Development of Individuals within a Family Context
Growth and development of individuals within the context of family from the beginning to death with an emphasis on assessment and interventions used by nurses.
Sp Qtr. 3 cl. Prereq: Soph standing in nursing major or permission of instructor.

360.01 Introduction to Scientific Inquiry in Nursing Practice through Information Literacy
Fundamentals of information literacy for nursing practice; intended to foster an appreciation and understanding of information searching and retrieval using a variety of modalities.
Au Qtr. 1 cl. Prereq: Soph standing in nursing major or permission of instructor.

360.02 Introduction to Scientific Inquiry in Nursing Practice through Research Methods
Introduction to nursing research methods; intended to foster an appreciation and understanding of nursing research to enable students to evaluate evidence of nursing practice.
Wi Qtr. 1 cl. Prereq: 360.01.

360.03 Introduction to Scientific Inquiry in Nursing Practice through Evidence-Based Practice
Introduction to the basics of evidence-based practice intended to foster an appreciation and an understanding for utilizing evidence-based findings in nursing practice.
Sp Qtr. Prereq: 360.02 or H541.

367 Healthcare Issues in the United States UGRD 5
Designed to enhance students' critical and analytical reading and writing skills through a study of current health issues in the United States.
Su, Au, Wi, Sp Qtr. 5 cl. Prereq: English 110 or 110.01 or 110.02 or 110.03. GEC second writing course.

385.01 Integrated Sciences for Nursing Practice I UGRD 5
Normal cellular and systemic homeostatic function and local and systemic responses to cellular structure and function.
Au Qtr. Prereq: Soph standing in nursing major or permission of instructor.

385.02 Integrated Sciences for Nursing Practice II UGRD 5
Normal and abnormal renal, musculoskeletal, cardiac and respiratory physiology and principles related to pharmacological management of major diseases of each of these body systems.
Wi Qtr. Prereq: 385.01 or permission of instructor.

385.03 Integrated Sciences for Nursing Practice III UGRD 5
Normal and abnormal neurological, endocrine, gastrointestinal, hepatic, and reproductive physiology and principles related to pharmacological management of major diseases of each of these body systems.
Sp Qtr. Prereq: 385.02 or permission of instructor.

390 Introduction to Research for Evidence-Based Practice
An introduction to the research process and evidence-based practice.
Su Qtr. 3 cl. Prereq: Admission to nursing major, Registered Nurse status or permission of instructor. Co-requisite Nursing 302. Required in the Bachelor of Science in Nursing degree program for Registered Nurse students. Distance learning course (web taught).

402 Nursing Care of Adults UGRD 8
Nursing knowledge essential to caring for adults; emphasis on health promotion, risk assessment, disease prevention and management of common acute and chronic health problems.
Au, Wi, Sp Qtrs. 4 cl, 12 hrs clinical. Prereq: Jr standing in nursing, 301.03, 385.03, Humn Ntr 310, Micrbiol 509, and Nursing 337 or permission of instructor. Cannot be taken with Nursing 403, 404 or 405.

403 Nursing Care of Older Adults UGRD 8
Nursing knowledge essential to caring for older adults; emphasis on health promotion risk assessment, disease prevention and common acute and chronic health problems.
Au, Wi, Sp Qtrs. 4 cl, 12 hrs clinical. Prereq: Jr standing in nursing, 301.03, 385.03, Humn Ntr 310, Micrbiol 509, and Nursing 337 or permission of instructor. Cannot be taken with Nursing 403, 404 or 405.

404 Nursing Care of Childbearing Families UGRD 5
Nursing knowledge essential to caring for childbearing families; emphasis on health promotion, risk assessment, disease prevention and complications from pregnancy, acute and chronic health problems.
Au, Wi, Sp Qtrs. 3 cl, 6 hrs clinical. Prereq: Jr standing in Nursing, 301.03, 385.03, Humn Ntr 310, Micrbiol 509, and Nursing 337 or Psych 340 or HDFS 364 or permission of instructor. Can be taken with Nursing 405. Cannot be taken with Nursing 402 or 403.

405 Nursing Care of Children and their Families UGRD 5
Nursing knowledge essential to caring for children and their families; emphasis on health promotion, risk assessment, disease prevention and common acute and chronic health problems.
Au, Wi, Sp Qtrs. 3 cl, 6 hrs clinical. Prereq: Jr standing in Nursing, 301.03, 385.03, Humn Ntr 310, Micrbiol 509, and Nursing 337 or Psych 340 or HDFS 364 or permission of instructor. Can be taken with Nursing 404. Cannot be taken with Nursing 402 or 403.

420.01H Honors Seminar IV UGRD 1
Discussion of topics relevant to the senior thesis proposal. First in a series of three junior level honors seminars.
Au Qtr. 4.25-hr/qtr. Prereq: Jr. standing in nursing, enrolled in Honors Program, H320.03.

420.02H Honors Seminar V UGRD 1
Discussion of topics relevant to the senior thesis proposal.
Discussion of topics relevant to the senior thesis proposal development. Second in a series of three junior level honors seminars.
Wi Qtr. 4.25-hr/cl. Prereq: H420.01.

420.03H Honors Seminar VI UGRD 1
Discussion of topics relevant to the senior thesis proposal.
Discussion of topics relevant to the senior thesis proposal development. Third in a series of three junior level honors seminars.
Sp Qtr. 4.25-hr/cl. Prereq: H420.02.

440 Cultural Competence in Health Care UGRD 3
Development of health care concepts and techniques used by nurses and other health care professionals in providing culturally competent care of individuals, families and communities.
Au, Wi, Sp Qtrs. 3 cl. Prereq: 301.03 and 385.03 or co-requisite Nursing 302.

450 Interpersonal Relationships: Personal and Professional Boundaries UGRD 1-2
In-depth study of interpersonal relationship boundary issues, including the interrelationship of personal relationship issues and professional relationship issues.
Wi Qtr. 2 cl. This course is graded S/U.
493 Individual Clinical Studies in Nursing UGRD 0-5
Clinical skills development for individuals which take place in the College of Nursing's Teaching Learning Center. Au, Su. Wi, Sp Qtr. Prereq: Enrollment in the College of Nursing; permission of instructor. Repeatable to a maximum of 5 cr hrs. Credit does not count toward BSN degree. This course is graded S/U.

501 High Acuity Nursing UGRD 8
Nursing knowledge essential to management of high acuity patients and their families in a variety of health care settings. Au, Wi, Sp Qtrs. 4 cl, 16 hrs clinical. Prereq: Sr standing in nursing major, 390, 402, 403, 404, 405 and 440 or permission of instructor. Cannot be taken with Nursing 503, 511 or 512.

503 Leadership in Clinical Nursing Practice UGRD 8
Study of leadership principles and refinement of clinical expertise in a focused area of nursing practice. Au, Sp Qtr. 2 cl and additional 14 hrs clinical for 8 week offering. Prereq: Senior standing in nursing major.

503H Leadership in Clinical Nursing Practice UGRD 2-8
Study of leadership principles and refinement of clinical expertise in a focused area of nursing practice. Au, Sp Qtrs. 2 cl and additional 14 hrs clinical for 8 week offering. Prereq: Honors standing in nursing major.

506 Evidence Based Nursing: Transforming Clinical Practice UGRD 5
Study of concepts, application and implementation of evidence based nursing for transforming quality health care. Au Qtr. Prereq: 302D, 390D, 440D, and concurrent enrollment in 507D, or permission of instructor.

507 Health Care Informatics UGRD 3
Examines informatics in health care emphasizing clinical information systems and the use of the information technology applications to support health care practitioners. Au Qtr. Prereq: 302D, 390D, 440D, concurrent with 506D, or permission of instructor.

508 Concepts in High Acuity Nursing UGRD 8
Study of nursing knowledge for Registered Nurse students essential to management of high acuity patients and their families in a variety of health care settings. Au Qtr. 4 hr cl, 4 hrs clinical. Prereq: 302, 390, and 440 or permission of instructor. Open only to students in the RN to BSN program. Distance Learning course (Web taught).

509 Concepts in Community Care of Vulnerable Populations UGRD 6
Application of public health and community health theory and principles to the nursing care of vulnerable populations. Wi Qtr. 4 hrs cl, 2 hrs clinical. Prereq: Nursing 506 and Nursing 507 and student in RN to BSN program in Nursing or permission of instructor. Distance learning course (Web taught).

510 Concepts in Leadership and Management UGRD 8
The study of leadership and management principles as they apply to nursing practice and the health care environment. Sp Qtr. 4 hrs cl, 4 hrs clinical. Prereq: 506 and 507, or 508, or permission of instructor. Distance Learning course (Web taught).

511 Community Care of Vulnerable Populations UGRD 6
Application of public health and community health theory and principles to the nursing care of vulnerable populations. Au, Wi, Sp Qtrs. 4 cl, 18-hr clinical. Prereq: Sr standing in nursing major, 390 or 511, 401, 402, 403 and 440 or permission of instructor. Cannot be taken with Nursing 501 or 503. Concurrent enrollment in 512 possible. The course has been approved by the University Service Learning Outreach and Engagement Office for service learning designation.

512 Psychiatric Mental-Health Nursing UGRD 6
Nursing knowledge applied to the promotion of mental health and to the recovery of individuals with psychiatric diagnoses. Au, Wi, Sp Qtrs. 4 cl, 18-yr clinical. Prereq: Sr standing in nursing major, 401, 402, 403 and 440 or permission of instructor. Cannot be taken with Nursing 501 or 503. Concurrent enrollment in 512 possible.

520.01H Honors Seminar VII UGRD 1
Discussion of topics relevant to the senior thesis process. Discussion of topics relevant to the senior thesis process. First in a series of three senior level honors seminars. Au Qtr. 3.5-4 hr cl. Prereq: H520.03.

520.02H Honors Seminar VIII UGRD 1
Discussion of topics relevant to the senior thesis process. Discussion of topics relevant to the senior thesis process. Second in a series of three senior level honors seminars. Wi Qtr. 3.5-4 hr cl. Prereq: H520.01.

520.03H Honors Seminar IX UGRD 1
Discussion of topics relevant to the senior thesis process. Discussion of topics relevant to the senior thesis process. Third in a series of three senior level honors seminars. Sp Qtr. 3.5-4 hr cl. Prereq: H520.02.

525 Introduction to ECG Monitoring UGRD 2
Designed to introduce nursing students to basic ECG interpretation. Primary focus is electrical and mechanical conduction correlated to common causes and nursing interventions. Au, Sp Qtrs. 2 hr cl. Prereq: Jr or sr standing in nursing, professional nurse, or permission of instructor.

541H Introduction to Nursing Research UGRD 3-5
Introduction to nursing research methods intended to foster an understanding of and appreciation for nursing research by direct involvement in the research process. Wi Qtr. 2 cl. Prereq: 360.02 and H320.02 or concurrent and Honors standing in the College of Nursing or permission of instructor. Not open to students with credit for 390.

580H Ethical Conflicts in Health Care Research, Policy, and Practice
An interdisciplinary approach to an analysis of central moral dilemmas in health care research, policy, and practice. 2-3 hr cl. Prereq: Jr or sr in college of nursing or permission of instructor. Not open to students with credit for Philos H580. Cross-listed in Philosophy.

593 Individual Studies UGRD 1-8
Study of selected problems in nursing. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 16 cr hrs. This course is graded S/U.

601 Scientific Thought in Nursing GRAD 3
Study of the nature of scientific thought, critical thinking and moral reasoning in the discipline of nursing. Au, Sp Qtrs. 3 cl. Prereq: Admission to master's program in nursing or permission of instructor.

602 Theoretical Foundations for Advanced Practice Roles in Nursing GRAD 3
The study of theoretical foundations for advanced nursing practice. Su, Wi Qtr. 3 cl. Prereq: Admission to master's program in nursing or permission of instructor.

603 Nursing within the American Health Care System GRAD 3
Analysis of American health care delivery system and policy making process with an emphasis on social, political, and economic factors affecting delivery of nursing services. Su, Sp Qtrs. 3 cl. Prereq: Admission to master's program in nursing or permission of instructor.

604 Introductory Pharmacology for Healthcare Professionals UGRD 3
An overview of pharmacokinetics principles, drug mechanism of action, survey of medications used, and review of nursing implications for common classes of medication. Su Qtr. 3 cl. Prereq: Jr or sr rank, or CED or Grad college, or permission of instructor. Not open to College of Nursing students, students with credit for 706 or to current RNs. Course meets the pharmacology prerequisite for Graduate Entry applicants and is not for prescriptive privileges.

605 Human Health Assessment UGRD 3
Development of basic human health assessment skills with emphasis on health history taking, physical examination techniques, and recording concise summaries. 2 cl, 3 lab. Prereq: Upper division health professionals student, graduate health professional student or permission of instructor.

606 Pharmacology for Clinical Nurse Leaders GRAD 3
Pharmacology related to acutely ill, hospitalized clients. Emphasis on pharmacotherapeutics for CNL practice in a microsystem (client group within a clinical unit). Su Qtr. 3 cl. Prereq: Undergraduate pharmacology course or equiv and 703.

607 Palliative and End of Life Care UGRD 3
Explores the needs of individuals and families as they face life's end and provide a foundation in palliative and hospice care. Sp Qtr. 3 cl. Prereq: Sr standing in CON, grad student in Nursing, or related major by permission.

608 Clinical Management for the Healthcare Provider GRAD 3
Theories, concepts, and issues needed to provide leadership, management, and oversight for strategic, operational, clinical, and administrative aspects for primary healthcare settings. Wi Qtr. Prereq: Graduate nursing student, graduate healthcare professional, or permission from instructor.
609 Interdisciplinary Healthcare in the Global Community
Develop strategies for culturally competent interdisciplinary healthcare in selected world communities.
Au, Wi, Sp Qtr. Prereq: 440 or 640 or permission of instructor.

611 Professional Nursing Practice
Introduction to professional nursing practice; emphasis on knowledge and skills required for disease prevention, health promotion and restoration across the life span.
Au Qtr. 5 cl, 14 hrs lab and clinical. Prereq: Admission to the Graduate Entry Program in Nursing.

622 Nursing Care of Adults and Older Adults
Nursing knowledge essential to caring for adults and older adults; emphasis on health promotion, risk assessment, disease prevention and management of common acute and chronic health problems.
Wi Qtr. 5 cl and 16 hrs clinical. Prereq: Student in Nursing Graduate Entry Program. Nursing 611, 703, or permission of instructor.

623 Nursing Care of the Childbearing Family
Nursing theory and clinical care of childbearing and childrearing families with emphasis on health promotion, risk assessment, disease prevention and common acute/chronic health problems.
Sp Qtr. 3 credits class, 2 credits clinical. Prereq: Student in Nursing Graduate Entry Program. Nursing 622, 704 or permission of instructor.

625 Nursing Care of Children and their Families
Nursing theory and clinical care of children and their families with emphasis on health promotion, risk assessment, disease prevention and common acute/chronic health problems.
Sp Qtr. 3 credits lecture/class; 2 credits clinical. Prereq: Student in Nursing Graduate Entry Program. Nursing 622, 704 and 637 or permission of instructor.

631 Nursing Care of High Acuity Patients
Nursing knowledge essential to management of high acuity patients and their families in a variety of health care settings.
Su Qtr. 4 cl, 16 hrs clinical. Prereq: Student in Nursing Graduate Entry Program. Nursing 623, 625 or permission of instructor.

633.01 Transition into Advanced Practice Nursing
Analysis of complex issues in clinical decision-making, ethical dilemmas, and interprofessional dynamics as applied to contemporary health care and the transition into advanced practice nursing.
Wi Qtr. 3 cl. Prereq: 634 and 635 or permission of instructor. Required course in the graduate entry program in nursing.

633.02 Practicum in Transitions into Advanced Practice Nursing
Practice involving complex issues in clinical decision making, ethical dilemmas, and interprofessional dynamics applied to contemporary health care and the transition into advanced practice nursing.
Wi, Sp Qtrs. 12-24 hrs clinical. Prereq: 634, 635 and 633.01 (prereq or concour) or permission of instructor. Repeatable to a maximum of 9 cr hrs. Required course in the graduate entry program in the Master of Science program in the College of Nursing. This course is graded S/U.

634 Community Care of Vulnerable Populations
Application of public health and community health theory and principles to the nurse care of vulnerable populations.
Au Qtr. 3 cl, 2 sem/lab, 8 clinical. Prereq: Student in Nursing Graduate Entry Program. Nursing 631 or permission of instructor. The course has been approved by the University Service Learning Outreach and Engagement Office for service learning designation.

635 Psychiatric Mental Health Nursing
Nursing knowledge applied to the promotion of mental health and to the recovery of individuals with psychiatric diagnoses.
Au Qtr. 3 cl, 2 sem/lab, 8 clinical. Prereq: Student in Nursing Graduate Entry Program. Nursing 631 or permission of instructor.

637 A Nursing Perspective: Life Span Development of Individuals within a Family Context
Individual growth and development within a family context from beginning to death, emphasis on nursing assessment and interventions with various theoretical perspectives integrated throughout course.
Wi Qtr. 3 cl. Prereq: Admission to the Graduate Entry Program in Nursing or permission of instructor.

640 Issues of Culture and Diversity in Health
Concepts and techniques used by nurses in cultural assessment of individuals, families and communities.
Sp Qtr. 3 cl. Prereq: Admission to the Graduate Entry Program in Nursing or permission of instructor.

652 Nursing Process in the Operating Room
Study of nursing process with clients in the pre-operative, intra-operative, and post-operative phase; emphasis on scrub nurse and circulating nurse roles.
Su, Au, Wi, Sp Qtrs. Prereq: Completed or concurrently enrolled in Nursing 501, 503, 505, 506, 509, 510, 511 or 512.

653 Nursing Assessment of Early Parent-Child Interaction: Theory and Measurement
Examination of theory and research relevant to nursing assessment of early parent-child interaction and its application to nursing interventions to improve child health outcomes.
Su Qtr. 2 cl, 2 hrs lab. Prereq: Sr or grad standing in nursing major or permission of instructor.

654 Human Sexuality and Nursing Practice
Use of nursing theory and nursing process to study sexual health and aberrations in sexual health across the life span.
3 cl. Prereq: Sr or grad student in nursing major, RN, or permission of instructor.

656 Oncology Nursing
Basic and intermediate level information for nursing care of people with cancer including prevention, detection, and treatment in acute, ambulatory or home care settings.
Au, Wi, Sp Qtrs. 2 cl. Prereq: Sr undergrad student in nursing major or RN student or permission of instructor.

657 Nursing Care of the High Risk Neonate
Introduction to the role of the neonatal nurse in the provision of comprehensive nursing care of the high-risk neonate.
Au, Wi Qtrs. 2 cl. Prereq: 385.03 or 703 or permission of instructor.

694 Group Studies in Nursing
Group studies of special problems in nursing; topics vary for quarters.
Su, Au, Wi, Sp Qtrs. Prereq: 48 hr nursing major or nursing grad student. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

700.01 Interprofessional Education: Interprofessional Care
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Treatment of the whole person through the analysis of the interrelated problems of actual patients/clients.
Wi Qtr. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, nursing, medicine, social work, and theology (Columbus seminaries).

700.02 Interprofessional Education: Changing Societal Values
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Identification and clarification of value considerations as they relate to professional problems in dealing with consumers/clients/patients. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, nursing, medicine, social work, and theology (Columbus seminaries).

700.03 Interprofessional Education: Ethical Issues
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Ethical issues of concern to the professions and arising out of the advanced technology: euthanasia, mind control, malpractice, and social responsibility of the profession. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, nursing, medicine, social work, and theology (Columbus seminaries).

700.04 Interprofessional Education: Interprofessional Practicum in Clinical Settings
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Interprofessional teamwork in clinical settings. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, nursing, medicine, social work, and theology (Columbus seminaries).

700.05 Interprofessional Education: Interprofessional Seminar in Policy Analysis
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Explores interprofessionally the history, formation, and implementation of public policy issues of significance to seven helping professions. 3 cl. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, nursing, medicine, social work, and theology (Columbus seminaries).
700.06 Interprofessional Education: Care of Chemically Dependent Families
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Interprofessionally explores issues in the identification and treatment of chemical dependency within the family context. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, nursing, medicine, social work, and theology (Columbus seminaries).

700.07 Interprofessional Education: Interprofessional Approaches to Child Abuse and Neglect
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Interprofessionally explores issues in the identification, treatment, and prevention of child abuse and neglect. 1 2.5-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, nursing, medicine, social work, and theology (Columbus seminaries). Limited to 12 students each in allied medicine, education, law, medicine, nursing, psychology, social work, and theology through Columbus Cluster.

702 Research for Evidence Based Clinical Practice
Prepares students to use extant research and existing data bases to provide quality care, initiate change, and plan and evaluate programs of care. Au, Wi, Sp Qtrs. Prereq: Undergrad research course, intermediate statistics course and enrollment in the Nursing graduate program or permission of instructor.

703 Pathophysiology of Altered Health States I Analysis of theories and research regarding alterations of health states across the life span, with an emphasis on pathophysiological processes. Au Qtr. 5 cl. Prereq: Admission to master's program in nursing or permission of instructor.

704 Pathophysiology of Altered Health States II Analysis of theories and research regarding alterations of health states across the life span, with an emphasis on pathophysiological processes. Wi Qtr. 5 cl. Prereq: 703 or permission of instructor.

705 Advanced Health Assessment Development of advanced health assessment skills. Emphasis on the acquisition of normal and abnormal assessment data relevant to clinical reasoning in advanced nursing practice. Sp Qtr. 3 cl; 4-lab; 1 additional hour for FNP students in class. Prereq: Knowledge of basic physical assessment and 703 or permission of instructor. Family Nurse Practitioner students are required to take this course for 6 credits.

706 Pharmacology in Advanced Nursing Practice Covers pharmacokinetic principles of drugs. Uses of drugs and therapeutic devices by advanced practice nurses in health and illness. Also, relevant laws regarding prescriptive authority. Su, Wi Qtr. 2 2-hr cl and 1 hr seminar. Prereq: Enrollment in nursing graduate program, Nursing 703 or permission of instructor. This course meets the Ohio Administrative Code requirements for prescriptive privileges.

707 Reimbursement and Cost Methods for Advanced Practice Nurses Examination of reimbursement methods for health care services and the concepts of cost analysis necessary for program development/monitoring and management of an independent nursing practice. Au, Sp Qtr. 3 cl. Prereq: Admission to the master's program in nursing or permission of the instructor; basic skill in spreadsheet development and editing.

708 Advanced Newborn/Infant Pharmacology Pharmacotherapeutics of high-risk neonates and infants with applications to newborn/infant physiology, and special considerations of drug therapy and advanced nursing management. Sp Qtr. 5 cl. Prereq: 727 and 728. Distance learning course (Web taught).

709 Developmental Care of the High-Risk Neonate and Family Examination of concepts and research that impact the developmental trajectory of the high-risk neonate and family. Au, Wi Qtr. Prereq: Graduate student in nursing or permission of instructor.

710 Health Literacy Examines the issues and challenges of low health literacy, including research, development and testing of information in plain language; health communication techniques; and organizational approaches to meet these challenges. Au, Sp Qtr. Prereq: Graduate level in Health Professions; Graduate level in Literacy Specialization. Not open to students with credit for Med Col 710, Alli Med 710, Pharmacy 709 or ArtsSci 709. Cross-listed with Med Col 710 and Alli Med 710, Pharmacy 709 and ArtsSci 709.

711 Theoretical Foundations of Clinical Decision-Making Advanced assessment, using a systematic process of diagnostic thinking and clinical reasoning within a research utilization framework via symptom exemplars from nursing practice. Sp Qtr. 4 cl. Prereq: 704; prereq or concur: 705.

713 Health Promotion and Disease Prevention across the Life Span in the Acute Care Setting Analyze strategies to encourage change in both individual's and population's health behaviors that influence risk reduction in acute care settings. Sp Qtr. 3 cl. Prereq: 702 and 704.

715 Advanced Pediatric Health Assessment Development of advanced pediatric assessment skills; emphasis on acquisition of normal and abnormal assessment data relevant to clinical reasoning in advanced pediatric nursing practice. Sp Qtr. Prereq: 703 and knowledge of basic physical assessment or permission of instructor. Fills the advanced physical assessment requirement for the Pediatric Nurse Practitioner (PNP) program.

717.01 Nisonger Center Course: An Interdisciplinary Approach to Families of Handicapped Children Focus on interdisciplinary topics in mental retardation and developmental disabilities. Qualitative and quantitative approaches for resource and problem identification with families of handicapped children, effective parenting skills, strategies to follow at-risk families, and family intervention models. Wi Qtr. 3 cl. Prereq: Permission of instructor. Not open to students with credit in 717.02 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science Human Nutrition, Psychology, Social Work, and Speech and Hearing Science. Limit of 20 students.

717.02 Nisonger Center Course: Interdisciplinary Perspectives on Autism Spectrum Disorders Focus on interdisciplinary topics in mental retardation and developmental disabilities. Focus on the most pertinent scientific and societal issues of developmental disabilities Au Qtr. 3 cl. Prereq: Permission of instructor. Not open to students with credit for 717.03 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science Human Nutrition, Psychology, Social Work, and Speech and Hearing Science. Limit of 20 students.

717.03 Nisonger Center Course: Developmental Disabilities Focus on interdisciplinary topics in mental retardation and developmental disabilities. Focus on the most pertinent scientific and societal issues of developmental disabilities Au Qtr. 3 cl. Prereq: Permission of instructor. Not open to students with credit for 717.03 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science Human Nutrition, Psychology, Social Work, and Speech and Hearing Science. Limit of 20 students.

718 Instructional Strategies in Clinical Teaching Preparation of health professionals to assume the role of clinical educator with focus on best pedagogical practices in the classroom. Clinical and virtual learning environments. Su (1st term) Qtr. Prereq: 302 or grad standing or permission of instructor. Computer assisted course.

719 Early Intervention Interdisciplinary Team Dynamics Interdisciplinary team-taught course with a focus on early intervention/early childhood education services for children birth to three and their families. Au Qtr. 2.5-hr cl. Prereq: Permission of instructor. Not open to students with credit fo Allied Med 719, Edu PAES 719, HDFS 719, or SpH/Hng 719. Cross-listed in Education: Physical Activity and Educational Services, Human Development and Family Science Human Nutrition, Psychology, Social Work, and Speech and Hearing Science.

721 Theories, Concepts and Issues in Advanced Family Nursing Theories, concepts, and issues from nursing and related sciences relevant to the development and care of women, children and families in various states of health and illness. Su, As Qtr. Prereq: Grad standing.

722 Advanced Reproductive Dynamics Analysis and synthesis of principles of reproductive physiology, genetics and fetal development, menarche, pregnancy, parturition, puerperium and menopause related to advanced nursing practice in women's health care. Wi Qtr. 4 cl/seminar. Prereq: 703.
723 Child and Adolescent Assessment for the School Nurse
Theory, knowledge and skills in health and physical assessment of children and adolescents for nursing practice in school settings.
Su Qtr. 2 cl, 3-hr lab. Prereq: Grad standing.

724 Conceptual Framework for Nurse-Midwifery Practice
Introduction to program and theoretical foundations of nurse-midwifery: Health, wellness, health behavior, health promotion, communication. Perinatal epidemiology and nurse-midwifery management process are introduced.
Au Qtr. Seminar and independent learning. Prereq: Admission to the master's program in nursing and the nurse-midwifery area of study, or permission of instructor.

727 Developmental Physiology, Pathophysiology and Pharmacology of High-Risk Neonate I
Biological basis of case management of the high-risk newborn incorporating analysis and synthesis of principles of embryology, developmental physiology, pathophysiology, and pharmacology.
Wi Qtr. 6 cl. Prereq: Grad standing in Nursing.

728 Developmental Physiology, Pathophysiology and Pharmacology of High-Risk Neonate II
Biological basis of case management of the high-risk neonate incorporating analysis and synthesis of principles of embryology, developmental physiology, pathophysiology, and pharmacology. Continuation of 727.
Sp Qtr. 6 cl. Prereq: 727 or permission of instructor.

729 Advanced Health Assessment of the Neonate
Development of advanced health assessment skills to comprehensively assess full-term and preterm neonatal clients.
Sp Qtr. 3 cl, 4 lab. Prereq: Knowledge of health assessment skills, 727 and concurrent enrollment in 728.

733 Introduction to Clinical Nurse Leader Practice
This course is designed to introduce the graduate student to the role of the Clinical Nurse Leader through relevant classroom content and clinical experiences.
Sp Qtr. 4 cl, 6 clinical (24 hrs/week). Prereq: RN license or 633.01 and 633.02.

735 Comprehensive Health Assessment
Comprehensive health assessment of acutely and chronically ill clients across the life span; specific skills for practice in a microsystem (client group within a clinical unit).
Wi Qtr. 3 cl. Prereq: Grad nursing major and 703.

740 Neuroscience Principles and Concepts Relevant to Psychiatric/Mental Health Nursing
Neurobiological bases of brain-mind-behavior relationships in mental health and illness, including chemical dependence. Emphasis on promotion, maintenance and restoration of central nervous system homeostasis.
Au Qtr. 3 hrs lecture/discussion. Prereq: Admission to master's program in nursing or permission of instructor.

745 Advanced Psychiatric/Mental Health Nursing: Individuals and Families
Advanced clinical therapeutic nursing interventions with persons who have psychiatric diagnoses, and/or chemical dependence, and their families.
Wi Qtr. 4 hr seminar/discussion. Prereq: Grad standing in nursing or permission of instructor.

752 Community Health Nursing: Society as Client
Overview of contemporary community health nursing theory, research, and practice skills necessary to provide nursing care to selected groups or aggregates within a community setting.
3 cl. Prereq: Admission to master's program in nursing or permission of instructor.

755 Nursing Ethics for Advanced Practice
Study of the current ethical dilemmas facing nursing in health care practice, research, and policy.
Au Qtr. Prereq: Graduate student in nursing or permission of instructor.

760 Foundations for Making the Link between Practice, Theory and Research
Theory and practice with identifying clinical research questions, appraising evidence, applying theories to research, and translation of theory and research-based evidence to clinical practice.
Au Qtr. 2.5-5 hr. Prereq: Grad standing or permission of instructor.

777 Group Process for the Health Professional
Theoretical approaches to group work in the health professions. Focus on group process, approaches to group therapy and approaches to groups in health care treatment.
Au Qtr. 3 cl. Prereq: Grad standing or permission of instructor.

783H Honors Research
A project or research study conducted by each honors student with the guidance of a faculty mentor. Student project or thesis presentations are included.
Au, Wi, Sp Qtr. Arr. Prereq: H420.03. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

793 Individual Studies in Nursing
Reading, conferences, and minor investigation by an individual student who wishes to study a particular nursing problem intensively.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

797 Interdepartmental Seminars
Two or more departments may collaborate in presenting seminars in subjects of mutual interest; topics to be announced.
Su, Au, Wi, Sp Qtrs. Repeatable. Permission of college secretary needed to repeat.

807 Foundational Knowledge for Nursing and Health Systems Management
Study of the theoretical knowledge that provides the foundation for nursing leadership in program and health systems management across the continuum of care.
Au Qtr. 0-4 hrs cl, 9-12 hrs clinical. Prereq: Admission to NUR or permission of instructor.

808 Skills for Nursing and Health Systems Management
Study of the skill sets necessary for program and health systems management across the continuum of care.
Wi Qtr. 0-3 hrs cl, 10-16 hrs clinical. Prereq: Completion of 807 or permission of instructor.

809 Practicum for Nursing and Health Systems Management
An in-depth guided clinical experience for the application of theoretical and skill-based knowledge: Strategies and techniques for evaluation of outcomes are included.
Sp Qtr. 0-2 hrs cl, 16-20 hrs clinical. Prereq: Completion of 808 or permission of instructor.

810 Clinical Practicum for Nursing and Health Systems Management
A guided clinical experience for the application of theoretical and skill-based knowledge in nursing and health systems management.
Su Qtr. 1 cr. hr. to 4 clinical hr/week. Prereq: RN licensure and 733.

834 Physiological Monitoring in Pediatric Acute and Critical Care
Development of essential skills for monitoring and managing acutely and critically ill infants, children, and adolescents.
So Qtr. Prereq: 715 or permission of instructor.

835 Adult Acute Care Nurse Practitioner Skills and Procedures
Theoretical, practical and evidence-based nursing knowledge and psychomotor skills essential to caring for adults across the continuum of acute delivery systems.
Su Qtr. Prereq: 705 and 706 or permission of instructor.

859 Advanced Practice Nursing
Application of theories, research findings, skills and interventions including pharmacological management for advanced practice nursing in primary, acute and chronic care.
Su, Au, Wi, Sp Qtrs. 4-hr seminar; clinical. Prereq: All specialty core courses or permission of instructor. Repeatable.

862.05 Practicum in Nursing: Teaching in Nursing
Supervised experiences which permit in-depth study of the roles and relationships in administration, practice, or teaching of nursing. The focus of this course is the application of best pedagogical practices in selected nursing education experiences. A supervised experiential teaching component is included.
1 hr sem; practicum 6 hrs. Prereq: 718 or permission of instructor. Clinical sites arranged with faculty.

862.07 Practicum in Nursing: Administration and Case Management for Clinical Nurse Specialists
Supervised experiences which permit in-depth study of the roles and relationships in administration, practice, or teaching of nursing. Seminar focusing on the understandin and analysis of current trends, challenges, practice and research related to case management and administration by clinical nurse specialists.
Sp Qtr. 3 cl. Prereq: Grad standing in nursing or permission of instructor.
871 Primary Prevention and Health Issues GRAD 3
Biopsychosocial effects of alcohol and other drugs on the physical, intellectual and emotional lives of users and significant others. Primary prevention approaches for children and adolescents addressed.
3 cl. Prereq: Grad standing or permission of instructor. This course is graded S/U.

872 Intervention Assistance Team: A Strategy GRAD 3
For Working with At-Risk Youth in Schools
Responses to a wide range of student/family needs including: adequate services, appropriate non-discriminatory placement, crisis resolution, effective discipline practices and safe and drug-free schools programs.
3 cl. Prereq: Grad standing or permission of instructor. This course is graded S/U.

880 Seminar GRAD 2-5
Discussion of issues, trends, and problems in nursing; topics to be announced.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 30 cr hrs.

885 Informatic Enabled Health Information GRAD 3
Addresses the appraisal of sources, validity and reliability of health information for clinicians in order to effectively use information to develop personalized health messages for consumers.
Prereq: Enrollment in graduate nursing program or permission of instructor. Open only to graduate nursing students and nursing practice students (DNP). Course to familiarize students with using informatics in patient care settings.

893 Individual Studies GRAD 1-5
Advanced individual studies in selected areas not otherwise offered in nursing.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Enrollment in graduate program or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

894 Group Studies in Nursing GRAD 2-5
Reading and group conferences for graduate students who desire to study a particular trend in nursing or nursing education.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 5 cr hrs.

900 Pro Seminar in Nursing GRAD 1
Examination of current health care problems, national research priorities, issues within nursing science, career patterns of women and doctorally prepared nurses.
Au, Wi, Sp Qtrs. 2 cl. Prereq: PhD student in nursing, or permission of instructor. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

901 Theoretical Foundations of Nursing Science GRAD 5
Study of the major philosophies of nursing from a historical perspective and analysis of methods for theory development in nursing science.
Au Qtr. 5 cl. Prereq: PhD student in nursing, or permission of instructor; prereq or concur: 900.

902.01 Qualitative Methods in Nursing Science GRAD 5
Study of qualitative methods used in conducting nursing research; laboratory experience will include field work; data management and analysis.
3 cl, 4-hrs lab. Prereq: 901 or permission of instructor.

903 Theory Synthesis I GRAD 3
In-depth analysis of health theories from nursing, biological, and behavioral sciences; emphasis on theories derived from a nursing perspective.
3 cl. Prereq: 901 or permission of instructor.

904 Theory Synthesis II GRAD 3
In-depth synthesis of theories and models of relevance to a program of research in nursing.
Sp Qtr. 3 cl. Prereq: 917.01 or 917.02 or permission of instructor.

912 Introduction to Methods of Nursing Science GRAD 5
Survey of research methods used to describe, explain, predict, and manipulate phenomena relevant to the discipline of nursing. Emphasis on systematic development of nursing knowledge.
Wi Qtr. 5 cl. Prereq: PhD student in nursing or permission of instructor.

914 Principles of Measurement in Health Related Sciences GRAD 5
Study of measurement principles for concepts relevant to nursing science. Emphasis is on psychobiobehavioral measurement and measurement of variables for the study of health disciplines.
Sp Qtr. 4 cl, 4 hrs lab. Prereq: 912 or permission of instructor. Required in the PhD program in nursing.

915 Psychobiobehavioral Phenomena Underlying Determinants of Health Status GRAD 5
Study of theoretical and analytical approaches used in psychobiobehavioral nursing research as a foundation for understanding phenomena underlying determinants of health status.
Wi Qtr. 5 cl. Prereq: 901. Required in the PhD program in nursing.

916 Psychosocial Mechanisms Underlying Determinants of Health Disparities GRAD 5
Study of theoretical and analytical approaches used in psychosocial research as a foundation for understanding determinants of health disparities.
Sp Qtr. 5 cl. Prereq: 901, 915. Required in the PhD program in nursing.

917.01 Seminars in Determinants of Health GRAD 3-5
Integration of the theoretical and methodological approaches in the study of psycho-bio-behavioral phenomena underlying determinants of health.
Prereq: 916 or permission of instructor. Required in the Nursing PhD program.

917.02 Seminars in Determinants of Health GRAD 3-5
Integration of the theoretical and methodological approaches in the study of psychosocial phenomena underlying determinants of health.
Prereq: 916 or permission of instructor. Required in the Nursing PhD program.

940 DNP Professional Seminar GRAD 3
Socialization to leadership and excellence in multiple dimensions of the Doctor of Nursing Practice role.
Au, Wi, Sp Qtrs. Prereq: Enrollment in DNP program or permission of instructor.

999 Research in Nursing GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Prereq: Graduate student in Nursing. Repeatable. This course is graded S/U.

Nursing Practice

913 Health Promotion in the Age of Personalized Health Care
Critical analysis of the social determinants of health contributing to health disparities, their synthesis with theories of behavior, and development of strategies to improve outcomes.
Sp Qtr. Prereq: Enrollment as a student in the Doctor of Nursing Practice (DNP) program.

940.01 Doctor of Nursing Practice Professional Seminar I GRAD 3
Socialization to leadership and excellence in multiple dimensions of the Doctor of Nursing Practice role.
Prereq: Enrollment in DNP program or permission of instructor.

940.02 Doctor of Nursing Practice Professional Seminar II GRAD 3
Socialization to leadership and excellence in multiple dimensions of the Doctor of Nursing Practice role.
Prereq: Enrollment in DNP program or permission of instructor.

940.03 Doctor of Nursing Practice Professional Seminar III GRAD 3
Socialization to leadership and excellence in multiple dimensions of the Doctor of Nursing Practice role.
Prereq: Enrollment in DNP program or permission of instructor.

945 Nursing Management for the Doctor of Nursing Practice GRAD 5
Integration of theoretical, technological, leadership and communication principles to design management strategies for evidence based practice approaches to improve health care to selected populations.
Wi Qtr. Prereq: Enrollment in the DNP program.

951 Scholarly Inquiry in Clinical Nursing Science
Theory and survey of methods for analyzing clinical situations, appraising data, applying theory to research, and translation of theory and research-based evidence to clinical practice.
Au Qtr. 2 hr of sync disc, 2 hr of async learning. Prereq: Admission to the Doctor of Nursing Practice (DNP) Program or permission of the instructor. Distance Learning format.

952 Methods and Measurement in Clinical Nursing Science
Theory and survey of research methods and measurement issues related to clinical nursing science. Emphasis is on the systematic identification and utilization of nursin knowledge.
Wi Qtr. Prereq: Enrollment in the Doctor of Nursing Practice (DNP) program. Distance Learning format.

953 Clinical Effectiveness and Translation in Clinical Science
Theory and survey of methods of critical appraisal of clinically relevant nursing research related to clinical effectiveness and translational science.
Sp Qtr. Prereq: Admission to the Doctor of Nursing Practice (DNP) Program or permission of the instructor. Distance Learning format.
959 Doctor of Nursing Practice Clinical GRAD 7
Immersion
Integration and synthesis of knowledge and practice experiences designed to help
students achieve essential and specialty components of the DNP role.
Au, Wi, Sp Qtrs. Prereq: Successful completion of the DNP Professional Doctoral
Exam. Repeatable to a maximum of 21 cr hrs.

998 Doctor of Nursing Practice Final Document GRAD 1-3
Project
Students complete a scholarly clinical or research centered project depending upon
their 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 12 cr hrs.
This course is graded S/U.

Obstetrics and Gynecology

529H Biotechnology and Evolution UGRD 5
Evolutionary and genetic mechanisms leading to life history variation among
vertebrates; promises and pitfalls of biotechnology; genetic mechanisms of diseases in
higher vertebrates and humans.
Wi Qtr. 2 -3-hr cl. Prereq: Jr standing and written permission of instructor. Cross-listed
in Natural Resources. Prior courses recommended are EEOB 400 or H400, Mol Gen

Occupational Therapy

694 Group Studies UGRD 1-5
Supervised group studies of special topics pertinent to the practice of occupational
therapy.
Su, Au, Wi, Sp Qtrs. Open only to students enrolled in Occupational Therapy
Division. Repeatable to a maximum of 15 cr hrs.

700 Introduction to Occupational Therapy GRAD 2
Introductory course covers professional standards of occupational therapy, scope of
practice, models of practice, and history of the profession.
Su Qtr. 1-2 hr cl. Prereq: Admission to the Masters of Occupational Therapy program.

701 Occupational Therapy in Early Intervention GRAD 3
Research/theoretical basis of occupational therapy in early intervention; principles and
strategies for working with families; therapy approaches with young children; models of
service delivery.
Au Qtr. 1-3 hr cl. Prereq: AMP grad standing Permission of the instructor.

702 Theoretical Approaches in Occupational Therapy with Children GRAD 3
Neurophysiological and sensory integration approaches used in occupational therapy
with young children in a variety of settings.
Wi Qtr. 1-3 hr cl. Prereq: AMP grad standing. Permission of instructor.

703 Occupational Therapy in the Schools GRAD 3
An overview of occupational therapy best practice in the public schools. Students gain
understanding of educational regulations, service delivery models, educational
research and trends.
Au Qtr. 3 hrs lecture. Prereq: AMP grad standing or permission of instructor.

711 Functional Group Dynamics in Occupational Therapy GRAD 3
Identification, examination, and analysis of factors involved in the development and
functioning of task oriented groups in occupational therapy practice.
Au Qtr. 1-2 hr cl, 1-2 hr lab. Prereq: Admission to MOT program

712 Occupational Development Across the Life Span and Life Events GRAD 4
Explores the impact of illness, disease, and injury on participation in activities of daily
life and engagement in human occupation across the life span.
Au Qtr. 2-2 hr cl. Prereq: Admission to the MOT program.

713 Occupational Therapy and Task Analysis GRAD 3
Analysis of occupation and occupation tasks in self-care, work, and leisure.
Wi Qtr. 2 cl, 1-2 hr lab. Prereq: Admission to MOT program.

714 Foundation of Occupational Therapy Practice GRAD 4
Development of professional skills through analysis of and participation in interaction
in health care.
Au Qtr. 1-2 hr cl, 2-2 hr labs. Prereq: Admission to MOT program.

715 Neuroscience: Fundamentals for Occupational Therapists GRAD 4
Fundamentals for neuroanatomy and neurophysiology for occupational therapy
practice.
Au Qtr. 2-2 hr cl. Prereq: Admission to MOT program.

716 Conditions in Occupational Therapy GRAD 3
Analysis of conditions seen in occupational therapy with emphasis on orthopedic
conditions.
Sp Qtr. 2-1.5 hr cl.

717 Splinting in Occupational Therapy GRAD 2
Applies biomechanical principles and knowledge of medical conditions to increase
occupational performance through the fabrication of basic splints and related
supportive devices.
Au Qtr. 1-1 hr lec, 1-2 hr lab. Prereq: Anatomy 600 and Occ Ther 743.

718 Directed Practicum: Experience of Disability GRAD 3
In-depth interactions with persons with disability to explore the experience of
disability from the person's perspective. Introduction to disabilities studies and
qualitative research methodology.
Wi Qtr. 2 hrs prac, 2 hrs practical. Prereq: Admission to Occupational Therapy program

Guided Practicum in Mental Health GRAD 3
Supervised clinical experience with people who have emotional/behavioral problems or
mental disorders.
Wi Qtr. 1 cl, 2-2.5 hr clinics. Prereq: 712, 713.

721 Guided Practicum: Physical Function in Occupational Therapy GRAD 3
Supervised clinical experience in settings with individuals who have problems of
physical function.
Wi Qtr. 1 cl, 2.5-6 hr clinics. Prereq: Admission to MOT program.

722 Guided Practicum: Children and Public School GRAD 3
Supervised clinical experience with children with disabilities in schools.
Wi Qtr. 1 cl, 4 hr clinic. Prereq: Admission to MOT program.

725 Service Learning in Occupational Therapy GRAD 1
Designed to provide students with service learning opportunities, to enhance their
civic skills, and to facilitate an interdisciplinary approach to treatment.
Au, Wi, Sp Qtrs. 2 hr cl, 5 sessions. Prereq: Admission to Occupational Therapy
program. Repeatable to a maximum of 5 cr hrs. Some travel to participant locations
required within central Ohio area. This course is graded S/U.

741 Occupational Therapy in Mental Health I GRAD 3
Description and explanation of competing theoretical propositions and techniques use
by occupational therapy to bring about change for people with serious
emotional/behavioral problems.
Wi Qtr. 1-2 hr cl, 1-2 hr lab.

742 Occupational Therapy in Mental Health II GRAD 5
Systematic observation, assessment, and development of occupational therapy
intervention plans for people with serious emotional/behavioral problems and mental
disorders.
Sp Qtr. 1-4 hr cl, 1-2.5 hr lab. Prereq: 712.

743 Occupational Therapy in Physical Function I GRAD 5
Evaluation, remediation principles, and disability prevention used in occupational
therapy practice with a focus on musculoskeletal diagnoses.
Au Qtr. 4 cl, 1-2 hr lab. Prereq: 715.

744 Occupational Therapy in Physical Function II GRAD 5
Application of assessment techniques and intervention strategies for clients with
physical dysfunction.
Sp Qtr. 3 cl, 2-2 hr labs. Prereq: 715.

745 Occupational Therapy for Children GRAD 4
Evidence based practice models and techniques to enhance children's occupations.
Wi Qtr. 2-2 hr cl. Prereq: Admission to MOT program.

746 Occupational Therapy Assessment of Children GRAD 4
Describes assessment purposes and selective instruments for those purposes; problem
based models, test validity, and reliability are emphasized.
Sp Qtr. 2-2 hr cl.

747 Occupational Therapy for Neurological Conditions GRAD 6
Examines performance abilities in persons with central nervous dysfunction. Course
also includes principles and strategies for evaluation and treatment.
Wi Qtr. 3-2 hr cl. Prereq: 712, 715.

748 Occupational Therapy in Gerontology GRAD 4
Activity based intervention, rehabilitation, and environmental adaptations specific to
frail and well aging adults will be examined. Social policies affecting the lives of older
adults will be explored.
Sp Qtr. 2-2 hr cl. Prereq: 716, 741, 747, 743.

750 Applied Technology in Occupational Therapy GRAD 3
Evaluation of client's assistive technology needs, recommendations for assistive
technology and environmental modifications to maximize function.
Wi Qtr. 1 cl, 2-2 hr labs. Prereq: 713, 716.
751 Research Methods Used in Occupational Therapy GRAD 3
Research methods and designs used in occupational therapy; analysis of occupational therapy research.
Au Qtr. 2 1.5-hr cl.
752 Planning and Management of Occupational Therapy Services GRAD 3
Examination of the impact of health care delivery systems and public policy on planning and management of occupational therapy services.
Au Qtr. 2 1.5-hr cl. Prereq: 714, 720, 721.
753 Occupational Therapy Consultation and Supervision GRAD 3
Examines consultation theories, models, principles and strategies. Consultation model will be applied to occupational therapy services in medical, community, and educational systems.
Sp Qtr. 2 1.5-hr cl. Prereq: 714.
755 Occupational Therapy Fieldwork Preparation and Early Professional Practice GRAD 1
Selected topics relating to preparation for Level II fieldwork and early professional practice.
Sp Qtr. 2-hr cl for 5 weeks. Prereq: Admission to the OT program. This course is graded S/U.
780.01 Full Time Fieldwork in Occupational Therapy: II-A GRAD 6
Full time fieldwork in selected occupational therapy service settings.
40 clinic. Prereq: Completion of all required academic and level 1 fieldwork courses. Open only to students who complete occupational therapy academic courses at Ohio State University. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.
785.02 Full Time Fieldwork in Occupational Therapy: II-B GRAD 6
Full time fieldwork in selected occupational therapy service settings.
40 clinic. Prereq: Completion of all required academic and level 1 fieldwork courses. Open only to students who complete occupational therapy academic courses at Ohio State University. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.
785.03 Full Time Fieldwork in Occupational Therapy: Advanced Placement GRAD 2-6
Full time fieldwork in selected occupational therapy service settings.
1, 2 or 3 months, arr with instructor. Prereq: Completion of all academic coursework in MOT program. Open only to students who complete occupational therapy academic courses at Ohio State University. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.
786.01 Guided Research Projects I GRAD 3
Submit an IRB protocol; collect quantitative or qualitative data specific to research plan developed in Occ Ther 751. Wi Qtr. 1 cl, 2-2 hr labs. Prereq: 751. This course is graded S/U.
786.02 Guided Research Projects II GRAD 3
Development of a research proposal or program plan; data collection and analysis, interpretation of results and completion of a written report.
Sp Qtr. 1 cl, 2-2 hr labs. Prereq: 786.01. This course is graded S/U.
789 Guided Research Practicum GRAD 3
Students learn evidence based practice by finding research reports to answer clinical questions, analyzing research reports, and synthesizing findings to make clinical recommendations.
Wi Qtr. 3 hrs cl. Prereq: Admission to MOT program.
793 Individual Studies GRAD 1-5
Guided study with occupational therapy readings, research, and/or experiences selected by the individual and approved by faculty.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
795 Seminar GRAD 1-3
Analysis and group discussion of selected topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.
889.01 Advanced Clinical Practicum in Occupational Therapy: Pediatric Area of Specialization GRAD 2-4
Advanced clinical experience in occupational therapy; Pediatric Area of Specialization
Prereq: Permission of instructor and enrollment in AMP grad program. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.
Ohio State Biochemistry Program

760 First-Year Student Orientation GRAD 1
Orientation for first-year students in the OSBP; lectures on topics important for successful graduate experience; training in presenting scientific papers.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing in OSBP. Repeatable to a maximum of 4 cr hrs.
790 Colloquium-Advanced Biochemistry Topics GRAD 1
Seminars presented by Ohio State faculty and by faculty and professionals from outside the University.
Au, Wi, Sp Qtrs. 1 cl. Open only to students in the Ohio State biochemistry program. Repeatable to a maximum of 21 cr hrs. This course is graded S/U.
793 Individual Studies GRAD 1-5
A qualified graduate student may conduct a minor laboratory research investigation in biochemistry under the direction of program faculty members.
Su, Au, Wi, Sp Qtrs. 1-5 cl. Prereq: Admission to the OSBP. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.
794 Group Studies GRAD 1-5
Designed for students to investigate advanced selected topics in biochemistry.
Su, Au, Wi, Sp Qtrs. 1-5 cl. Prereq: Admission to the OSBP. Repeatable to a maximum of 10 cr hrs.
796 Interdisciplinary Seminar in Advanced Biochemistry GRAD 1
Interdisciplinary Seminar in Advanced Biochemistry.
Au, Wi, Sp Qtrs. 1 cl. Repeatable to a maximum of 21 cr hrs.
999.01 Research in Biochemistry GRAD 1-18
Research in Biochemistry for thesis or dissertation purposes only.
Su, Wi Qtrs. Prereq: Permission of instructor. This course will not serve as a replacement for the 999 course offering within a faculty's academic department. Repeatable. This course is graded S/U.

Ophthalmology

999 Research in Ophthalmology GRAD 1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Optometry

401 Survey of Optometry OPT 1
Survey of optometry and optometric education; scope of optometric services; sources of vision information; kinds of current vision research.
Su Qtr. 1 cl. Prereq: Optometry 1st yr standing.
402 Rights and Responsibilities of Optometrists OPT 2
Professional behaviors, ethics and communication skills necessary for patient care; patient rights; confidentiality and licensing requirements for health care professionals.
Sp Qtr. 2 cl. Prereq: Optometry 1yr standing.
420 Optometric Career Options and Financing OPT 1
Overview and history of managed care; Medicaid, Medicare, and other third-party payments plans; rules for documenting patient histories, examinations, and decision-making.
Sp Qtr. 1 cl. Prereq: Optometry 1st yr standing.
421 Financial Issues in Optometric Health Care OPT 1
Financial Issues in Optometric Health Care.
Su Qtr. 1 cl. Prereq: Optometry 2nd yr standing.
423 Coding and Reimbursement OPT 1
Coding and Reimbursement.
Su Qtr. 1 cl. Prereq: Optometry 2nd yr standing.
431 Ophthalmic Optics I OPT 4
Ophthalmic optics of single-vision and multifocal spectacle lenses; measurement and inspection of spectacle lenses; manufacturing processes.
Au Qtr. 3 cl, 1 2-hr lab. Prereq: Optometry 2nd yr standing.
432 Ophthalmic Optics II OPT 4
Ophthalmic lens design; minimizing lens aberrations; theory and practice in fitting and adjusting spectacles.
Wi Qtr. 3 cl, 1 2-hr lab. Prereq: 431.
433 Introduction to Contact Lenses OPT 3
Introduction to Contact Lenses.
Su Qtr. Prereq: 432.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>OPT</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>441</td>
<td>Practical Optometry I</td>
<td>4</td>
<td>Theory and techniques of case history, keratometry, retinoscopy, objective and subjective tests of refraction. Au Qtr. 3 cl, 1 3-hr lab. Prereq: Optometry 2nd yr standing.</td>
</tr>
<tr>
<td>442</td>
<td>Practical Optometry II</td>
<td>4</td>
<td>Correlation and analysis of vision examination data; accommodation and extra-ocular muscles; systematic determination of the etiology of vision anomalies and sources of visual discomfort and inefficiency. Wi Qtr. 3 cl, 1 3-hr lab. Prereq: 441.</td>
</tr>
<tr>
<td>443</td>
<td>Practical Optometry III</td>
<td>2</td>
<td>Techniques of investigating special types of vision anomalies; diagnosing and prescribing for vision anomalies; coding and billing. Emphasis on case analysis. Sp Qtr. 2 cl. Prereq: 442 and 711.</td>
</tr>
<tr>
<td>445.01</td>
<td>Introduction to General Practice</td>
<td>2</td>
<td>Introduction to clinical practice in examining the visual system and carrying out corrective procedures. Sp Qtr. Prereq: 442; 711; Optometry 2nd yr standing; minimum of 3 clinical hrs. Repeatable to a maximum of 4 cr hrs.</td>
</tr>
<tr>
<td>541</td>
<td>Keystone 1: Introduction to Clinical Diagnostic Reasoning in Optometry</td>
<td>2</td>
<td>Using a problem-based learning format, optometric cases will be utilized to model and develop diagnostic reasoning skills emphasizing basic science and systemic disease. Sp Qtr. Prereq: Optometry 1st yr good standing.</td>
</tr>
<tr>
<td>542</td>
<td>Keystone 2: Intermediate Clinical Diagnostic Reasoning in Optometry</td>
<td>2</td>
<td>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. Su Qtr. Prereq: Optometry 3rd year standing.</td>
</tr>
<tr>
<td>632</td>
<td>Vision of Children</td>
<td>5</td>
<td>Vision screening; the prevalence of visual anomalies and eye diseases in children; basic visual skills required in school and methods for their improvement. Au Qtr. 3 cl, 1 4-hr lab. Prereq: Optometry 3rd yr standing.</td>
</tr>
<tr>
<td>640</td>
<td>Clinical Practice in Optometry I</td>
<td>1</td>
<td>Consideration of selected problems and conditions encountered in the delivery of patient care. Su Qtr. 1 cl. Prereq: 443.</td>
</tr>
<tr>
<td>641</td>
<td>Clinical Practice in Optometry II</td>
<td>2</td>
<td>Glaucoma diagnosis and management including epidemiology, pathophysiology, risk assessment, differential diagnosis, and surgical management and coding. Au Qtr. 2 cl. Pre req: Optometry 3rd yr standing.</td>
</tr>
<tr>
<td>642</td>
<td>Clinical Practice in Optometry III</td>
<td>1</td>
<td>Continuation of 641. Wi Qtr. 1 cl. Prereq: 641.</td>
</tr>
<tr>
<td>643</td>
<td>Clinical Practice in Optometry IV</td>
<td>1</td>
<td>Continuation of 642. Sp Qtr. 1 cl. Prereq: 642.</td>
</tr>
<tr>
<td>645.01</td>
<td>Intermediate Special Clinical Practice: General Practice</td>
<td>1-6</td>
<td>Clinical practice in examining the visual system and carrying out corrective procedures. Prereq: 443, 712 and 681. Repeatable to a maximum of 30 cr hrs.</td>
</tr>
<tr>
<td>645.02</td>
<td>Intermediate Special Clinical Practice: Ophthalmic Dispensing</td>
<td>1-6</td>
<td>Clinical education and practice in ophthalmic design and dispensing; education and experience in dispensary management. Prereq: 432 and 443 or permission of instructor. Repeatable to a maximum of 30 cr hrs.</td>
</tr>
<tr>
<td>645.03</td>
<td>Intermediate Special Clinical Practice: Contact Lenses</td>
<td>1-5</td>
<td>Clinical experience in specialized phases of optometric practice. Contact Lenses. Prereq: 653.</td>
</tr>
<tr>
<td>645.04</td>
<td>Intermediate Special Clinical Practice: Ocular Disease Practice</td>
<td>2</td>
<td>Clinical experience in specialized phases of optometric diagnosis and treatment. Prereq: Optometry 3rd yr standing. Repeatable to a maximum of 8 cr hrs.</td>
</tr>
<tr>
<td>653</td>
<td>Contact Lenses I</td>
<td>4</td>
<td>The uses of contact lenses; theory and methods of prescribing and fitting; specification and verification; post-fitting care; contact lens solutions. Wi Qtr. 3 cl, 1 2-hr lab. Prereq: Optometry 3rd yr standing and 443.</td>
</tr>
<tr>
<td>654</td>
<td>Contact Lenses II</td>
<td>4</td>
<td>Theory and clinical methods involving meridional and bifocal contact lenses; fitting: astigmatic corneas and aphakic eyes, haptic and keratometric lenses, cosmetic shells and prosthetic eyes. Wi, Sp Qtrs. 3 cl, 1 2-hr lab. Prereq: 653.</td>
</tr>
<tr>
<td>656</td>
<td>Low Vision Rehabilitation</td>
<td>4</td>
<td>Epidemiology, clinical measurement, and classification of visual impairment; design of optical and optoelectronic aids; clinical rehabilitation strategies. Sp Qtr. 3 cl, 1 2-hr lab. Prereq: Optometry 3rd yr standing.</td>
</tr>
<tr>
<td>660</td>
<td>Advanced Diagnosis and Management of Ocular Disease</td>
<td>3</td>
<td>Advanced management, pre and post-operative management, and surgical procedures will be covered. 3 cl. Prereq: Optometry 712 and Optometry 682.</td>
</tr>
<tr>
<td>671</td>
<td>Clinical Binocular Vision I</td>
<td>5</td>
<td>Classification, epidemiology, phenomenology, diagnosis, and management of nonstrabismic and strabismic binocular vision disorders, accommodative anomalies, amblyopia, oculomotor deficiencies, and visual perceptual lags. Wi Qtr. 4 cl, 1 2-hr lab. Prereq: Optometry 3rd yr standing and 443.</td>
</tr>
<tr>
<td>681</td>
<td>Ocular Pharmacology for Optometrists</td>
<td>3</td>
<td>Pharmacological agents used in clinical optometric care. Sp Qtr. 3 cl. Prereq: Vis Sci 680 and Optometry 2nd yr standing.</td>
</tr>
<tr>
<td>682</td>
<td>Clinical Ocular Pharmacology</td>
<td>4</td>
<td>Case-based learning of ocular pharmacology with an emphasis on systemic disease will be presented. Su Qtr. 4 cl. Prereq: 681 and Optometry 3rd yr standing. Open only to students registered in the College of Optometry.</td>
</tr>
<tr>
<td>709</td>
<td>Differential Diagnosis in Anterior Segment Disease</td>
<td>2</td>
<td>In the first course of the ocular disease series, differential diagnosis techniques for anterior segment disease including epidemiology, temporal patterns, and associated conditions are presented. Au Qtr. Prereq: Optometry 2nd yr standing or permission of instructor.</td>
</tr>
<tr>
<td>710.01</td>
<td>Diagnostic Techniques Lab I</td>
<td>2</td>
<td>Preclinical experience in testing and treatment procedures to manage health and disease in optometric practice. Testing and treatment procedures to manage health and disease. Au Qtr. 1 cl, 1 2-hr lab. Prereq: Optometry 2nd yr standing. Repeatable to a maximum of 4 cr hrs.</td>
</tr>
<tr>
<td>710.02</td>
<td>Diagnostic Techniques Lab II</td>
<td>2</td>
<td>Preclinical experience in testing and treatment procedures to manage health and disease in optometric practice. Testing and treatment procedures to manage health and disease. Continuation of 710.01. Wi Qtr. 1 cl, 1 2-hr lab. Prereq: 710.01 and Optometry 2nd yr standing. Repeatable to a maximum of 4 cr hrs.</td>
</tr>
<tr>
<td>711</td>
<td>Introduction to Ocular Disease I</td>
<td>4</td>
<td>Introduction to abnormalities and diseases of anterior and posterior segments of the eye with an emphasis on identification, diagnosis, and general management. Wi Qtr. 4 cl. Prereq: Vis Sci 608 and Optometry 2nd yr standing or permission of instructor.</td>
</tr>
<tr>
<td>712</td>
<td>Introduction to Ocular Disease II</td>
<td>5</td>
<td>Continuation of 711 with an emphasis on disorders of the posterior segment. Sp Qtr. 4 cl, 1 2-hr lab. Prereq: Optometry 2nd yr standing and 711 or permission of instructor.</td>
</tr>
<tr>
<td>713</td>
<td>Introduction to Ocular Disease III</td>
<td>4</td>
<td>Continuation of 712, with emphasis on neurological diseases of the eye and visual system, and on assessment of the visual field. Su Qtr. 4 cl. Prereq: 712.</td>
</tr>
<tr>
<td>714</td>
<td>Systemic Disease for Optometry</td>
<td>4</td>
<td>The biological basis for understanding disease processes, the clinical characteristics of diseases, and approaches to diagnosis and treatment of diseases. Au Qtr. 3 cl, 1 2-hr lab. Prereq: Optometry 3rd yr standing or permission of instructor.</td>
</tr>
<tr>
<td>721</td>
<td>Optometric Economics and Jurisprudence; Practice Analysis and Practice Systems</td>
<td>3</td>
<td>Benchmarks, statistical and financial data analysis systems to determine practice viability; the administrative and logistical systems used in an optometric practice; jurisprudence and malpractice. Sp Qtr. 3 cl. Prereq: Optometry 3rd yr standing.</td>
</tr>
</tbody>
</table>
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

Clinical and Business Aspects of Practice OPT 1-6
Contemporary topics in clinical and business aspects of optometry including new diagnostic and treatment methodologies and the preparation of business plans.
Su, Au, Wi, Sp Qtrs. Prereq: Optometry 4th yr standing. Repeatable to a maximum of 6 cr hrs.

745.01 Special Clinical Practice: General Practice OPT 1-15
Clinical experience in specialized phases of optometric practice.
Prereq: 645.01; 654; Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.02 Special Clinical Practice: Contact Lenses and Primary Care Optometry OPT 1-15
Clinical experience in specialized phases of optometric practice.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 hrs.

745.03 Special Clinical Practice: Strabismus and Orthoptics OPT 1-15
Clinical experience in specialized phases of optometric practice.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.04 Special Clinical Practice: Ocular Disease OPT 1-15
Clinical experience in specialized phases of optometric practice.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.05 Special Clinical Practice: Aniseikonia OPT 1-15
Clinical experience in specialized phases of optometric practice.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.06 Special Clinical Practice: Vision Rehabilitation Clinic OPT 1-15
Clinical experience in specialized phases of optometric practice.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.07 Special Clinical Practice: Perceptual-Motor Problems OPT 1-6
Clinical experience in specialized phases of optometric practice.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.08 Special Clinical Practice: Ophthalmic Dispensing OPT 1-15
Clinical experience in specialized phases of optometric practice. Advanced clinical education and practice in ophthalmic design and dispensing; specialized ophthalmic designs; education and experience in dispensary management.
Prereq: 643 and 645.02 and Optometry 4th yr standing, or permission of instructor. Repeatable to a maximum of 45 cr hrs.

745.09 Special Clinical Practice: Geriatric Optometry OPT 1-15
Clinical experience in specialized phases of optometric practice. Specialized techniques, evaluation methods, patient instructions, and lens design appropriate to vision problems of the older patient.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.10 Special Clinical Practice: Pediatric Optometry OPT 1-15
Clinical experience in specialized phases of optometric practice. Specialized testing techniques and methods of evaluation appropriate to infants and children (through age 12) as well as exceptional children of any age.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.11 Special Clinical Practice: Ocular Disease External Experience OPT 1-15
Clinical experience in specialized phases of optometric practice.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.12 Special Clinical Practice: Primary Care External Experience OPT 1-15
Clinical experience in specialized phases of optometric practice.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

745.13 Special Clinical Practice: Advanced Clinical Practice OPT 1-15
Clinical experience in specialized phases of optometric practice. Emphasis on patients at high risk for ocular disease for advanced clinical optometric practice in pediatrics, vision therapy, contact lenses, low vision or other areas.
Prereq: Optometry 4th yr standing. Repeatable to a maximum of 45 cr hrs.

780.01 Topics in Optometry: General Optometry OPT 1-5
Clinical and theoretical aspects of areas of current interest in optometry: General Optometry.
Prereq: Enrollment in College of Optometry and permission of dean. Repeatable to a maximum of 10 cr hrs.

780.02 Topics in Optometry: Contact Lenses OPT 1-5
Clinical and theoretical aspects of areas of current interest in optometry: Contact Lenses.
Prereq: Enrollment in College of Optometry and permission of dean. Repeatable to a maximum of 10 cr hrs.

780.04 Topics in Optometry: Ocular Disease OPT 1-5
Clinical and theoretical aspects of areas of current interest in optometry: Ocular Disease.
Prereq: Enrollment in College of Optometry and permission of dean. Repeatable to a maximum of 10 cr hrs.

780.06 Topics in Optometry: Low Vision OPT 1-5
Clinical and theoretical aspects of areas of current interest in optometry: Low Vision.
Prereq: Enrollment in College of Optometry and permission of dean. Repeatable to a maximum of 10 cr hrs.

780.10 Environmental Vision OPT 1-5
Clinical and theoretical aspects of areas of current interest in optometry: Environmental Vision.
Prereq: Enrollment in College of Optometry and permission of dean. Repeatable to a maximum of 10 cr hrs.

780.11 Topics in Optometry: Pediatric Optometry OPT 1-5
Clinical and theoretical aspects of areas of current interest in optometry: Pediatric Optometry.
Prereq: Enrollment in College of Optometry and permission of dean. Repeatable to a maximum of 10 cr hrs.

780.19 Topics in Optometry: Binocular Vision OPT 1-5
Clinical and theoretical aspects of areas of current interest in optometry: Binocular Vision.
Prereq: Enrollment in College of Optometry and permission of dean. Repeatable to a maximum of 10 cr hrs.

780.21 Topics in Optometry: Special OPT 1-5
Clinical and theoretical aspects of areas of current interest in optometry: Special.
Prereq: Enrollment in College of Optometry and permission of dean. Repeatable to a maximum of 10 cr hrs.

Otolaryngology

803 Observations in Clinical Voice Pathology GRAD 3
Provides students with an opportunity to observe the clinical management of voice disorders including the assessment, treatment and rehabilitation process.
Su, Au, Wi, Sp Qtrs. Must be admitted to the Interdisciplinary Singing Health Specialization Program. Repeatable to a maximum of 6 cr hrs. Credit counts toward Singing Health Specialization. This course is graded S/U.

804 Observations in Surgical Laryngology GRAD 3
Provides students with an opportunity to observe the surgical management of voice disorders including those pertaining to singers.
Su, Au, Wi, Sp Qtrs. Must be admitted to the Interdisciplinary Singing Health Specialization Program. Repeatable to a maximum of 6 cr hrs. Credit counts toward Singing Health Specialization. This course is graded S/U.

809 Issues in Laryngology for the Vocal Health Professional GRAD 3
Introduces students to the medical management of voice disorders including surgical techniques and associated instrumentation, advanced anatomy/physiology, and vocal pathologies.
Wi Qtr. 1 hr cl. Must be admitted to the Interdisciplinary Singing Health Specialization Program. Credit counts toward Singing Health Specialization. This course is graded S/U.

Pathology

640 Fundamentals of Oncology GRAD 4
Lecture/seminars covering aspects of oncology; chemical and biologic carcinogenesis epidemiology, genetics, developmental biology, biochemistry, cell kinetics, clonality, metastases, hormonal and immunology factors, and therapy.
Wi Qtr. 4 cl. Prereq: Permission of instructor. Cross-listed in Vet Biosciences.

655 General Pathology MED 4
General pathology, including the etiology of diseases, disturbances of nutrition, inflammation, regeneration, and organ pathology.
Au Qtr. 4 cl. Prereq: Dent 2nd yr standing.

670 Medical Cyto genetics GRAD 3
Overview of cyto genetics in medical diagnosis and evaluation, including laboratory techniques, nomenclature, structural and numerical chromosome abnormalities; prenatal, constitutional, and cancer cyto genetics; molecular cyto genetics and molecular diagnostics; and clinical correlations.
Sp Qtr. 3 cl. Prereq: Course work in general genetics and molecular or cell biology, and permission of instructor.
733 Human Genetics GRAD 3
The principles of human genetics covering mapping of disease genes, defects causing human disease, the cloning of disease genes, gene therapy and transgenes. Sp Qtr. Prereq: 3 cl and one of: Med Micr 500 or 501 or 606 or equiv. Not open to students with credit for M Biochem 733 or Med Gen 733. Cross-listed in M Biochem and Mol Gen.

792.20 Essential Readings in Immunology MED 2
Review of classical papers in immunology. Sp Qtr. Prereq: Microbiol 701; Grad standing or enrollment in MD program or undergrad with permission of instructor. Repeatable to a maximum of 16 cr hrs. This course is graded S/U.

793.01 Individual Studies: Pathologic Anatomy MED 3-18
Pathologic Anatomy 1, 2, or 3 months; offered all months. (prof cr). Prereq: Med III and IV standing, grad standing, or undergrad standing with permission of instructor. When registration is for 3 professional cr hrs, an additional 3 hr professional course must be taken. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

793.03 Individual Studies: Neuropathology MED 3-18
Neuropathology 1, 2, or 3 months; offered all months. (prof cr). Prereq: Med III and IV standing, grad standing, or undergrad standing with permission of instructor. When registration is for 3 professional cr hrs, an additional 3 hr professional course must be taken. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

793.09 Individual Studies: Surgical Pathology UGRD 3-18
Surgical Pathology 1, 2, or 3 months; offered all months. (prof cr). Prereq: Med III and IV standing, grad standing, or undergrad standing with permission of instructor. When registration is for 3 professional cr hrs, an additional 3 hr professional course must be taken. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

793.11 Individual Studies: Special Topics in Pathologic Anatomy MED 3-18
Special Topics in Pathologic Anatomy. 1, 2, or 3 months; offered all months. (prof cr) Prereq: Med III and IV standing, grad standing, or undergrad standing with permission of instructor. When registration is for 3 professional cr hrs, an additional 3 hr professional course must be taken. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

793.15 Individual Studies: Problems in Pathology and Clinical Pathology MED 3-18
Problems in Pathology and Clinical Pathology. 1, 2, or 3 months; offered all months. (prof cr). Prereq: Med III and IV standing, grad standing, or undergrad standing with permission of instructor. When registration is for 3 professional cr hrs, an additional 3 hr professional course must be taken. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

847 Cellular Mechanisms and Pathogenesis of Inflammation GRAD 3
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. Wi Qtr. Prereq: MVIMG 701 or Med Micr 701 or Microbiol 701. Not open to students with credit for Med Micr 847. Cross listed in MVIMG.

850 Seminar in Pathology and Clinical Pathology GRAD 1
Discussion of pertinent literature, presentation and discussion of research work, and demonstration of fresh specimens and slides. Su, Au, Wi, Sp Qtrs. Offered in pathol. Repeatable. This course is graded S/U.

891.01 Interdisciplinary Seminar on Biomedical Images GRAD 1-2
Graduate seminar for Graduate Interdisciplinary Specialization in Comprehensive Engineering and Science of Medical Images. Au, Wi, Sp Qtrs. Prereq: Grad standing. Cross-listed in BioMedEd, BioMInf, Biophys, CSE, ECE, IBGP, Radiology, Stat, and VisSci. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

999 Research in Pathology GRAD 1-18
Research for thesis or dissertation purposes only. Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Pediatrics

699 Undergraduate Research in Pediatrics UGRD 1-15
Undergraduate research experience in pediatrics. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

793.03 Individual Studies: Infectious Diseases MED 1-18
Infectious Diseases. 1, 2, 3, or 4 months; offered all months. Prereq: Permission of instructor. This course is graded S/U. Repeatable to a maximum of 24 cr hrs.

793.06 Individual Studies: Blood Diseases of Infants and Children MED 1-6
Blood Diseases of Infants and Children. 1 month, offered all months except June. Prereq: Permission of instructor. This course is graded S/U.

Persian

101 Elementary Persian I UGRD 5
Introduction to Persian; development of listening, reading, speaking, and writing skill. Au Qtr. Prereq: Not open 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. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

102 Elementary Persian II UGRD 5
Further development of listening, reading, speaking, and writing skills. Wi Qtr. Prereq: 101. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course.

103 Elementary Persian III UGRD 5
Development of listening, reading, speaking, and writing skills; reading of simplified literary texts about Persian culture. Sp Qtr. Prereq: 102. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course.

104 Intermediate Persian I UGRD 5
Reading of Persian short stories and poems with attention to literary and cultural appreciation; development of basic language skills. Au Qtr. Prereq: 103. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course.

201 Intermediate Persian II UGRD 5
Extensive reading from literary texts, with practice in conversation and composition. 2-2 hr cl. Prereq: 104 or equiv. Not open to students with credit for 401.

202 Intermediate Persian III UGRD 5
Continued reading from literary texts, with further practice in conversation, composition, and translation. 2-2 hr cl. Prereq: 201 or 401 or equiv. Not open to students with credit for 402.

241 Persian Culture UGRD 5
A survey of Persian culture through the reading of Persian literature in translation, viewing of Persian films, and listening to Persian music. GEC arts and hums cultures and ideas course.

293 Individual Studies UGRD 1-5
Individual Studies. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

294 Group Studies UGRD 1-5
Special topics to be announced in the quarter previous to the one in which the course is offered. Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

301 Advanced Persian: Reading and Composition UGRD 5
Extensive reading of classical and modern Persian literary texts, with practice in grammar and composition at an advanced level. Wi Qtr. Prereq: 202 or permission of instructor.

370 Persian Mythology and Folklore UGRD 5
Mythology and folklore of Persian-speaking lands, from cosmological texts through popular theater and narrative performance to popular customs and beliefs. Prereq: English 110 or 111, GEC arts and hums lit course.

371 Persian Literature in Translation UGRD 5
A study of Persian literature in translation and the history of its discourses, genres, and styles.

* GEC arts and hums lit course.

374 Introduction to Persian Epic UGRD 5
An introduction, in English, to The Shahnameh of AbolQasem Ferdowsi. Prereq: English 110.xx. Taught in English. No knowledge of Persian required.

651 Persian Prose UGRD 5
Selected readings reflecting the major genres of classical Persian prose, plus a modern novel. Prereq: 402 or permission of instructor.
652 Persian Poetry
UGRD 5
Selected topics in Persian poetry, concentrating primarily on the medieval poetic narrative, as exemplified by epic, romance, and the mystical/didactic poem. Prereq: 402 or permission of instructor.

693 Individual Studies
UGRD 1-5
Individual Studies.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies
UGRD 1-5
Special topics to be announced in the quarter previous to the one in which the course is offered.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution
UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (’P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

721 Studies in Persian Poetry
UGRD 5
Advanced study of specific poetic periods, figures, and/or topics involving extensive reading and discussion of appropriate primary and secondary source materials.
Su, Au, Wi, Sp Qtrs. Prereq: 10 cr hrs of Persian literature at the 600 level or equiv. Repeatable to a maximum of 15 cr hrs.

783H Honors Research
UGRD 3-5
A program of research for each student which includes individual conferences and which culminates in an honors thesis or oral defense.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Approved candidacy for graduation with distinction, which includes faculty adviser and ASC Honors Committee approval of project, a minimum 3.50 pt-hr ratio in the field of distinction, sr standing, and CPHM commensurate with honors program grade. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

811 Seminar in Persian Studies
GRAD 5
Intensive investigation of a selected topic or problem in Persian literature, literary culture, philology, or linguistics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

998 Research in Persian
GRAD 1-10
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 10 cr hrs.

Pharmacology

600 General Pharmacology
UGRD 3
Introduction to the general principles of pharmacology, drug classification, and the sites and mechanisms of drug action.
Sp Qtr. Prereq: Some background in biochemistry and/or physiology or permission of instructor. A distance learning section D is a totally online course in pharmacology. Students are expected to learn the material posted on the course web site. Su, Au, Wi Qtr.

625 Undergraduate Independent Study in Pharmacology/Pharmacogenomics
UGRD 1-10
Offers undergraduate students the opportunity to gain research experience in laboratories in Pharmacology/Pharmacogenomics and learn the latest techniques and approaches.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

680 General Pharmacology for Optometrists
MED 3
A survey of general pharmacologic principles and actions; effects of drugs on the central-nervous system, cardiovascular system, and other systems.
Sp Qtr. 3 cl. Prereq: 1st yr standing in optometry. Open only to students registered in the College of Optometry.

700.01 Medical and Mammalian Pharmacology: Pharmacokinetics, Antimicrobial, and Autonomic Drugs
MED 3-5
General principles of pharmacology; drugs used for diagnosis, prevention, or eradication of the cause of disease, including endocrine products and chemotherapeutic agents: Pharmacokinetics, Antimicrobial, and Autonomic Drugs.
Au Qtr. Prereq: 600 or permission of instructor.

700.02 Medical and Mammalian Pharmacology: Cardiovascular, Respiratory, and Endocrine Drugs
MED 1-4
General principles of pharmacology; drugs used for diagnosis, prevention, or eradication of the cause of disease, including endocrine products and chemotherapeutic agents: Cardiovascular, Respiratory, and Endocrine Drugs.
Wi Qtr. Prereq: 600 or permission of instructor.

700.03 Medical and Mammalian Pharmacology: CNS and Anticancer Drugs; Toxicology and Drug Interactions
MED 2-5
General principles of pharmacology; drugs used for diagnosis, prevention, or eradication of the cause of disease, including endocrine products and chemotherapeutic agents: Central Nervous System and Anticancer Drugs; Toxicology and Drug Interactions.
Sp Qtr. Prereq: 600 or permission of instructor.

705 Neurobiology of Disease
GRAD 3
Neurobiology of Disease will explore the basis of major diseases affecting the nervous system.
Sp Qtr. 3-1 hr cl. Prereq: Permission of instructor. Not open to students with credit for Neuro Sc 705. Cross-listed in Neuroscience Department.

725 Pharmacogenomics
GRAD 3
Introduction to the role of genetic factors in the development and evaluation of drugs.
Wi Qtr. 2 1.5-hr cl. Prereq: IBGP 701, 702, 703 or permission of instructor.

751 Professional and Ethical Issues in Biomedical Sciences
GRAD 2-3
A discussion course based on case scenarios dealing with ethical issues facing biomedical researchers, such as publishing practices, confidentiality, mentoring, etc.
Au, Wi Qtrs. 2 cl. Prereq: 600 or permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

793 Individual Studies in Pharmacology
MED 3-18
A study of the central nervous system including neurochemistry, neurotransmission, receptors, signal transduction, CNS disorders, treatments and the pharmacology of drugs that act on the CNS.
* Sp Qtr. 2 cl arr. Prereq: 600, 700, or permission of instructor. Not open to students with credit for NeuroGSP 824. Cross-listed in Neuroscience Graduate Studies Program.

825 Clinical Trials I
MED 10
To provide an introduction to clinical trials, including federal regulations, standard operating procedures and design of studies.
Wi Qtr. Prereq: 600 (Web based), Pharmacy 731, 732, Vis Sci 780.07. Lays the foundation for conducting clinical trials. Students will learn the fundamentals of protocols, writing consent forms, and completing other procedures related to clinical pharmacology.

826 Clinical Trials II
MED 10
To provide instructions in all aspects of conducting clinical trials.
Sp Qtr. Prereq: 825. Instructs students in all aspects of clinical research, from writing proposals and consent forms to designing advertisements.

830 Molecular Pharmacology and Human Disease
GRAD 3
Molecular mechanisms of drug actions in the treatment of human disease.
Au Qtr. 3 cl. Prereq: 600 or 600D or IBGP 702 or permission of instructor/course director.

850 Seminar in Pharmacology
GRAD 2
Conference on selected topics in pharmacology.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

852 Biology of Aging
GRAD 3
A survey of current research on aging with emphasis on experimental data.
Prereq: Permission of instructor.

999 Research in Pharmacology
GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Pharmacy

100 Pharmaceutical Sciences Survey
UGRD 1
Introduction to the University, strategies for student success, academic programs, opportunities in the pharmaceutical sciences and practice, and contemporary issues. Au Qtr. 1 cl, 1 rec. Prereq: Enrollment limited to students in the Pharmacy Honors and Scholars Program.
200 The Rational and Irrational Use of Drugs UGRD 3
Survey of the fundamentals of drug action with special emphasis on drugs of abuse; discussion of medical, social, legal, and educational aspects of drug use.
Sp Qtr. 3 cl. Not open for credit to professional students in the College of Pharmacy. NS Adams Cond course.

400 Introduction to Pharmacy UGRD 2
A survey of the profession of pharmacy, dealing with its history, educational requirements, organization, regulation, and current developments.
Sp Qtr. 2 cl.

410 Introduction to Medicinal Chemistry UGRD 3
Chemical and biochemical principles governing the design, synthesis and properties of drugs.
Sp Qtr. 3 cl, 1 recitation. Prereq: 462 and Chem 253. Enrollment restricted to students in the BSPS program or with permission of instructor.

411 Medicinal and Natural Products Chemistry UGRD 2
Laboratory
Laboratory experiences in the isolation and synthesis of pharmaceutically relevant compounds.
Au Qtr. 2 3-hr labs. Prereq: 410, 462, and Chem 253. Enrollment restricted to students in the BSPS program or with permission of instructor.

420 Pharmaceutics I UGRD 4
Principles of pharmaceutics, the science of dosage form design.
Au Qtr. 2 2-hr cl, 1 recitation. Prereq: Physics 113 or 133, Chem 253, Math 152, Physiol 312 or EOB 232 or Zoology 232. Enrollment restricted to students in the BSPS program or with permission of instructor.

421 Pharmaceutics Laboratory I UGRD 2
An application of basic pharmaceutics principles and methods used to develop and evaluate drug, drug delivery systems and treatment regimens.
Wi Qtr. 1 cl, 1 3-hr lab. Prereq: 420. Enrollment restricted to students in the BSPS program or with permission of instructor.

425 Drug Discovery and Development UGRD 3
An introduction to research methods used for drug discovery and development with a focus on division faculty research labs.
Sp Qtr. 3 cl. Prereq: Rank 3 or 4 BSPS students, Physcis 113 or 133, Chem 253, Math 152, Physiol 312 or EOB 232 or Zoology 232.

461 Biomedical Chemistry I UGRD 3
Fundamentals of biological chemistry for the study of pharmaceutical sciences.
Au Qtr. 3 1-hr cl, 1 recitation. Prereq: Chem 253. Enrollment restricted to students in the BSPS program or with permission of instructor.

462 Biomedical Chemistry II UGRD 3
Fundamentals of biological chemistry for the study of pharmaceutical sciences.
Wi Qtr. Prereq: 461 and CHEM 253. Enrollment restricted to students in the BSPS program or with permission of instructor.

471 Concepts in Pharmacology I: Discovery of Drug Action UGRD 2
Discussions and presentations on general principles and techniques used in pharmacology research.
Au Qtr. 2 cl. Prereq: Enrollment in College of Pharmacy.

472 Concepts in Pharmacology II: Pharmacology Literature UGRD 2
Discussions and presentations dealing with recently published papers of general interest in the discipline of pharmacology.
Wi Qtr. 2 cl. Prereq: 480.

473 Concepts in Pharmacology III: Therapeutic UGRD 2
Discussion of recent developments in one or more areas of pharmacology.
Sp Qtr. 1 2-hr cl. Prereq: Enrollment in College of Pharmacy.

480 Integrated Pharmacology UGRD 3
An overview of pharmacological, biochemical, and physiological effects of drugs to facilitate an understanding of drug mechanism and pharmacotherapy.
Wi Qtr. 3 cl. Prereq: 461 or equiv; EOB 232 or Zoology 232 or equiv. Enrollment restricted to students in the BSPS program, exercise science or with permission of instructor.

481 Pharmacology Laboratory UGRD 2
Laboratory experiences in studying the effects of drugs and their mechanisms of action.
Sp Qtr. 1 cl, 1 3-hr lab. Prereq: 480. Enrollment restricted to students in the BSPS program or with permission of instructor.

493 Individual Studies in Pharmaceutical Sciences UGRD 1-12
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.
Su, Au, Wi, Sp Qtr. Prereq: Rank 2 standing, a cumulative p-hr ratio of 2.50, and permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

494.01 Group Studies UGRD 1-3
Group studies topics in various fields of pharmacy.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

494.02 Group Studies UGRD 1-3
Group studies topics in various fields of pharmacy.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

513.01 History of Pharmacy: Lecture UGRD 3
Evolution and development of the profession of pharmacy from antiquity to the present, with emphasis on its Anglo-American development since the 18th century.
Su Qtr. 3 cl. Prereq: Rank 3 or permission of instructor.

515 Pharmaceutical Distribution and Health Care Systems UGRD 3
A study of the pharmaceutical distribution system in the United States and its relation to the health care system.
Wi Qtr. 2 cl, 1 hr rec. Prereq: Math 152. Enrollment restricted to students in the BSPS program with at least rank 3 or 4 standing or with instructor's permission.

601 Biopharmacy I PHP 3
The first in a two-course sequence which provides the fundamental background in modern molecular life science required for pharmacy studies.
Au Qtr. 3 1-hr cl, 1 rec. Prereq: First-year standing in Pharm D program.

602 Biopharmacy II PHP 3
The second in a two-course sequence which provides the fundamental background in modern molecular life science required for pharmacy studies.
Wi Qtr. 3 1-hr cl, 1 rec. Prereq: First-year standing in Pharm D program.

605 Medicinal Chemistry I PHP 3
An introduction to functional groups properties of importance to drugs, heterocycles, acidity and basicity, metabolism, prediction of ionization constants and physicochemical properties of drugs.
Au Qtr. 3 1-hr cl. 1 rec. Prereq: First-year standing in Pharm D program.

606 Medicinal Chemistry II PHP 3
Chemical and biochemical principles governing the properties of drugs. Drug categories include: CNS depressants, CNS stimulants, analgesics, and cardiac drugs.
Wi Qtr. 3 1-hr cl, 1 rec. Prereq: First-year standing in Pharm D program.

607 Medicinal Chemistry III PHP 5
Chemical and biochemical principles governing the properties of drugs. Drug categories include: cholesterol, adrenocorticoids, hormones, prostaglandins, analgesics, hypoglycemics, cancer agents, antidepressants, anticoagulants, and radiopharmaceuticals, anti viral and others.
Sp Qtr. Prereq: First-year standing in Pharm D program.

613 Chemical Dependency for Health Care Professionals UGRD 1
To prepare healthcare students to recognize, understand, and respond effectively to chemical dependency. Epidemiology, pathophysiology, presentation, consequences, and management of chemical dependency will be characterized.
Wi Qtr. 1 1-hr cl. Prereq: Admission to Pharm D program.

614 Professional Ethics PHP 2
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.
Sp Qtr. 1 2-hr cl. Prereq: Rank 3 or permission of instructor.

616 Medical Applications of Radionuclides and Radiopharmaceuticals UGRD 3
A study of the theoretical and clinical aspects of the preparation, use, control, and handling of radionuclides and radiopharmaceuticals used in medicine.
Au Qtr. 3 cl. Open to non-pharmacy students with instructor's permission.

617 Introduction to Clinical Pharmacy Research UGRD 2
An introduction to research in clinical pharmacy and to the interpretation of clinical research literature.
Au Qtr. 1 2-hr cl. Prereq: Enrollment in the Pharm D program or enrollment in the BSPS program with completion of Pharmacy 480. This course is graded S/U.

619 Nonprescription Drug Products UGRD 3
Didactic and practical experience in appropriate nonprescription drug product selection, monitoring, and patient information.
Au Qtr. 3 cl. Prereq: Second-year standing in the Pharm D program.

621 Drug Delivery I PHP 3
Principles that govern the design and use of solution dosage forms, including physicochemical properties, ionization, solubility and stability.
Au Qtr. 2 1-hr cl, 1 2-hr workshop. Prereq: First-year standing in Pharm D program.

622 Drug Delivery II PHP 3
Routes of drug administration and the physiologic and physiochemical factors that influence drug penetration, absorption and bioavailability.
Wi Qtr. 2 1-hr cl, 1 2-hr workshop. Prereq: First-year standing in Pharm D program.
623 Drug Delivery III PHP 4
Application of physiochemical principles to the design, formulation, manufacture and use of colloids, suspensions, emulsions, solid and topical drug delivery systems. Sp Qtr. 3 1-hr cl, 1 2-hr workshop. Prereq: First-year standing in Pharm D program.

624 Pharmaceutical Calculations PHP 1
Introduction to prescription terminology and pharmaceutical calculations; emphasis on measurement systems, conversions, percent preparations, units of concentrations, calculation of doses, dilutions, milliequivalents, and millimoles. Sp Qtr. 1 1-hr cl. Prereq: First-year standing in Pharm D program.

661 Pharmacy Practice I PHP 3
The first in a three-course sequence covering concepts fundamental to pharmacy practice. Topics include orientation to the profession, history, ethics, communications and jurisprudence. Au Qtr. 3 1-hr cl, 1 rec. Prereq: First-year standing in Pharm D program.

662 Pharmacy Practice II PHP 3
The second in a three-course sequence covering concepts fundamental to pharmacy practice with a focus on techniques used to evaluate the medical/pharmaceutical literature. Wi Qtr. 3 1-hr cl. Prereq: First-year standing in Pharm D program.

664 Introductory Pharmacy Practice Experience PHP 1
Introductory experiences in pharmacy practice including hospital pharmacy, community pharmacy and a service learning geriatric rotation. Students also have opportunities to shadow pharmacists and pharmacy students to explore potential career options. Au, Wi, Sp Qtr. 4 hrs per week. Prereq: First-year standing in Pharm D program. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

673 Pharmacy Practice Management I PHP 3
The first in a four-course pharmacy practice management sequence. Topics include the US health care and pharmaceutical distribution systems; product research, development and promotion. Sp Qtr. 2 cl, 1 2-hr rec. Prereq: First-year standing in Pharm D program. Not open to students with credit for 773.

693 Individual Studies in the Pharmaceutical Sciences PHP 1-20
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. Su, Au, Wi, Sp Qtrs. Prereq: Rank 3, a cumulative pt-hr ratio of 2.50, and permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

694 Group Studies in Pharmacy PHP 1-3
Group studies of selected topics in various fields of pharmacy. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

695 Seminar in Clinical Pharmacy Career UGRD 2
Discussion and analysis of career pathways in clinical pharmacy and preparation of a career plan paper. Au Qtr. 1 2-hr cl. Prereq: Rank 2 in the BSPS or Pharm D program.

705 Pharmacy-Based Cultural Competence in Health Care PHP 2
A review of issues relating to cultural diversity in health care and techniques to improve pharmacist-patient communications among those from diverse backgrounds. Sp Qtr. 1 1 1-hr weekly cl, 1 2-hr workshop. Prereq: Third-year standing in Pharm D program or permission of instructor. This course is graded S/U.

709 Health Literacy PHP 3
Examines the issues and challenges of low health literacy, including research; development and testing of information in plain language; health communication techniques; and organizational approaches to meet these challenges. Not open to students with credit for Med Col 710, Alli Med 710, Nursing 710 or Arts&Sci 709. Cross-listed with Med Col 710, Alli Med 710, Nursing 710 and Arts&Sci 709.

710 Introduction to Clinical Immunology PHP 2
This course is intended to introduce the application of immunology principles to pharmacology, therapeutics and patient care. Au Qtr. Prereq: Second-year standing in Pharm D program.

711 Dietary Supplements and Herbal Products PHP 2
Students will learn to understand and describe the fundamental principles of dietary supplements and herbal products. They will learn methods of preparation, storage, regulation and standardization with these supplements and products. Sp Qtr. Prereq: Second-year standing in Pharm D program.

715 Pediatric Pharmacotherapy PHP 2
A review of pediatric pharmacotherapy of selected diseases with pharmaceutical care ramifications in various settings. Sp Qtr. 1 2-hr cl. Prereq: Third year standing in PharmD program.

717 Palliative Care Pharmacotherapy PHP 2
An elective course in pain management and hospice care designed for third-year Pharm D students. Topics address interdiscipline viewpoints on palliative care. Wi Qtr. 1 2-hr cl. Prereq: Third-year standing in Pharm D program.

724 Clinical Pharmacogenomics PHP 3
Principles and techniques necessary to understand the role of genetic variation in the pharmacokinetics of drugs and therapeutic management of disease. Wi Qtr. 2 1.5-hr cl. Prereq: Third-year standing in the Pharm D program.

731 Clinical Pharmacokinetics I PHP 4
The first in a three-course sequence in clinical pharmacokinetics and pharmacodynamics and their application to pharmacotherapy. Au Qtr. 3 cl, 1 2-hr workshop. Prereq: Second-year standing in Pharm D program.

732 Clinical Pharmacokinetics II PHP 4
The second in a three-course sequence in clinical pharmacokinetics and pharmacodynamics and their application to pharmacotherapy. Wi Qtr. 3 cl, 1 2-hr workshop. Prereq: Second-year standing in Pharm D program.

733 Clinical Pharmacokinetics III PHP 3
The third in a three-course sequence in clinical pharmacokinetics and pharmacodynamics and their application to pharmacotherapy. Sp Qtr. 2 cl, 1 2-hr workshop. Prereq: Second-year standing in Pharm D program.

735 Drug Discovery and Drug Design PHP 3
A study of the discovery and design of new drugs; topics include natural products isolation, molecular modeling, molecular targets, and biosynthesis and metabolism. Sp Qtr. 3 cl. Prereq: Permission of instructor.

737 Advanced Pharmaceutical Analysis GRAD 5
The use of NMR in the assay and control methods of drug and drug preparations. Su Term. 2 cl, 1 3-hr lab. Prereq: Permission of instructor. This course is graded S/U.

747 Pharmacology I PHP 3
The first in a six-course sequence providing a comprehensive study of the therapeutic effects, pharmacodynamics, mechanistic actions, and toxicological effects of importar drug classes. Au Qtr. 3 cl. Prereq: Second-year standing in Pharm D program.

748 Pharmacology II PHP 3
The second in a six-course sequence providing a comprehensive study of the therapeutic effects, pharmacodynamics, mechanistic actions, and toxicological effects of important drug classes. Wi Qtr. 3 cl. Prereq: Second-year standing in Pharm D program.

749 Pharmacology III PHP 3
The third in a six-course sequence providing a comprehensive study of the therapeutic effects, pharmacodynamics, mechanistic actions, and toxicological effects of importar drug classes. Sp Qtr. 3 cl. Prereq: Second-year standing in Pharm D program.

750 Pharmacology IV PHP 3
The fourth in a six-course sequence providing a comprehensive study of the therapeutic effects, pharmacodynamics, mechanistic actions, and toxicological effects of important drug classes. Au Qtr. 1 2-hr cl. Prereq: Third-year standing in Pharm D program.

751 Pharmacology V PHP 3
The fifth in a six-course sequence providing a comprehensive study of the therapeutic effects, pharmacodynamics, mechanistic actions, and toxicological effects of important drug classes. Wi Qtr. 1 2.5-hr cl. Prereq: Third-year standing in Pharm D program.

752 Pharmacology VI PHP 3
The sixth in a six-course sequence providing a comprehensive study of the therapeutic effects, pharmacodynamics, mechanistic actions, and toxicological effects of importar drug classes. Sp Qtr. 2 1.5-hr cl. Prereq: Third-year standing in Pharm D program.

760 Geriatrics-Pharmaceutical Care PHP 2
Increases the student's knowledge of geriatric pharmacotherapy and pertinent issues in geriatric health care. Sp Qtr. Prereq: Third Year student in PharmD program or permission of instructor.

761 Success and Leadership in Pharmacy PHP 2
Explore the meaning of success and leadership, attributes of successful leaders and what can be done to be a successful leader. Sp Qtr. Prereq: Enrolled in the College of Pharmacy or permission of instructor. This course is graded S/U.

763 Nonprescription Therapeutics PHP 3
An overview of non prescription therapeutics with a focus on patient assessment, product recommendations and patient care plans. As Qtr. 2 1.5-hr cl, 1 1-hr workshop. Prereq: Third-year standing in Pharm D program. Not open to students with credit for 663.
774 Professional Practice Laboratory I PHP 3
The first in a three-course professional practice laboratory sequence. Topics include preparation/dispensing of various dosage forms, extemporaneous compounding, and use of instruments and references.
Au Qtr. 2 cl, 1.5-hr lab. Prereq: Second-year standing in Pharm D program.

775 Professional Practice Laboratory II PHP 3
The second in a three-course professional practice laboratory sequence. Topics include preparation/dispensing of various dosage forms, extemporaneous compounding, and use of instruments and references.
Wi Qtr. 2 cl, 1.5-hr lab. Prereq: Second-year standing in Pharm D program.

776 Professional Practice Laboratory III PHP 3
The third in a three-course professional practice laboratory sequence. Topics include preparation/dispensing of various dosage forms, extemporaneous compounding, and use of instruments and references.
Sp Qtr. 2 cl, 1.5-hr lab. Prereq: Second-year standing in Pharm D program.

777 Pathophysiology and Therapeutics I PHP 5
The first in a six-course sequence in pathophysiology and pharmacotherapy. Development of patient assessment and problem solving skills to construct therapeutic plans.
Au Qtr. 3 cl, 1.2-hr workshops. Prereq: Second-year standing in Pharm D program.

778 Pathophysiology and Therapeutics II PHP 4
The second in a six-course sequence in pathophysiology and pharmacotherapy. Cardiovascular and renal disorders.
Wi Qtr. 3 cl, 1.3-hr case conference. Prereq: Second-year standing in Pharm D program.

779 Pathophysiology and Therapeutics III PHP 4
The third in a six-course sequence in pathophysiology and pharmacotherapy. Psychiatric and other central nervous system disorders.
Sp Qtr. 3 cl, 1.3-hr case conference. Prereq: Second-year standing in Pharm D program.

780 Pathophysiology and Therapeutics IV PHP 4
The fourth in a six-course sequence in pathophysiology and pharmacotherapy. Endocrine, hematologic, obstetric/gynecologic, gerontonursing, women's health and respiratory disorders.
Au Qtr. 2.1.5-hr cl, 1.3-hr case conference. Prereq: Third-year standing in Pharm D program.

781 Pathophysiology and Therapeutics V PHP 4
The fifth in a six-course sequence in pathophysiology and pharmacotherapy. Infectious diseases, immunologic, and bone and joint disorders.
Wi Qtr. 2.1.5-hr cl, 1.3-hr case conference. Prereq: Third-year standing in Pharm D program.

782 Pathophysiology and Therapeutics VI PHP 5
The sixth in a six-course sequence in pathophysiology and pharmacotherapy. Oncologic, fluid and electrolyte, gastrointestinal, and multi-system disorders.
Sp Qtr. 2.1.5-hr cl, 1.3-hr case conference. Prereq: Third-year standing in Pharm D program.

783 Community Pharmacy Practice Management PHP 2
Focus on the development of a practice management plan for the implementation of innovative community pharmacy services that optimize patient care.
Wi Qtr. 1.2-hr cl. Prereq: Second-year standing in Pharm D program. This course is graded S/U.

784 Intermediate Pharmacy Practice Experience PHP 1
Intermediate experience in pharmacy practice including ambulatory, institutional and elective settings.
Au, Wi, Sp Qtrs. 4 hrs per week. Prereq: Third-year standing in Pharm D program. Repeateably to a maximum of 3 cr hrs. This course is graded S/U.

785 Introduction to Complementary and Alternative Medicine PHP 2
Overview of various complementary and alternative medicine modalities and the role of the health care profession in integrated care.
Prereq: Second-year standing in Pharm D program.

786 Pharmacy Practice Management II PHP 3
The medication use system and resource management.
Au Qtr. 2.1.5-hr cl. Prereq: Third-year standing in Pharm D program.

788 Pharmacy Practice Management III PHP 3
The economic evaluation of pharmaceutical services and pharmacoeconomics.
Sp Qtr. 2.1.5-hr cl. Prereq: Third-year standing in Pharm D program.

789 Isolation Techniques in Research PHP 5
A study and application of selected isolation techniques for the purification of natural products or other organic mixtures.
Sp Qtr. 3 cl, 2.3-hr lab. Prereq: Chem 253 and 244 or 246 or 255, or equiv, or permission of instructor.

790 Pharmaceutical Jurisprudence PHP 3
A study of the laws and regulations relating to the practice of pharmacy.
Sp Qtr. 2.1.5-hr cl. Prereq: Third-year standing in Pharm D program.

794 Group Studies in Clinical Pharmacy PHP 1-18
Group Studies in Clinical Pharmacy.
Prereq: Admission to Pharm D program. Repeatable to a maximum of 50 cr hrs.

799.01 Practice Experience I PHP 10
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. First required advanced practice rotation. A 2 month rotation.
Prereq: Fourth-year standing in Pharm D program and adult CPR certification. This course is graded S/U.

799.02 Practice Experience II PHP 10
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. Second required advanced practice rotation. A 2 month rotation.
Prereq: Fourth-year standing in Pharm D program and adult CPR certification. This course is graded S/U.

799.03 Practice Experience III PHP 5
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. Third required advanced practice rotation. A 1 month rotation.
Prereq: Fourth-year standing in Pharm D program and adult CPR certification. This course is graded S/U.

799.04 Practice Experience IV PHP 5
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. Fourth required advanced practice rotation. A 1 month rotation.
Prereq: Fourth-year standing in Pharm D program and adult CPR certification. This course is graded S/U.

799.05 Practice Experience V PHP 5
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. Fifth required advanced practice rotation. A 1 month rotation.
Prereq: Fourth-year standing in Pharm D program and adult CPR certification. This course is graded S/U.

799.06 Practice Experience VI PHP 5
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. Sixth required advanced practice rotation. A 1 month rotation.
Prereq: Fourth-year standing in Pharm D program and adult CPR certification. This course is graded S/U.

799.07 Practice Experience VII PHP 5
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. Seventh required advanced practice rotation. A 1 month rotation.
Prereq: Fourth-year standing in Pharm D program and adult CPR certification. This course is graded S/U.

799.08 Practice Experience VIII PHP 5
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. Optional/advanced practice rotation.
Prereq: Fourth-year standing in Pharm D program and adult CPR certification. This course is graded S/U.

799.09 Practice Experience IX PHP 1-5
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. Optional longitudinal advanced practice scheduled over more than 1 quarter.
Prereq: Fourth-year standing in Pharm D program and adult CPR certification. Repeatable to a maximum of 5 cr hrs. This course is Progress (P) graded.

800.01 Principles of Radioisotope Tracer Techniques GRAD 3
A survey of properties of radioisotopes and radiation, instrumentation used for detection of radioisotopes, and radioisotope tracer methods and applications to biomedical sciences.
Au Qtr. 3 cl. Prereq: Permission of instructor.
800.02 Laboratory in Radioisotope Tracer Techniques
Laboratory applications of radioisotope tracer methodology in biomedical sciences and operations of instruments used for detection of radioisotopes.
* Au Qtr. 2.3 hr labs. Prereq: Permission of instructor. Concur: 800.01.

801 Biomedical Proteomics and Mass Spectrometry
Presentation of some basic principles and techniques used in pharmaceutical research and product development: drug stabilization, solubilization, complexation, and macromolecule interactions.
* Wi Qtr. 3 cl. Prereq: 506 or equiv with written permission of instructor. Offered alternate years.

802 Pharmacokinetics
The analysis of the absorption, distribution, and elimination of drugs, and the mathematical characterization of these processes, with emphasis on theory and application.
* Wi Qtr. 2 2-hr cl. Prereq: Math 152 or equiv with written permission of instructor. Offered alternate years.

803 Disposition of Xenobiotics
Principles and practical considerations in the study of xenobiotic pharmacokinetics and metabolism; current research approaches and techniques.
* Sp Qtr. Arr. Offered alternate years.

804 Drug Transport
Theories and experimental approaches for the characterization of drug transport in biological and pharmaceutical systems.
* Au Qtr. 3 cl. Offered alternate years.

805 Controlled Drug Delivery
Principles of the controlled release of drugs from polymer systems. Physical-chemical and engineering approaches are used to evaluate systems from experimental and theoretical viewpoints.
* Au Qtr. 2 1.5-hr cl arr. Repeatable to a maximum of 6 cr hrs. Offered alternate years.

806.01 Principles of Advanced Bioanalysis
Theory and practice of quantitative pharmaceutical and bioanalytical analysis in biological samples with emphasis on modern methods.
** Sp Qtr. 2 1.5-hr cl. Prereq: Chem 253, 531, 532. Biochem 721.01, 721.02. Offered alternate years.

806.02 Laboratory in Advanced Bioanalysis
Theory and practice of quantitative pharmaceutical and bioanalytical analysis in biological samples with emphasis on modern methods: Laboratory applications of pharmacetical and bioanalytical methods.
** Sp Qtr. Arr lab. Prereq or concur: 806.01 and permission of instructor. Offered alternate years.

807 Drug Equilibration in Biological Systems
In depth evaluation of the current literature of methods and techniques of evaluating drug interactions with blood components and receptors.
* Sp Qtr. 2 1.5-hr cl. Offered alternate years.

808 Pharmacokinetic-Pharmacodynamic Models
Mathematical models and experimental approaches for characterization of the time course of drug effects.
* Sp Qtr. 2 1.5-hr cl. Prereq: 802. Offered alternate years, starting Wi '01.

809 Design and Evaluation of Drug Delivery Systems
Physical pharmacy and biopharmaceutical principles will be applied to the design, fabrication and evaluation of complex contemporary and advanced drug delivery systems.
Au Qtr. Prereq: Grad standing or permission of instructor. Offered alternate years.

816 Medication Use System Management
Understanding the medication use system, principles of operations improvement and strategies for improving medication use systems.
Au Qtr. 2 2-hr workshops.

817 Pharmacy Management Systems
Administrative and professional principles and concepts of, and trends affecting pharmacy and health care.
Sp Qtr. 2 1-hr cl, 1 2-hr cl. Prereq: 816.

821 Research Methods and Literature Evaluation
Investigation of the research principles and methods involved in planning, analysis, and interpretation of studies and projects in pharmacy practice.
Wi Qtr. 2 2-hr cl.

824 Economic Evaluation of Health Care Programs and Services
Overview and appraisal of the state-of-the-art in the evaluation of health care programs and services.
Sp Qtr. 2 2-hr cl. Cross-listed in Health Services Management and Policy.

825 Drug Distribution and Public Policy
Investigation of pharmaceutical markets with an emphasis on drug distribution and public policies affecting pharmaceutical firms.
Wi Qtr. 2 2-hr cl.

826 Advanced Topics in Pharmaceutical Administration
Investigation and analysis of selected topics in pharmaceutical administration.
Su, Au, Wi, Sp Qtrns. 1-2 hr cl Repeatable to a maximum of 12 cr hrs.

827 Pharmaceutical and Health Care Outcomes Evaluation
Introduction to measurement and evaluation issues associated with patient-centered pharmaceutical outcomes and quality of care studies with focus on application of measurements.
Sp Qtr. 2 2-hr cl. Prereq: Grad standing. Encouraged to complete or concurrently take courses in Pharmacy Mgmt or Biostatistics.

828 Pharmaceutical Health Services Research
Doctoral-level seminar on concepts, methods, and problem areas addressed by pharmaceutical health services research as a field of inquiry.
Wi Qtr. 2 2-hr cl. Prereq: Doctoral student in pharmacy or public health. Faculty members, post-docs, and fellows are welcome. Not open to PharmD and BSPS students. Seminar-type format, emphasizing student presentations and discussion related to development/critique of research proposals.

832 Biomedical Chemistry for Graduate Students
The purpose of this course is to satisfy the second quarter graduate biochemistry requirement for graduate students in the division of medicinal chemistry and pharmacognosy.
* Wi Qtr. Prereq: 601 or Biochem 613.

835 Advanced Medicinal Chemistry
Selected topics on the chemistry of drug design and discovery: the subject matter drawn from the current literature on chemical and structural aspects of medicinal chemistry.
Sp Qtr. 3 cl. Prereq: Chem 833 or permission of instructor.

836 Advanced Medicinal Chemistry
Selected topics in medicinal chemistry, the subject matter being drawn from the current literature.
Wi Qtr. 3 cl. Prereq: Chem 833 or permission of instructor.

837 Chemotherapy of Infectious Diseases
Discovery, development, and mechanisms of action of drugs used to treat bacterial, fungal, viral, and parasitic infections.
Au Qtr. 3 cl. Prereq: Grad standing and permission of instructor.

850.01 Seminar: Presentation
Presentation of oral and written reports dealing with recent advances in the pharmaceutical sciences. Repeatable to a maximum of 30 cr hrs.

850.02 Seminar: Participation
Participation in round-table discussion, oral, and written reports dealing with recent advances in the pharmaceutical sciences. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

851 Advanced Pharmacognosy
A study of research involving biosynthesis of plant constituents of pharmaceutical interest.
Sp Qtr. 3 cl. Prereq: Biochem 707 or Botany 631 or permission of instructor.

852 Introduction to Pharmaceutical Sciences
Introduction to pharmaceutical sciences, the profession of pharmacy, the College of Pharmacy and responsible research practices.
Au Qtr. Prereq: Grad student in Pharmacy.

870 Molecular Pharmacology of Drug-Receptor Interactions
Integrates mathematical, biochemical, and molecular biological approaches in an effort to achieve a general appreciation of the mechanisms and signaling pathways by which drug-receptor interactions ultimately lead to therapeutic effects.
Au Qtr. 3 cl. Prereq: Math 152 or equiv and an introductory course in pharmacology, or permission of instructor.

871 Experimental Methods in Pharmacology
Qualitative and quantitative pharmacology covering the standard laboratory methods used in the screening and evaluation of drugs.
Wi Qtr. 1 2-3-hr cl, 1 6-hr lab. Prereq: 870 or equiv, and permission of instructor.

872 Advanced Methods in Pharmacology
Theory and practical application of specialized pharmacological approaches used for the elucidation of mechanisms of drug action.
Sp Qtr. 1 cl. 2.3-hr lab. Prereq: 871 and permission of instructor.
Focuses on how changing conceptions of human self-understanding have affected development in the sociopolitical, cultural, and economic realms, and vice-versa; the nature of right and wrong, good and evil; the grounds of moral choice and decision; the resolution of moral conflicts. 130H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC arts and hums cultures and ideas course.

131.01 Ethics in the Professions: Introduction to Engineering Ethics

An examination of contemporary issues in engineering ethics in the context of major ethical theories. Not open to students with credit for 130 or any other 131 course. GEC arts and hums cultures and ideas course.

150 Introduction to Logic

Deduction and induction: principles of clear statement and valid reasoning; fallacies; and the methods by which theories and laws are established. Prereq: Math 075 or equiv. GEC math and logical analysis course.

151 Introduction to Logic and Legal Reasoning

An informal introduction to elementary deductive and inductive logic, concentrating on the application to reasoning in legal contexts (e.g., courtroom argumentation and jury deliberation). Prereq: Math 075 or equiv. Not open to students with credit for 150. GEC math and logical analysis course.

170 Science and Religion

A philosophical examination of the relationship between science and religion, concentration on issues regarding the creation of the universe and the origins of life. 2-2 hr cl. Cross-listed in Comparative Studies. GEC arts and humanities, cultures and ideas course.

215 Asian Philosophies

A survey including at least three of the following major philosophical systems of Asia: Hinduism, Buddhism, Jainism, Zoroastrianism, Taoism, and Confucianism. GEC arts and hums lit course.

230 Political and Social Philosophy

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 110 or 111 or equiv. GEC arts and hums cultures and ideas course.

240 Philosophical Problems in the Arts

An introduction to major philosophical issues in the arts; examination of artistic intention, representation vs. abstraction, the grounds and objectives of art criticism, and the import of cultural differences in light of their application to specific works in the various arts. 240H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC arts and hums VPA course.

242H Honors Philosophy of Film

An introduction to philosophical and aesthetic issues involved with film as an art and as an expressive medium. Sp Qtr. 2.2 hr cl, arr viewing time. Prereq: Enrollment in an honors program or permission of instructor. GEC arts and hums VPA course.

250 Symbolic Logic

A formal presentation of the elements of modern deductive logic; decision and proof procedures in sentential logic and functional logic. GEC math and logical analysis course.

270 Introduction to Philosophy of Religion

A philosophical analysis of the nature of religion and the foundations of religious belief. GEC arts and hums cultures and ideas course.

276H Freshman-Sophomore Proseminar

Topic varies; emphasis on current philosophical problems. Prereq: Fr or soph standing, and either a 3.00 CPHR, enrollment in an honors program, or permission of instructor. Not open to students with credit for H678. Repeatable to a maximum of 15 cr hrs.

280 Metaphysics, Religion, and Magic in the Scientific Revolution

A philosophical examination and critical exploration of the interconnection between the natural scientific, religious and magical traditions in the emergence of the Scientific Revolution. Au, Wi, Sp Qtr. GEC historical survey course.
294 Group Studies UGRD 1-5
Groups of students are given an opportunity to pursue special topics not otherwise offered. Repeatable to a maximum of 15 cr hrs.

301 History of Ancient Philosophy UGRD 5
Major figures and issues in Greek philosophy; presocratics, Socrates, Plato, Aristotle. Prereq: 5 cr hrs of philos other than 150 or permission of instructor. GEC arts and hums lit course.

302 History of Medieval Philosophy UGRD 5
Major figures in medieval philosophy, including Augustine, Aquinas, Duns Scotus, and Ockham. Prereq: 5 cr hrs of philos other than 150 or permission of instructor. GEC arts and hums lit course.

303 History of 17th-Century Philosophy UGRD 5
Major figures in early modern philosophy: Descartes, Hobbes, Spinoza, Locke, and Berkeley. Prereq: 5 cr hrs of philos other than 150 or permission of instructor. GEC arts and hums lit course.

304 History of 18th-Century Philosophy UGRD 5
Major figures in European philosophy in the 17th and 18th centuries. Prereq: 5 cr hrs of philos other than 150 or permission of instructor. Background in 303 strongly recommended. GEC arts and hums lit course.

305 History of 19th-Century Philosophy UGRD 5
Major figures in 19th-century German idealism. Prereq: 5 cr hrs of philos other than 150 or permission of instructor. GEC arts and hums lit course.

306 Fundamental Concepts of Existentialism UGRD 5
Key concepts of the movement: commitment, absurdity, freedom, and death, as expressed in the works of Nietzsche, Sartre, Camus, Kierkegaard and others. Prereq: 5 cr hrs of philos other than 150, or permission of instructor. GEC arts and hums lit course.

307 Contemporary Continental Thought UGRD 5
Examination of contemporary continental thought including such movements as: structuralism, hermeneutics, critical theory, poststructuralism, semiotics, deconstruction, and postmodernism. Prereq: 5 cr hrs of philos other than 150 or permission of instructor. GEC arts and hums lit course.

311 Introduction to Jewish Philosophy UGRD 5
A general introduction to major figures and trends in medieval, modern, and contemporary Jewish philosophy; emphasis on Philo, Saadia, Maimonides, Spinoza, Mendelssohn, and Buber.

323 Judaism and Ethics UGRD 5
Examination of the relationships of ethics to religion in general and Judaism in particular, emphasizing the place of ethical reasoning within Judaism as a religious system. Prereq: 5 cr hrs of philos other than 150 or permission of instructor. GEC arts and hums lit course.

336 Philosophical Perspectives on Issues of Gender UGRD 5
An examination of metaphysical, epistemological and ethical issues surrounding sex and gender, with issues chosen to represent both theoretical and practical controversies. Prereq: English 110. GEC arts and hums cultures and ideas, and social diversity course.

338 Philosophical Problems in the Law UGRD 5
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.

367 Contemporary Social and Moral Problems UGRD 5
in the U.S.
An intensive writing course concentrating on the analysis and evaluation of philosophical argument concerning contemporary social and moral problems about race, gender, class, and ethnicity. Prereq: English 110 or 111 or equiv; and soph standing or above. Cannot be counted on a philosophy major or minor program. GEC second writing and social diversity course.

431 Moral Philosophy UGRD 5
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 judgement. Prereq: Philos major, or 15 cr hrs of philos course work exclusive of 150, or permission of instructor.

450 Philosophy of Logic UGRD 5
Introduction into a variety of distinctly philosophical issues related to logic and its formal development. Presupposes a background in formal logic.

455 Philosophy of Science UGRD 5
A rigorous introduction to general methodological issues in the philosophy of science. Prereq: 250 and either a major in philos or 15 cr hrs of philos course work exclusive of 150, or permission of instructor.

458 An Introduction to the Philosophy of Biology UGRD 5
A survey of philosophical questions regarding the theoretical foundations and implications of research in biology. Prereq: Philos major or 15 cr hrs of philos course work (exclusive of 150 and 151) or permission of instructor.

460 Introduction to Theory of Knowledge UGRD 5
Survey of main philosophical positions concerning knowledge, justification, skepticism, and rationality. Prereq: Philos major, or 15 cr hrs of philos course work exclusive of 150, or permission of instructor.

463 Introduction to Metaphysics UGRD 5
Survey of main philosophical positions concerning the nature of reality, persons, freedom, identity, and causation. Prereq: Philos major, or 15 cr hrs of philos course work exclusive of 150, or permission of instructor.

465 Philosophy of Action UGRD 5
Philosophical examination of the nature of human action. Topics include the nature of intention, practical rationality, issues in moral psychology, the metaphysics of free will. Prereq: Philos major, or 15 cr hrs of philos course work, exclusive of 150 or permission of instructor.

467 Introduction to Philosophy of Mind UGRD 5
General introduction to the philosophy of mind, the mind-body problem, intentionality and the nature of consciousness. Prereq: Philos major, or 15 cr hrs of philos course work exclusive of 150, or permission of instructor.

468 Philosophy of Perception UGRD 5
A philosophical examination of the nature of sensory perception, its relationship to conceptual thought and to consciousness, and its role in action and knowledge acquisition. Prereq: Philos major, or 15 cr hrs of philos course work exclusive of 150, or permission of instructor.

473 Introduction to Philosophy of Language UGRD 5
Survey of philosophical issues regarding the nature of linguistic representation and its role in thought and communication. Prereq: 250 and 10 cr hrs of philos course work exclusive of 150, or permission of instructor.

501 Topics in Jewish Philosophy UGRD 5
An examination of a philosophical issue in Jewish thought or of the thought of a particular author; topics vary. Prereq: 302 or 321, or permission of instructor. Repeatable to a maximum of 15 cr hrs.

533 Environmental Ethics UGRD 5
Examination of the moral issues generated by the impact of human beings on the natural environment. Prereq: 130 or 431, or permission of instructor.

580H Ethical Conflicts in Health Care Research, Policy, and Practice UGRD 5
An interdisciplinary approach to an analysis of central moral dilemmas in health care research, policy, and practice. Prereq: Jr or sr standing. Not open to students with credit for Nursing H580. Cross-listed in Nursing.

595 Theorizing Race UGRD 5
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: GEC sec writing course or Philos 230 or jr level or above class standing or permission of instructor. Not open to students with credit for AfrAmKAS 595. Cross-listed in African-American and African Studies.

601.01 Ancient Philosophy: Plato UGRD 5
A survey of central philosophical themes in one or more Platonic dialogues. Prereq: 301 or 10 cr hrs of philos at the 200 level; or above; or grad standing in philos or permission of instructor.

601.02 Ancient Philosophy: Aristotle UGRD 5
A survey of central philosophical themes in one or more Aristotelian treatises. Prereq: 301 or 10 cr hrs of philos at the 200 level; or above; or grad standing in philos or permission of instructor.
601.03 Ancient Philosophy: Studies in Ancient Philosophy  UGRD  5
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: 301 or 10 cr hrs of philos at the 200 level; or above; or grad standing in philos or permission of instructor. Repeatable to a maximum of 10 cr hrs.

602 Studies in Medieval Philosophy  UGRD  5
An intensive examination of a major philosopher, school or philosophical problem of the medieval period; topics vary.
Prereq: 302 and 10 cr hrs of philos course work at the 200 level or above; or grad standing in philos; or permission of instructor. Repeatable to a maximum of 15 cr hrs.

603 Studies in 17th-Century Philosophy  UGRD  5
An intensive examination of a major philosopher or philosophical problem of the rationalist period; topics vary from quarter to quarter.
Prereq: 303 and 10 cr hrs of philos course work at the 200 level or above; or grad standing in philos; or written of instructor. Repeatable to a maximum of 15 cr hrs.

604.01 Studies in 18th Century Philosophy: Kant  UGRD  5
An intensive examination of one or more important themes in Kant's philosophical writings.
Prereq: 303, or 304, and 10 cr hrs of philos course work at the 200 level or above; or grad standing in philos; or permission of instructor.

604.02 Studies in 18th Century Philosophy: Selected Problems or Topics  UGRD  5
An intensive examination of a major philosopher or philosophical problem of the period; topics vary from quarter to quarter.
Prereq: 304 and 10 cr hrs of philos course work at the 200 level or above or grad standing in philos or permission of instructor. Repeatable to a maximum of 15 cr hrs.

606 Studies in 20th-Century Philosophy  UGRD  5
An intensive examination of one or more central movements in 20th-century philosophy; topics vary.
Prereq: 15 cr hrs of philos course work at the 200 level or above, or grad standing in philos or permission of instructor. Repeatable to a maximum of 15 cr hrs.

612 Introduction to Cognitive Science  UGRD  3
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 or a total of 12 cr hrs from at least two of the following areas: cptr/inf, linguist, philos, and psych. Not open to students with credit for Cptr/Inf 612, Linguist 612, or Psych 612 or 794 (Sp Qtr 1989) or 794A (Wi Qtr 1990). Cross-listed in Computer and Information Science, Linguistics, and Psychology.

620 Advanced Philosophy of Cognitive Science  UGRD  5
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: 467 or permission of instructor.

625 Philosophical Topics in Feminist Theory  UGRD  5
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: 10 cr hrs of philos course work at the 300 level or above; or grad standing; or permission of instructor. Repeatable to a maximum of 10 cr hrs.

630 Advanced Political and Social Philosophy  UGRD  5
An intensive examination of issues in political and social philosophy, including democracy, civil disobedience, anarchism, totalitarianism, nature of the state, etc.
Prereq: 230 and 10 cr hrs of philos course work at the 200 level or above; or grad standing in philos; or permission of instructor, and English 110 or 111 or equiv.

631 Advanced Moral Philosophy  UGRD  5
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: 431 and 10 cr hrs of philos course work at the 200 level or above or grad standing in philos or permission of instructor.

638 Advanced Philosophy of Law  UGRD  5
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: 338 and 10 cr hrs of philos coursework at the 200 level or above; or grad standing; or equiv or permission of instructor.

640 Advanced Esthetic Theory  UGRD  5
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: 15 cr hrs of philos course work at 200 level or above; grad standing in philos; or permission of instructor. Not open to students with credit for 641.
750 Advanced Logical Theory UGRD 5
Topics include formal arithmetic, recursive functions, Turing machines, Godel's incompleteness theorems, Church's thesis, arithmetical truth, logical paradoxes, and higher-order logic.
Prereq: 250 and 650. Repeatable to a maximum of 15 cr hrs.

783H Honors Research UGRD 3-5
A program of reading arranged for each student, with individual conferences, reports, and papers.
Prereq: 4th yr 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 2 qtrs are required of candidates for the BA with distinction in philos. Failure to receive a mark of S in this course is a disqualification for special honors. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

801 Seminar in the History of Philosophy GRAD 1-5
Prereq: Grad standing in philos or permission of instructor. Repeatable to a maximum of 30 cr hrs.

830 Seminar in Value Theory GRAD 1-5
Seminar in Value Theory. Prereq: Grad standing in philos or permission of instructor. Repeatable to a maximum of 30 cr hrs.

850 Seminar in Logic GRAD 1-5
Seminar in Logic. Prereq: Grad standing in philos or permission of instructor. Repeatable to a maximum of 30 cr hrs.

885 Seminar in Philosophy of Science GRAD 1-5
Seminar in Philosophy of Science. Prereq: Grad standing in philos or permission of instructor. Repeatable to a maximum of 30 cr hrs.

893 Individual Studies GRAD 2-15
Doctoral students may register for individual study in areas not normally covered by courses.
Prereq: An MA degree or at least 50 cr hrs of grad study, and permission of dept chairperson. This course is graded S/U.

999 Research in Philosophy GRAD 1-18
Research for thesis or dissertation purposes only. Repeatable. This course is graded S/U.

Physical Medicine And Rehabilitation

993 Individual Studies in Physical Medicine GRAD 3-5
Minor investigations using electrodiagnostic techniques; biophysical, physiologic, and therapeutic effects of physical agents, and other medical rehabilitation techniques.
Prereq: Grad or professional standing and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

999 Research in Physical Medicine and Rehabilitation GRAD 1-18
Research for thesis purposes only.
Prereq: Grad or professional standing and permission of instructor. Repeatable. This course is graded S/U.

Physical Therapy

630.01 Neuroscientific Basis of Rehabilitation I UGRD 2
Focus on the neuroscientific knowledge that physical therapists need in order to understand the complex problems of the patient with musculoskeletal or neuromuscular disorder.
8 sessions 2.5 hrs each. Prereq: Permission of instructor.

630.02 Neuroscientific Basis of Rehabilitation II GRAD 1
Focus on the neuroscientific knowledge that physical therapists need in order to understand the complex problems of the patient with musculoskeletal or neuromuscular disorder.
8 sessions 2.5 hrs each. Prereq: Permission of instructor.

631 Neuroscientific Basis of Rehabilitation in Physical Therapy II GRAD 3
Expand on previous neuroscience coursework and build a scientific basis for physical therapy practice in neurologic rehabilitation settings.
Prereq: Permission to enroll in physical therapy or permission of instructor.

645 Topics in Geriatrics UGRD 3
The aging process and its impact on physical and functional abilities and needs of the older adult.
Prereq: Permission of instructor.

646 Rehabilitation Exercise Programming for Fitness in the Elderly and those with Neurodegenerative Disease GRAD 2
Designed to promote acquisition of clinical skills of assessing individuals who are disabled or elderly and prescribing exercise for those with disabilities.
Prereq: Permission of instructor.

670 Service Learning in Physical Therapy GRAD 1
Designed to provide service learning experiences at the Physicians Free Clinic to enhance student civic skills and to facilitate interdisciplinary collaborations.
Prereq: 670.01.

689.01 Clinical Experience I GRAD 1-6
Supervised provision of physical therapy services in a variety of clinical practice settings.
Su, Au, Wi, Sp Qtrs. Prereq: Admission to physther and permission of instructor. Minimum of 32 weeks of clinical experience required for completion of program. This course is graded S/U.

689.02 Clinical Experience II GRAD 3-6
Supervised provision of physical therapy services in a variety of clinical practice settings.
Su, Au, Wi, Sp Qtrs. Prereq: Admission to physther and permission of instructor. Minimum of 32 weeks of clinical experience required for completion of program. This course is graded S/U.

689.03 Clinical Experience III GRAD 6-12
Supervised provision of physical therapy services in a variety of clinical practice settings.
Su, Au, Wi, Sp Qtrs. Prereq: Admission to physther and permission of instructor. Minimum of 32 weeks of clinical experience required for completion of program. This course is graded S/U.

689.04 Clinical Experience IV GRAD 3-12
Supervised provision of physical therapy services in a variety of clinical practice settings.
Su, Au, Wi, Sp Qtrs. Prereq: Admission to physther and permission of instructor. Minimum of 32 weeks of clinical experience required for completion of program. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

689.05 Clinical Experience V GRAD 6-12
Supervised provision of physical therapy services in a variety of clinical practice settings.
Su, Au, Wi, Sp Qtrs. Prereq: Admission to physther and permission of instructor. Minimum of 32 weeks of clinical experience required for completion of program. This course is graded S/U.

693 Individual Studies UGRD 1-15
Guided study or individual readings, research, or experiences related to physther.
Prereq: Grad standing in philos or permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

720 Advanced Concepts in Evaluation and Treatment of the Spine GRAD 3
Analysis and application of concepts of manual therapy, motor control, and exercise in managing spinal disorders.
Prereq: Permission of instructor.

730 Advanced Concepts in Neuromotor Control GRAD 3
Critical analysis of neuromotor systems, motor control, and motor dysfunction.
Prereq: 630 or equiv of permission of instructor.

740 Clinical Laboratory: Upper Quarter GRAD 1
Designed to develop skill in basic assessment techniques for physical therapy practice.
Prereq: Enrollment in physical therapy program. This course is graded S/U.

741 Clinical Laboratory: Lower Quarter GRAD 1
Designed to develop skill in basic assessment techniques for physical therapy practice.
Prereq: Enrollment in physical therapy program. This course is graded S/U.

372
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>750</td>
<td>Clinical Science I: Upper Quarter</td>
<td>GRAD 4</td>
<td>Designed to establish a knowledge base of concepts, promote understanding and</td>
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<td>appreciation of principles of biomechanics, normal and pathological movement</td>
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<td>of spine and upper extremity.</td>
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<td>Au Qtr. 5 1-hr cl. Prereq: Permission of instructor.</td>
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<tr>
<td>751</td>
<td>Clinical Science II: Lower Quarter</td>
<td>GRAD 4</td>
<td>Designed to establish a knowledge base of concepts, promote understanding and</td>
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<td>appreciation of the principles of biomechanics, normal and pathological movement</td>
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<td>of lower extremity including gait.</td>
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<td>Wi Qtr. 5 1-hr cl. Prereq: Permission of instructor.</td>
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<tr>
<td>752</td>
<td>Clinical Science III: Special Topics</td>
<td>GRAD 3</td>
<td>Designed to establish a knowledge base of concepts and promote an understanding</td>
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<td>and appreciation of the principles of disease.</td>
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<td>Sp Qtr. 5 1-hr cl for 6 weeks. Prereq: Permission of instructor.</td>
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<tr>
<td>753</td>
<td>Clinical Science IV: Pediatric</td>
<td>GRAD 4</td>
<td>Designed to develop an understanding of normal development and the result of</td>
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<td>damage to the developing nervous and musculoskeletal systems.</td>
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<td>Su Qtr. 5 1-hr cl. Prereq: Permission of instructor.</td>
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<tr>
<td>754</td>
<td>Clinical Science V: Adult/Geriatric</td>
<td>GRAD 4</td>
<td>Designed to develop an understanding of the effects of damage to the central</td>
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<td>nervous system and cardiopulmonary system.</td>
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<td>Designed to promote an understanding of the principles of disease.</td>
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<td>Wi Qtr. 5 1-hr cl for 6 weeks. Prereq: Permission of instructor.</td>
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<tr>
<td>760.01</td>
<td>Clinical Applications: Upper Quarter: Lecture</td>
<td>GRAD 5</td>
<td>Designed to promote analysis and application of the concepts and principles of</td>
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<td>musculoskeletal evaluation, examination, diagnosis, and treatment of upper</td>
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<td>extremity and spine.</td>
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<td>5 1-hr cl. Prereq: Permission of instructor.</td>
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<td>760.02</td>
<td>Clinical Applications: Upper Quarter: Laboratory</td>
<td>GRAD 3</td>
<td>Designed to promote analysis and application of the concepts and principles of</td>
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<td>musculoskeletal evaluation, examination, diagnosis, and treatment of upper</td>
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<td>2 3-hr labs. Prereq: Permission of instructor.</td>
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<tr>
<td>761.01</td>
<td>Clinical Applications: Lower Quarter: Lecture</td>
<td>GRAD 5</td>
<td>Designed to promote analysis and application of the concepts and principles of</td>
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<td>musculoskeletal evaluation, examination, diagnosis, and treatment of the lower</td>
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<td>quarter 5 1-hr cl. Prereq: Permission of instructor.</td>
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<tr>
<td>761.02</td>
<td>Clinical Applications: Lower Quarter: Laboratory</td>
<td>GRAD 3</td>
<td>Designed to promote analysis and application of the concepts and principles of</td>
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<td>musculoskeletal evaluation, examination, diagnosis, and treatment of the lower</td>
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<td>quarter 2 3-hr labs. Prereq: Permission of instructor.</td>
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<tr>
<td>762.01</td>
<td>Clinical Applications: Special Topics: Lecture</td>
<td>GRAD 3</td>
<td>Designed to promote an understanding and appreciation for the concepts and</td>
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<td>principles of evaluation, diagnosis of patients with wounds, burns, pain</td>
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<td>syndromes, and neoplasms.</td>
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<td>5 1-hr cl for 6 weeks. Prereq: Permission of instructor.</td>
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<tr>
<td>762.02</td>
<td>Clinical Applications: Special Topics: Laboratory</td>
<td>GRAD 2</td>
<td>Designed to promote an understanding and appreciation for the concepts and</td>
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<td>principles of evaluation, diagnosis of patients with wounds, burns, pain</td>
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<td>syndromes, and neoplasms.</td>
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<td>2 3-hr labs for 6 weeks. Prereq: Permission of instructor.</td>
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<tr>
<td>763.01</td>
<td>Clinical Applications: Lecture</td>
<td>GRAD 4</td>
<td>Designed to promote an understanding of the principles of developmental evaluation,</td>
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<td>diagnosis and treatment of disorders of childhood including neurological,</td>
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<td>musculoskeletal, and cardiopulmonary problems.</td>
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<td>^ 5 1-hr cl. Prereq: Permission of instructor.</td>
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<td>763.02</td>
<td>Clinical Applications: Laboratory</td>
<td>GRAD 3</td>
<td>Designed to promote an understanding of the principles of developmental evaluation,</td>
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<td>diagnosis and treatment of disorders of childhood including neurological,</td>
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<td>musculoskeletal, and cardiopulmonary problems.</td>
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<td>^ 2 3-hr labs. Prereq: Permission of instructor.</td>
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^ Su Qtr. Prereq: Permission of instructor. This course is graded S/U.
870 Advanced Issues in Physical Therapy

871 Health Care in America and its Impact on Physical Therapy

875 Seminar

876 Cellular Biology in Physical Therapy

880 Advanced Case Studies in Physical Therapy

881 Differential Diagnosis

882 Advanced Clinical Practicum

999 Research

1007 Physics by Inquiry: Electric Circuits

1008 Physics by Inquiry: Concepts of Light with Applications to Optics

1011 General Physics: Mechanics and Heat

1012 General Physics: Electricity, Magnetism, and Light

104 The World of Energy II

106 Physics by Inquiry: Properties of Matter

109 Preparation for Physics

110 The Physics of Sports

111 General Physics: Modern Physics

113 Introductory Physics: Particles and Motion

114 Introductory Physics: Electricity and Magnetism

118 Advanced Clinical Practicum

119 Research Seminar: Advanced Topics in Research

131H Honors Physics: Particles and Motion

132 Introductory Physics: Electricity and Magnetism

Physiology
133 Introductory Physics: Thermal Physics, Waves, and Quantum Physics UGRD 5
Continuation of 132.
Su, Au, Wi, Sp Qtr's. 5 cl, 1 2-hr lab. Prereq: 132, and Math 153 or Math 162 or higher. This course is available for EM credit. NS Admins Cond course. GEC phys sci course.

133H Honors Physics: Thermal Physics, Waves, and Quantum Physics UGRD 5
Continuation of H132.
Sp Qtr. 5 cl, 1 2-hr lab. Prereq: H132 with grade of C or better; and Math 153 or Math 162 or higher, or written permission of instructor. NS Admins Cond course. GEC phys sci course.

161 The Building Blocks of Creation I UGRD 5
An overall perspective on our physical universe from the historical development of fundamental physics concepts to their impact on culture and society.
^ Au Qtr. 5 cl. Prereq: Math 075 or equiv. GEC phys sci course. NS Admins Cond course.

162 The Building Blocks of Creation II UGRD 5
Continuation of 161.
^ Wi Qtr. 5 cl. Prereq: 161 and Math 075 or equiv. GEC phys sci course. NS Admins Cond course.

261 Dynamics of Particles and Waves I UGRD 4
Vectors and kinematics; foundations of Newtonian mechanics; momentum, work, and energy; conservative and nonconservative forces; potentials; angular momentum; rotation about a fixed axis.
Au Qtr. 4 cl. Prereq or concur: 132. Not open to students with credit for 525.

262 Dynamics of Particles and Waves II UGRD 4
Rigid body motion; noninertial systems and fictitious forces; central force motion; the special theory of relativity; relativistic kinematics; relativistic momentum and energy.
Wi Qtr. 4 cl. Prereq: 261 and prereq or concur 133; and concur Math 254 or Math 263. Not open to students with credit for 525.

263 Dynamics of Particles and Waves III UGRD 4
Introduction to quantum systems; photons; the Bohr atom; matter waves.
Sp Qtr. 4 cl. Prereq: 262, and Math 254 or Math 263.

294 Group Studies UGRD 1-6
Designed to permit groups of students the opportunity to pursue special studies not otherwise offered.
Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

295 Introductory Seminar UGRD 1
Introduction to departmental research programs and to selected topics of interest in contemporary physics.
Au Qtr. 1 1-hr cl. Prereq: 131. This course is graded S/U.

367 Uses of Science in Solving Problems of Society UGRD 5
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.
Au and/or Sp Qtrs at Marion campus, qtrs vary at Columbus campus. 5 cl. Prereq: Math Placement S or higher; 1 5-hr 100-level course in either astron, bio sci, chem, geol sci, or physics; English 110 or 111 or equiv. Not open to students with credit for Phys Sci 180. GEC second writing and phys sci course.

416 Methods of Experimental Physics UGRD 4
Introduction to the experimental techniques of physics and the statistical analysis of data, through lectures and a variety of experiments.
Au, Wi, Sp Qtr's. 1 1-hr cl, 2 2-hr labs. Prereq: 131, 132, and 133, CSE 202. GEC data analysis course.

455H Honors Holography I UGRD 5
The basic technique of 3D image making; construction of a diode laser and use of this device to make holograms.
Sp Qtr. Prereq: Enrollment in an honors program or permission of dept or of instructor. Repeatable to a maximum of 15 cr hrs. including cr hrs earned in Art 455 and H455. Cross-listed in Art: GEC arts and hums VPA course.

516 Intermediate Physics Laboratory UGRD 4
Selected intermediate level experiments from basic areas of physics.
Wi, Sp Qtr's. 2 3-hr labs. Prereq: 113 or 133 or permission of instructor. Not open to physics majors or grad students in physics. Repeatable to a maximum of 12 cr hrs.

517 Introductory Electronics for Physicists UGRD 4
Intermediate level introduction to electronic circuits, devices, and instrumentation w emphasis on laboratory experience.
Su, Au, Sp Qtr's. 1 2-hr cl, 2 3-hr labs. Prereq: 133 or permission of instructor. Not open to students with credit for 617; or to grad students in physics.
816 Topics in Physics UGRD 3-6
Laboratory and/or theoretical work on an individual basis on topics of current interest. Not open to students with credit for 816 Topics in Physics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

821 Classical Dynamics GRAD 4
Lagrangian dynamics, variational principles, Hamilton's equations, canonical transformations, symmetries and conservation laws, small oscillations, normal coordinates, and classical fields.

822 Elasticity and Fluid Mechanics GRAD 4
Elasticity of solids; stress and strain tensors, dislocations; fluid mechanics; ideal and viscous fluids, chaos, and turbulence.

827 Quantum Mechanics I GRAD 5
Postulates and Schroedinger equation, linear vector spaces, one-dimensional problems, path-integral formulation of quantum theory; multiparticle systems, symmetry, orbital angular momentum, and central potentials.

828 Quantum Mechanics II GRAD 5
Spin angular momentum and its dynamics; addition of angular momenta; variational method; time-dependent and time-independent perturbations, semiclassical treatment of electromagnetic radiation.

829 Quantum Mechanics III GRAD 5
Quantized electromagnetic radiation; scattering theory; density matrix; Dirac equation relativistic hydrogen atom; Hartree-Fock theory, atoms, and molecules.

835 Electromagnetic Field Theory II GRAD 4
Maxwell's equations, electromagnetic waves, radiation by simple systems, wave guides.

836 Electromagnetic Field Theory III GRAD 4
Special theory of relativity, dynamics of relativistic particles, collisions between charged particles, energy loss, scattering, radiation by moving charges.

846 Statistical Physics I GRAD 4
Physical thermodynamics and introduction to statistical physics; fundamental postulates, entropy, thermodynamic potentials and changes of phase; microscopic expression for entropy and basis of classical ensemble theory.

847 Statistical Physics II GRAD 4
Canonical and grand ensembles; quantum statistical mechanics; density matrices, partition functions, Bose and Fermi gases; Debye specific heat; black-body radiation; Bose-Einstein condensation; interacting systems.

848 Advanced Statistical Physics GRAD 4
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.

880.02 Advanced Topics: Elementary Particle Physics GRAD 3
A systematic advanced treatment of areas of current interest in physics; topics will be announced each quarter: Elementary Particle Physics.

880.05 Advanced Topics: Nuclear Physics GRAD 3
A systematic advanced treatment of areas of current interest in physics; topics will be announced each quarter: Nuclear Physics.

880.06 Advanced Topics: Condensed Matter Physics GRAD 3
A systematic advanced treatment of areas of current interest in physics; topics will be announced each quarter: Condensed Matter Physics.

880.08 Advanced Topics: Theory of Quantized Fields GRAD 3
A systematic advanced treatment of areas of current interest in physics; topics will be announced each quarter: Theory of Quantized Fields.
088.20 Special Topics GRAD 3
A systematic advanced treatment of areas of current interest in physics; topics will be announced each quarter. Special Topics. Prereq: 828 or permission of instructor. Repeatable.

999 Research in Physics GRAD 1-18
Research for thesis or dissertation purposes only. Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

**Physiology and Cell Biology**

311 Principles of Human Physiology I UGRD 5
First of a two-quarter sequence covering the following areas of physiology: neuromuscular, heart and circulation, endocrine, brain and special senses, body fluids and kidney, respiration, digestion, temperature control, and metabolism.

312 Principles of Human Physiology II UGRD 5
Continuation of 311.

601 Organ System Physiology I GRAD 5
First of a two-quarter sequence presenting the following areas of physiology: Cell, Neuroscience, Gastrointestinal, Endocrine, Reproduction, Muscle, Cardiovascular, Respiratory, Renal and Acid-base.

602 Organ System Physiology II GRAD 5
Continuation of 601.

793 Individual Studies in Physiology and Cell MED 2-18
Reading, conferences, and laboratory work by individual arrangement with qualified students who desire more intensive and specialized study than is available in other courses.

804 Current Topics in Cell Biology GRAD 5
Advanced studies in selected areas of cell biology, with a focus on the structural components of the cell and an emphasis on interrelationships of cellular compartment.

850 Seminar in Physiology and Cell Biology GRAD 2

911.24 Advanced Studies: Muscle Contraction GRAD 3
In-depth examination of molecular mechanisms of activation and contraction in muscle. Prereq: 601, 602 or 607, 608; or Physical 601, 602 or 607, 608; or equivs with written permission of instructor. Not open to students with credit for Physiol 911.24. Quarter schedule of topics to be announced.

911.26 Advanced Studies: Advanced Topics in Integrative Neurophysiology GRAD 3
In-depth presentation of the theory and concepts of neural networks and microcircuits.

911.27 Advanced Studies: Advanced Cardiovascular Physiology GRAD 3
Advanced presentation of cardiovascular physiology, including electrical and mechanical properties of the heart; calcium handling, beta-adrenergic stimulation of the heart, and cardiac intracellular signaling.

999 Research in Physiology and Cell Biology GRAD 1-18
Research for thesis or dissertation purposes only. Repeatable. This course is graded S/U.

**Plant Biology**

101 Introduction to Plant Biology I: Plants, People, and the Environment UGRD 5
Plants and their relationships to humans and the biosphere; plant structure and function, growth, and development, practical and economic uses of plants.

102 Introduction to Plant Biology II: Plants, People, and the Environment UGRD 5
Continuation of 101; plant genetics and biotechnology, diversity and evolution, and importance of plants for the biosphere and for human survival.

203 Plant Growth Physiology UGRD 4
Introduction to the growth of the whole plant and of its organs, tissues and cells, emphasizing the role of hormones and environmental factors and tissue culture approaches.

293 Individual Studies UGRD 1-5
Individual work in the field of the chosen problem.

300 General Plant Biology UGRD 5
Plant structure and function; growth and development; diversity, reproduction, and evolution of lower and flowering plants; people, the biosphere, and plant diversity.

304.01 Research Methods in Plant Science: Whole Plant UGRD 4
Introduction to scientific skills and modern research methods for the study of plants at the whole plant level.

304.02 Research Methods in Plant Science: Cell and Tissue Level UGRD 4
Introduction to scientific skills and modern research methods for the study of plants at the cell and tissue level.

304.03 Research Methods in Plant Science: Molecular Level UGRD 4
Introduction to scientific skills and modern research methods for the study of plants at the molecular level.

622 Plant Molecular Biology UGRD 4
An in-depth survey of molecular biology of plants with emphasis on current research projects.
623 Plant Genetics and Genomics UGRD 4
A survey and discussion of genetic systems and analytical tools in higher plants, including current genetic studies and genetic and physical mapping.
Au Qtr. 3 cl, 2-hr recit. Prereq: Mol Gen 500 or 501 and Biochem 511; or Mol Gen 605; or permission of instructor.

625 Plant Metabolic Engineering UGRD 3
Plant metabolic engineering with particular emphasis on the emerging role of plants and cultured plant cells as bioreactors.
Wi Qtr. 2 cl, 1-2 hr recit. Prereq: 622 or Mol Gen 622, or 735, or Biochem 613; or permission of instructor.

630 Plant Physiology UGRD 3
Advanced study of plant physiology; solutions, diffusion, osmotic quantities, transpiration, absorption and translocation of water, protein metabolism, enzymes, and respiration.
Au Qtr. 3 cl. Prereq: 101 or 300 or Biology 114, Chem 242 or 252 or Biochem 511, or written permission of instructor.

631 Plant Physiology UGRD 3
Advanced study of plant physiology; pigments, photosynthesis, carbohydrate and fat metabolism, absorption of mineral salts, translocation of solutes, regulation of plant growth, and development.
Wi Qtr. 3 cl. Prereq: 101 or 300 or Biology 114, Chem 252 or Biochem 511, or written permission of instructor.

643 Plant Anatomy UGRD 5
The structure, function, and development of cells, tissues, and organs of vascular plants.
* Sp Qtr. 2 cl, 3-2 hr labs. Prereq: 101 or 300 or Biology 114, and 10 cr hrs in biological sciences; or permission of instructor.

648 Plant Cell Biology UGRD 4
The structure and function of plant cells and their components in the context of eukaryotic cell biology.
* Sp Qtr. 3 cl, 1 recit. Prereq: Some background in plant bio and/or cell biology. Students are encouraged to consult with instructor before enrolling.

650 Biological Microtechnique UGRD 3
Modern microscopic methods for various biological studies; topics include immunocytocchemistry, in situ, hybridization, confocal microscopy and fluorescent microscopy.
Sp Qtr. 2 cl, 1-2 hr lab. Prereq: Biology 114 or H116, Plnt Bio 300 or EEOB 410 or 415 or Mol Gen 607, or permission of instructor.

693 Individual Studies UGRD 1-5
Problems may be selected in the fields of physiology, development, cell biology, molecular biology, biochemistry, signal transduction, genetics, genomics, proteomics, and natural products.
Su, Au, Wi, Sp Qtr. Prereq: 102 or 693 or Biology 114, and 15 additional cr hrs in biological sciences. Not more than 5 cr hrs may be counted toward an undergrad major in plant bio. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-5
Group study of special topics in plant biology.
Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

722 Plant Transgenic System GRAD 3
Solutions to applied plant biotechnology problems are developed through the application of plant transgenic systems.
Sp Qtr. Prereq: 622 or 623 or 625 or permission of instructor.

725 Circadian Biology UGRD 3
Introduction to and discussion of the phenomeology and molecular mechanisms of the circadian timing system of five model systems.
Au Qtr. Prereq: 622 or Mol Gen 500 or 605 or equiv or permission of instructor.

735 Plant Biochemistry I UGRD 3
The biochemistry of plant chloroplasts and mitochondria: photosynthesis, carbohydrate metabolism, sulfate and nitrate reduction, chlorophyll and heme synthesis, chloroplastic development, respiration, and mitochondrial development.
Au Qtr. 3 cl. Prereq: Biochem 511 or 614. Not open to students with credit for 631 prior to Wi Qtr 1988, or to students with credit for 635 prior to Wi Qtr 1995, or to students with credit for Biochem 735. Cross-listed in Biochemistry.

736 Plant Biochemistry II UGRD 3
The biochemistry of plants with emphasis on the synthesis and structure of cell walls, lipids, secondary compounds, phytosteroids and nitrogen fixation.
Wi Qtr. 3 cl. Prereq: 735 or Biochem 735. Not open to students with credit for 631 prior to Wi Qtr 1988, or to students with credit for 635 prior to Wi Qtr 1995, or to students with credit for Biochem 736. Cross-listed in Biochemistry.

741 Reproductive Biology of Flowering Plants UGRD 3
An advanced course on reproductive processes in flowering plants with emphasis on recent biochemical, molecular, and genetic approaches.
* Sp Qtr. 3 cl. Prereq: 101 or 300 or H&CS 300 or Biology 114; and 15 additional cr hrs in biological sciences; or permission of instructor. Not open to students with credit for 641. Alternate years.

783H Honors Research UGRD 3-5
Problems may be selected in the fields of physiology, development, cell biology, molecular biology, biochemistry, signal transduction, genetics, genomics, proteomics, and natural products.
Su, Au, Wi, Sp Qtr. Prereq: 4th yr standing, a grade of A in at least half of the plant bio courses 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. Repeatable to a maximum of 15 cr hrs. Failure to receive a mark of S in this course is a disqualification for graduation with distinction. This course is graded S/U.

795 Special Topics in Plant Biology UGRD 1-3
Lecture/discussion in a seminar format of publications, current research, or research techniques in plant biology.
Su, Au, Wi, Sp Qtr. Arr. Prereq: 25 cr hrs in biological sciences at 200 level or above. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

796 Current Topics in Signal Transduction GRAD 3
A discussion of signal transduction mechanisms revealed in plant systems.
Sp Qtr. 2.1.5-hr cl. Prereq: Biochem 511 and Mol Gen 505, or equivs; or permission of instructor.

800 Plant Biology Colloquium GRAD 1
Attendance at weekly seminars presented by outside speakers, faculty, and post-doctoral researchers; presentations will be on cutting edge research in cellular, developmental, and molecular biology in plant biotechnology.
Au, Wi, Sp Qtr. 1 cl. Repeatable. This course is graded S/U.

803 Seminar in Developmental and Regulatory Plant Biology GRAD 1-3
Discussion of advanced topics in developmental and regulatory plant biology.
Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

833 Advanced Plant Physiology: Growth GRAD 3
The physiology of growth; special attention given to the interrelated effects of plant hormones and environmental factors on the growth process in plants.
* Sp Qtr. 3 cl. Prereq: Biochem 511, and 10 additional cr hrs in biological sciences; or permission of instructor.

835 Advanced Plant Physiology: Plant Reproduction and Development GRAD 3
Physiology of flowering, fruit and seed development, vegetative reproduction, dormancy, apical dominance, abscission, and senescence.
* Sp Qtr. 3 cl. Prereq: 631 or equiv and Biochem 511.

836 Mechanisms of Plant Development GRAD 3
Discussion of current research topics on the mechanisms of plant development, including such topics as genetic control and the role of biochemical and environmental signals.
Sp Qtr. 2.1.5-hr cl. Prereq: 436 or 622 or 631 and Mol Gen 500 or 622; or permission of instructor.

890 Interdepartmental Seminar in Molecular, Cellular, and Developmental Biology GRAD 2
Students will present oral reports and lead discussion on research progress in specific areas of molecular, cellular, and developmental biology.
Au, Wi, Sp Qtr. 1.2-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Given cooperatively with Microbiology, Molecular Genetics, and Plant Biology. This course is graded S/U.

892 Interdepartmental Seminar in Plant Physiology GRAD 1
Students will present seminars on their research or related topics in plant physiology and/or attend seminars by local and visiting researchers.
Au, Wi, Sp Qtr. 1 cl. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. Including cr hrs earned in Agronomy/Biochem/FdSc&Nu/FdSc&Te/H&CS/Hort 892. Cross-listed in Biochemistry, Food Science and Technology, and Horticulture and Crop Science. This course is graded S/U.

998 Research in Plant Biology: Thesis GRAD 1-18
Research for master's thesis only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.
Plant Cellular And Molecular Biology

494H Group Studies in Plant Molecular Biology UGRD 1-5
Honors group studies; laboratory and classroom experience in cellular and molecular biology of plants.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

Plant Pathology

201 Social Impact of Plant Diseases in Shaping UGRD 3 Human Society
Review of the interactions of plant pathogens and the social, economic, and historic consequences for civilization.
Au, Wi, Sp Qtrs. 1 3-hr cl. Available in web version. 201D is an entirely online distance learning class.

294 Group Studies UGRD 1-5
Special group studies of a selected area in plant pathology not provided in other courses.
Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 10 cr hrs.

300 Field and Woodland Fungi UGRD 3
An introduction to common macrofungi in natural habitats with emphasis on identification and ecology.
Au Qtr. 2 3-hr lec/lab. Prereq: Biology 101 or 113 or Plnt Bio 101 or PCMB 101.

305 Introductory Mycology UGRD 3
An introduction to the diversity, biology and life cycles of plant viruses.
3 cl, 1 1-hr lab and 2 2-hr labs per week for 5 weeks. Prereq: 401 or Plnt Path 521 or permission of instructor. Taught during the 1st 5 weeks.

310 Advanced Mycology UGRD 3
Introduction to the diversity, biology and life cycles of plant viruses.
3 cl, 1 1-hr lab and 2 2-hr labs per week for 5 weeks. Prereq: 401 or Plnt Path 521 or permission of instructor. Taught during the 2nd 5 weeks.

395 Plant Health Science Forum UGRD 1
A seminar series for those interested in plant health science. Students will meet with professional plant health managers and take field trips. Professional development issues also covered.
Au, Sp Qtrs. 1 1-hr cl. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

401 General Plant Pathology UGRD 5
An introduction to diseases of plants.
Au Qtr. 3 cl, 2 2-hr lab. Prereq: Biology 101 or 113 or H115 or PCMB 101 or Plnt Bio 101, Biology 114 recommended.

455 Bioterrorism: An Overview UGRD 5
A broad awareness course on the bioterrorism threat to our food supply, crops, animal and public health, and bioterrorist organizations.
Wi Qtr. 2 2.5-hr cl. Prereq: Jr or sr standing. Not open to students with credit for Int Stds 455. Cross-listed in International Studies.

489 Internship Experiences in Plant Health UGRD 1-5 Management
Ten or more weeks of an individualized experiential learning opportunity designed to link theoretical classroom knowledge with practical field application.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 401. Open to plant health management majors and plant pathology minors. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

501 Diseases of Ornamentals UGRD 3
Biological and integrated control of important diseases of ornamental plants.
Sp Qtr. 2 2-hr cl. Not open to students with credit for 610.

597 Societal Issues: Pesticides, Alternatives, and UGRD 5 the Environment
Consideration of the political, ethical, and economic issues related to pesticide usage, atmospheric pollution, and release of genetically engineered organisms.
Au, Wi, Sp Qtrs. 2 2.5-hr cl. Prereq: Jr or sr standing. GE/CLAR course.

600.01 Introduction to Bacterial and Viral UGRD 3 Pathogens of Plants: Phytopathobiology
Taxonomy, biology, ecology, control and host-parasite interactions of bacteria that cause plant disease.
3 cl, 1 1-hr lab and 2 2-hr labs per week for 5 weeks. Prereq: 401 or Plnt Path 521 or permission of instructor. Taught during the 1st 5 weeks.

600.02 Introduction to Bacterial and Viral UGRD 3 Pathogens of Plants: Virology
Introduction to the diversity, biology and life cycles of plant viruses.
3 cl, 1 1-hr lab and 2 2-hr labs per week for 5 weeks. Prereq: 401 or Plnt Path 521 or permission of instructor. Taught during the second 5 weeks.

602 Plant–Microbe Interactions UGRD 3
An introduction to pathogenesis, disease resistance and biological control at the cellular, molecular and biochemical level.
Sp Qtr. 2 2-hr cl. Prereq: 401, Biochem 511 or Plnt Path 509 or permission of instructor.

603 Plant Disease Management UGRD 5
Theory and practice of plant disease management; emphasis on integration of cultural, biological, chemical, and plant breeding techniques.
Su Qtr. 3 2-hr cl. Prereq: 401; and sr standing in Crop Science, Landscape Hort, Turfgrass Science, Plnt Hlth Mgt, or Entomol; or permission of instructor. GE course.

604.01 Research Methods in Plant Science: Whole UGRD 4 Plant
Introduction to scientific skills and modern research methods for the study of plants at the whole plant level.
Au Qtr. Prereq: H&S 300 or Plnt Bio 300 or PCMB 300 or Biology 114 or Plnt Bio 300 or 436 or grad standing or permission of instructor. Not open to students with credit for these courses in H&S or Plnt Bio. Cross-listed in Horticulture and Crop Science, Plant Biology.

604.02 Research Methods in Plant Science: Cell UGRD 4 and Tissue Level
Introduction to scientific skills and modern research methods for the study of plants at the cell and tissue level.
Wi Qtr. Prereq: H&S 300 or Plnt Bio 300 or PCMB 300 or Biology 114 or Plnt Bio 300 or 436 or grad standing or permission of instructor. Not open to students with credit for these courses in H&S or Plnt Bio. Cross-listed in Horticulture and Crop Science, Plant Biology.

610 Diseases of Forest and Shade Trees UGRD 4
Major types of forest and shade tree diseases with emphasis on diagnosis, etiology, epidemiology, and control.
Au Qtr. 2 2-hr cl. Prereq: Plnt Pth 401. Not open to students with credit for 510.

612 Turfgrass Diseases UGRD 3
A detailed study of the diseases of turfgrass, factors influencing disease severity, specific measures for disease control.
Sp Qtr. 2 2-hr cl. Prereq: 401.

613 Integrated Turf Health and Pest UGRD 4 Management
Identifying the most appropriate generic, cultural, biological, and chemical programs for reducing pest damage.
Au Qtr. 3 cl, 1 2-hr lab. Prereq: H&S 422, 470, Entomol 462 or 460.01 and Plnt Pth 612.

614 Diseases of Field Crops UGRD 3
Major diseases of field crops with emphasis on etiology, epidemiology and management.
Sp Qtr. Prereq: Biology 101 or 113 or PCMB 101 or Plnt Bio 101 or permission of instructor.

615 Fruit and Vegetable Crop Diseases UGRD 3
Major diseases of fruit and vegetable crops with emphasis on etiology, epidemiology and management.
/# Wi Qtr. 2 2-hr cl. Prereq: 401 or equiv. Not open to students with credit for 615.01

636 Plant Nematology UGRD 3
Bionomics and control of plant-parasitic nematodes.
/# Wi Qtr. 3 cl. Prereq: 401.

655 Quantitative Methods in Applied Biology UGRD 3
Review of quantitative methods used in biological research especially emphasizing practical application to agricultural and environmental sciences.
Au Qtr. 3 1-hr lectures. Prereq: Stat 528 or equiv. Not open to students with credit for Entomol 655. Cross-listed in Entomology. Recommended to graduate students beginning their research.

660 Mycology UGRD 5
An introduction to the study of fungi.
Wi Qtr. 2 2-hr lec/lab, 2 hrs lab work arr. Prereq: 300 or 401 or 601 or Biology 114 or permission of instructor. Not open to students with credit for Botany 660.

683H Honors Projects UGRD 1-10 Conducting and reporting the honors project.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Agr H590.01, enrollment in honors program, and permission of honors project supervisor. Repeatable to a maximum of 10 cr hrs. Hour repeatable as H683 or in combination with 293, 593, H593, H599, 693, or H693. This course is graded S/U.

379
685 Diagnostic Field Plant Pathology  UGRD  3
Study of traditional and modern diagnostic procedures for diagnosis of plant diseases; study of plant diseases in crop production systems. Su Qtr. 10 days. Prereq: 401 or 615, and permission of instructor. Course will be held at Stone Labs along with tours of production areas in northern Ohio.

693 Individual Studies  UGRD  1-5
Problems may be selected in the various areas of plant pathology. Su, Au, Wi, Sp Qtrs. Prereq: 2.50 cumulative pt-hr ratio and written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

694 Group Studies  UGRD  2-5
Special group studies of a selected area in plant pathology not provided in other courses. Su, Au, Wi, Sp Qtrs. Prereq: Sr or grad standing. Repeatable to a maximum of 10 cr hrs.

702 Plant Disease Epidemiology  UGRD  4
Study of the dynamics of plant diseases; statistical modeling of plant disease epidemics. *

703 Agricultural Genomics: Principles and Applications  UGRD  3
Introduction to new developments in genomics and application in agriculture. * Wi Qtr. 2-hr cl. Prereq: 401, Stat 528, or permission of instructor.

704 Advanced Topics in Fungal Biology  UGRD  4
Advanced treatment of the nature, genetics, physiology, ecology, and importance of fungi in terrestrial ecosystems with an emphasis on plant pathogens. *

830 Current Topics in Plant Pathology  GRAD  1-2
Readings from the current literature will be examined in detail for both technical and conceptual content. Su, Au, Wi, Sp Qtrs. 1 1-2-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

832 Plant-Bacteria Interactions  GRAD  5
Bacterial pathogens and symbions affecting plant health and productivity; molecular, cellular, and environmental determinants of plant-microbe interactions and successful biological control. *

838 Plant Virology  GRAD  3
Plant virus detection, identification, structure, purification, serology, replication, transmission, vector relationships, variability, nomenclature and classification, and virus disease symptoms, physiological effects, epidemiology, economic importance, and control.

839 Plant Virology Laboratory  GRAD  2
Experimental approach to plant virus detection and identification; structure, purification serology, replication, transmission, vector relationships, variability, nomenclature and classification, virus disease symptoms, physiological effects, and epidemiology.

841 Molecular Mechanisms of Pathogenicity  GRAD  4
The molecular mechanisms used by viruses, bacteria and fungi to parasitize plants. The current status of these areas will be reviewed. *

842 Biochemistry of Plant Responses to Infection  GRAD  3
Introduction to the molecular and genetic basis of plant responses to microbial infection and symbiosis. *

843 Ecology of Plant-Associated Microbes  GRAD  5
Review of microbial diversity and ecology as it relates to plants and plant health in natural and managed ecosystems. Sp Qtr. 2-hr les, 1-hr rec. Prereq: 602 or permission of instructor.

901 Mentored Teaching in Plant Pathology  GRAD  1-5
Students work with faculty mentors to gain intensive hands-on and mentored experiences focused on direct interactions with students and the scholarly aspects of teaching. Su, Au, Wi, Sp Qtrs. Prereq: Grad standing and completion of OSU FTAD University wide Orientation on Teaching and Learning. Agr Educe 135 and Edu P&L 851. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

902 Mentored Extension/Outreach Teaching in Plant Pathology  GRAD  1-3
Students work with mentors to gain experiences focused on direct interactions with growers/industry groups and the scholarly aspects of developing/delivering extension-outreach programs and educational materials. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Grad standing. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

995 Seminar  GRAD  1
Seminar. Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable. This course is graded S/U.

999 Research  GRAD  1-18
Research for thesis or dissertation purposes only. Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Polish

101.01 Elementary Polish I  UGRD  5
Introduction to Polish; development of listening, reading, speaking, and writing skills. Not open to students with credit for 101, 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. GEC for lang course. FL Admis Cond course. Students must register for and complete 5 cr hrs during the qtr.

102.01 Elementary Polish II  UGRD  5
Continued study of Polish; development of listening, reading, speaking, and writing skills. Prereq: 101 or 101.01 and 5 cr hrs of 101.51 or permission of instructor. Not open to students with credit for 102; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course. Students must register for and complete 5 cr hrs during the qtr.

103.01 Intermediate Polish  UGRD  5
Continued study of Polish; development of listening, reading, speaking, and writing skills. Not open to students with credit for 103; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

104.01 Intermediate Polish II  UGRD  5
Readings, oral and written practice, and grammar review. Not open to students with credit for 104; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

405.01 Polish Conversation and Composition  UGRD  5
Reading texts of moderate difficulty, conversation, and simple compositions. Not open to native speakers of this language through regular course enrollment or EM credit.

407.01 Polish Conversation and Composition  UGRD  5
Reading from modern Polish literature, practice in writing and speaking. Prereq: Permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit.

409 Advanced Polish Conversation and Composition  UGRD  5
Review of Polish grammar, written compositions, perfection of pronunciation, translation practice, and expansion of vocabulary.

630 Polish Literature to 1900  UGRD  5
Survey of Polish literature from its beginnings to 1900. Prereq: 10 cr hrs in literature courses at the 200 level or above, or permission of instructor. GEC for lang course. FL Admis Cond course. Students must register for and complete 5 cr hrs during the qtr.

631 Polish Literature 1900 to Present  UGRD  5
Survey of Polish literature from 1900 to present. Prereq: 10 cr hrs in literature courses at the 200 level or above, or permission of instructor. GEC for lang course. FL Admis Cond course. Students must register for and complete 5 cr hrs during the qtr.

Political Science

100 Introduction to Comparative Politics  UGRD  5
Introduction to modern nation-state in diverse institutional forms: problems of state and nation-building, representation, conflict, and making of government policy in selected countries. Au, Wi, Sp Qtrs. 100H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC soc sci organizations and polities course.
101 Introduction to American Politics UGRD 5
Introduction to American politics, the institutions and processes which create public policy, the strengths and weaknesses of the American political systems. Su, Au, Wi, Sp Qtr. 5 cl. 101H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for 300. GEC soc sci organizations and polities course. SS Admis Cond course.

110 Contemporary Public Policy Issues UGRD 5
Contemporary challenges to fulfilling the promise of American democracy, including such issues as poverty, discrimination, education, health, environment, and public participation. Au, Wi Qtr. 2 2-hr cl. Prereq: Enrollment is limited to students in the OSU Academy.

145 Global Politics UGRD 5
Cooperation and conflict in world politics. Covers basic theories of international relations and key issues, including security, political economy, international organizations, and the environment. Su, Au, Wi, Sp Qtr. 5 cl. 165H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for 105. GEC soc sci human, natural, and economic resources course.

165 Introduction to Politics UGRD 5
Introduction to politics and political science: power, democracy and authoritarianism, political participation, the state, political institutions, subfields of the discipline, and political research methodology. Su, Au, Wi, Sp Qtrs. 5 cl. 145H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC soc sci organizations and polities course. SS Admis Cond course.

201 Introduction to Political Behavior UGRD 5
Focus on concepts such as attitude, role, and group and their application in such areas as voting behavior and political participation. 5 cl. 201H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC soc sci individuals and groups course. SS Admis Cond course.

210 Introduction to Political Theory UGRD 5
An introduction to the field of political theory through classic and contemporary texts and selected case studies. 2 2-hr cl. 210H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC soc sci organizations and polities course. SS Admis Cond course.

211 Introduction to Political Theory: Approaches UGRD 5
Introduces several leading theoretical approaches to the study of politics, such as theories of human nature, social contract theory and theories of history. Su, Au, Wi, Sp Qtrs. 2 2-hr cl. GEC social sciences organizations and polities.

245 The United States in World Politics UGRD 5
The role of the United States in world politics since the Second World War. Su, Au, Wi Qtr. 2 2-hr cl. Not open to students with credit for 300. GEC soc sci organizations and polities course. SS Admis Cond course.

294.01 Group Studies UGRD 1-5
Group Studies. Repeatable to a maximum of 10 cr hrs.

294.02 Group Studies UGRD 1-5
Group Studies. Repeatable to a maximum of 10 cr hrs.

294.03 Group Studies UGRD 1-5
Group Studies. Repeatable to a maximum of 10 cr hrs.

294.04 Group Studies UGRD 1-5
Group Studies. Repeatable to a maximum of 10 cr hrs.

294.05 Group Studies UGRD 1-5
Group Studies. Repeatable to a maximum of 10 cr hrs.

300 American Politics and Policy Making UGRD 5
An examination of American political institutions and the policy-making process. 5 cl. Not open to students with credit for 101.

304 Ethics and Public Policy UGRD 5
Contemporary approaches to public policy evaluation and their ethical foundations, including efficiency, security, rights, welfare, and equity. 2 2-hr cl.

305 Introduction to Public Policy UGRD 5
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. 5 cl.

367.01 Contemporary Issues in American Politics UGRD 5
Discussion of and critical writing about controversies in contemporary American politics; aimed at fostering analytical abilities in reading comprehension, oral, and written expression. Au Qtr. 2 2-hr cl or 5 cl. 367.01H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 101 or 300 or permission of instructor, English 110 or 111, and soph standing. GEC second writing course.

449 Survey Research in Political Science UGRD 5
The conducting of public opinion polls. 2 2-hr cl. Not open to students with credit for 581 or Comm 449. Crosslisted with Comm 449.

470 Ancient and Medieval Political Thought UGRD 5
The study of major works in ancient and medieval political thought, including texts by Plato, Aristotle, Machiavelli and others. Au, Wi, Sp Qtr. 2 2-hr cl. Not open to students with credit for 670.

471 Early Modern Political Thought UGRD 5
The study of major works in early modern political thought including texts by Hobbes, Locke, Rousseau and others. Au, Wi, Sp Qtrs. 2 2-hr cl. Not open to students with credit for 671.

472 Modern Political Thought UGRD 5
The study of major works in 19th-century political thought, including texts by Marx, Mill, Nietzsche and others. Au, Wi, Sp Qtrs. 2 2-hr cl. Not open to students with credit for 672.

473 Topics in Contemporary Political Thought UGRD 5
An advanced undergraduate-level survey of significant debates in contemporary political theory. Au, Wi, Sp Qtrs. 2 2-hr cl. Not open to students with credit for 673.

485 Techniques of Political Analysis UGRD 5
Introduction to research design, nature of data, its generation and analysis; analysis of political variables. 5 cl. 485H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Su, Au, Wi, Sp Qtr. 2 2-hr cl. Not open to students with credit for 673.

489 Political Science Internship UGRD 2
Combines experience in political institutions or policy processes with analysis of that experience. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of dept. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

496 Study at a Domestic Institution UGRD 1-15
An opportunity for students to study at a domestic institution and receive Ohio State credit for that work. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept. Repeatable to a maximum of 15 cr hrs. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as travel and subsistence costs.

501 The American Presidency UGRD 5
An examination of the American presidency, emphasizing the contemporary role of the president, the institutionalized presidency, and theories of presidential behavior. 5 cl.

502 Campaign Politics UGRD 5
The organization and strategy of American political campaigns; practical politics seen in the light of knowledge about political behavior and public opinion. 5 cl.

503 Public Opinion UGRD 5
Origins and nature of political attitudes; the content of public opinion; the public's influence on policy-making. Wi Qtr. 5 cl. Not open to students with credit for 603.

504 Black Politics UGRD 5
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. 5 cl. Not open to students with credit for AfAm&AS 504. Cross-listed in African-American and African Studies.

505 Urban Government UGRD 5
Introduction to the governance of urban communities in the United States. 5 cl.

506 Ohio Politics UGRD 5
Examination of state politics with special reference to Ohio. 5 cl.

507 American State Politics UGRD 5
Comparative analysis of politics in the American states. 5 cl. Prereq: 101 or 300 or permission of instructor. Not open to students with credit for 604.
508 Asian American Politics UGRD 5
An examination of the experiences of Asian Americans in the political process, including public opinion, mass political behavior, elite politics, and contemporary policy debates.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl. GEC social diversity course.

509 The Mass Media and American Politics UGRD 5
An overview of the influence of the mass media on contemporary American politics; primary focus on news media with consideration of entertainment programming. Not open to students with credit for 609.
2 2-hr cl.

510 Bureaucracy and Public Policy UGRD 5
An examination of bureaucracies as political institutions, and a consideration of their role in several areas of public policy implementation. Not open to students with credit for 610.
2 2-hr cl.

511 Political Strategy, Public Policy, and the Private Sector UGRD 5
Explores the relationships between business and government, including topics ranging from regulatory politics and legislative lobbying, to trade politics and multinational corporations, to business ethics. 511H (honors) may be available to students enrolled in an honors program or by permission of department or instructor.

512 Women and Politics UGRD 5
An examination of women's participation in political activity, including changes over time in women's political roles and comparison with the roles of men.
* 5 cl.

513 Women, Government, and Public Policy UGRD 5
An examination of policymaking on gender-related issues and the impact of women in government.
Wi, Sp Qtrs. 2 2-hr cl. Not open to students with credit for Wom Stds 513. Cross-listed in Women's Studies.

514 Women and the Law UGRD 5
An examination of the legal status of women and the ways in which law affects the situation of women in American society.
5 cl.

515 The Politics of Legal Decision Making UGRD 5
An examination of the literature relating social-scientific theories and research to the law, focusing on the criminal justice system.
Sp Qtr. 2 2-hr cl.

516 Judicial Politics UGRD 5
Analysis of the roles of judges and lawyers as participants in the American political process; analysis of courts as political institutions.
5 cl.

517 U.S. Congress UGRD 5
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. GEC sci organizations and politics course.

518 Gun Politics UGRD 5
Examination of the arguments and issues surrounding gun control in the United States.
Wi Qtr. 2 2-hr cl. Not open to students with credit for 590.01 Wi 2006 or Wi 2007.

519 Civil Liberties in the Courts UGRD 5
An examination of civil liberties decisions by American courts, their legal and political bases, and their effects on government and society.
5 cl.

520 The American Constitution and Governmental Powers UGRD 5
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.
5 cl. Not open to students with credit for 694 Sp Qtr 1979 or Sp Qtr 1980.

521H Supreme Court Decision Making UGRD 5
Study of explanations for Supreme Court decisions; use of those explanations and independent research to predict justices' positions in current cases.
Au Qtr. 2 2-hr cl.

526 The New Religious Politics UGRD 5
Considers how religious beliefs and practices affect politics in a variety of countries: variation in “church-state” relations; religiously-based political divisions; democracy and religion.
Au, Wi, Sp Qtrs. 2 2-hr cl.

527 The Canadian Political System UGRD 5
Explains and analyzes the Canadian political system, including institutional, behavioral, socio-economic, cultural, and ideological components, often in comparison with the United States' political system.

528 Politics of European Integration UGRD 5
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. Not open to students with credit for 628.

529 European Political Development UGRD 5
Uses experience of France, Germany, Great Britain, and Italy as foundation for understanding emergence, functioning, and sustainability of different types of political regimes over time.

530 Politics of Post-Communist Societies in Eastern Europe UGRD 5
Systematic comparison of the sources, dynamics, and outcomes of political, economic and social transformations in the former Communist countries of Eastern Europe.
5 cl.

531H Seminar in Comparative Politics: Democracy in Muslim Majority Countries UGRD 5
A seminar on democracy in Muslim majority nations, concentrating on such issues as ethnicity, economic development, and colonialism and their effects on these countries' political development.
Prereq: Rank 3 or higher and enrollment in an honors program; or permission of instructor.

532 Government and Politics of Southern Europe UGRD 5
Survey of the emergence and distinguishing characteristics of stable democracies and modern societies in Italy, Spain, Portugal, and Greece.

533 Russian Politics UGRD 5
Survey of the politics of Russia and the former soviet states with emphasis on democratization, economic reform, institutional development, elites, mass behavior and ideology.
2 2-hr cl. Not open to students with credit for 630.

534 Government and Politics of Northern Europe UGRD 5
Survey of politics in selected countries of Northern Europe, including Britain, France, Germany, and the smaller European democracies; themes include social welfare, corporatism, parties, and party systems.
Not open to students with credit for 627.03. Repeatable to a maximum of 10 cr hrs.

535 Government and Politics in Modern Democracies UGRD 5
A survey of the basic institutions and politics of modern democracies, with emphasis on representativeness and democratic stability.

536 Greater China: Politics of China, Hong Kong, and Taiwan UGRD 5
An examination of contemporary politics in the People's Republic of China, Hong Kong, and Taiwan. Focus on the inter-relationships between these three entities.
Prereq: 537 or Chinese 231 or 232 or EALL 131 or 341 or History 132 or 345.02 or 547.03; or permission of instructor.

537 Government and Politics of China UGRD 5
A study of the contemporary political process of Communist China; considerable time will be spent on an analysis of recent political change in China and the process of revolution.
5 cl. Not open to students with credit for 637.

539 Contemporary Politics of South Asia UGRD 5
A survey of the politics of South Asia since 1947; topics include the development and consolidation of democracy, the role of social cleavages in politics, and economic development and reform.

540.01 Latin American Government and Politics: An Overview UGRD 5
A study of political processes, institutions, and groups in Latin America, with emphasis on constitutional, geographical, social and economic environments in which they operate.
Not open to students with credit for 540.

540.02 Special Topics in Latin American Politics UGRD 5
Examination of contemporary political challenges confronting Latin America in the twenty-first century, including globalization, poverty, inequality and democratic consolidation.
Repeatable to a maximum of 10 cr hrs with permission of instructor.
541 Politics of the Developing World UGRD 5
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.
Au, Wi, Sp Qtrs. 5 cl. GEC soc sci hum, nat, econ resources and international issues, non-western or global course.

542 Incomplete Democracies: The (Un)Rule of Law in Latin America UGRD 5
This course explores various forms of violence including electoral violence and political assassination, organized crime, police brutality, and other human rights abuses in Latin America.
Au, Sp Qtrs. Sophomore standing or higher. Not open to students with credit for International Studies 542. Cross-listed in International Studies.

543 The Politics of Immigration UGRD 5
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.
Sp Qtr.

544 International Security and the Causes of War UGRD 5
Examines various issues regarding international conflict and cooperation, including theories of strategic interaction and the causes of war.

545 Foreign Policy Decision Making UGRD 5
Examination of how political leaders make decisions, emphasizing such issues as leaders' reasoning processes and the impact of public opinion and foreign policy bureaucracies.
Au Qtr. 2-2 hr cl. Prereq: 245 or permission of instructor.

546 Politics in the Middle East UGRD 5
Politics of Arab-Israeli relations, Persian Gulf; Islamic fundamentalism, and oil; processes of change and their effects on governments and international relations.
Wi Qtr. 2-2 hr cl.

547 Identity Politics UGRD 5
Identity politics explores who controls the meaning of identity in society, examining identity from the perspective of liberal, sociological, and social psychological, structuralist, and institutionalist theories.

548 The Politics of International Terrorism UGRD 5
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.
Au Qtr.

550 Theories of International Relations UGRD 5
Various theories of world politics, such as: realism, liberalism, long cycles, domestic and bureaucratic politics, and decision-making level theory.
Sp Qtr. 2-2 hr cl. Prereq: 145.

551 The United Nations System in Global Problem Solving UGRD 5
Activities and potential of the United Nations system in promoting economic well-being, environmental management, resource sharing, social justice, and control of violence.
5 cl.

552 Security Policy During and After the Cold War UGRD 5
An examination of national security and military policy issues and trends since 1945, covers containment, deterrence, Vietnam, nuclear weapons, terrorism, and globalization.
Au Qtr.

553 Political Analysis of International Economic Relations UGRD 5
Examines the relationship between political and economic events in the international system; topics include global interdependence, inequality, scarce resources, peripheral nation strategies.
5 cl. 553H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for 653 or 75: 2-2 hr cl.

554 Comparative Economic Diplomacy UGRD 5
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.

555 Russian Foreign Policy UGRD 5
Basic concepts about, and choices in Russian foreign policy; development and presentation of patterns of relations with key nations; major problems in future relationships.
^ 2-2 hr cl.

556 Global Governance UGRD 5
Examination of emergence and form of global governance, including questions of legitimation, democratization, and enforcement; as well as collective security humanitarian intervention, and proliferation.
Au Qtr. 2-2 hr cl.

559 International Environmental Politics UGRD 5
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.
Au, Wi, Sp Qtrs. 2-2 hr cl.

565H Power and Resistance UGRD 5
Focuses on both theoretical treatments of the concept of power and empirical studies of power relations.
Sp Qtr. 2-2 hr cl. Prereq: Rank 3 or higher; enrollment in an honors program, or permission of instructor.

567H Politics and Ethics UGRD 5
Explores the relationship between ethical action and political reality, considering the problem of "dirty hands" in political theory and the conflicts among ethical framework that appear to give rise to it.
Wi Qtr. 2-2 hr cl. Prereq: Membership in an honors program or permission of instructor.

568 Islamic Political Philosophy: The Traditional Eras UGRD 5
Islamic political thinking at the time of the Prophet Muhammad, in the Islamic Golden Age, and at the beginning of the nationalist era.

569 Islamic Political Philosophy: The Contemporary Era UGRD 5
Islamic political thinking in the last half of the 20th century and emerging trends in the 21st century.

570 Political Theories of Freedom UGRD 5
An examination of theories of democracy, focusing on normative and descriptive dilemmas such as participation versus liberty in democratic societies.
5 cl. Prereq: 210; or philosophy course work numbered 200 or higher; or grad standing; or permission of instructor.

571 Political Theories of Democracy UGRD 5
An examination of theories of democracy, focusing on normative and descriptive dilemmas such as participation versus liberty in democratic societies.
5 cl. Prereq: 210; or philosophy course work numbered 200 or higher; or grad standing; or permission of instructor.

572 Political Theories of Justice UGRD 5
Focuses on debates among political theorists about the meaning of justice; "What is justice?" and "How might we order our world justly?".
Prereq: 210; or philosophy course work numbered 200 or higher; or permission of instructor.

573 American Political Ideas UGRD 5
An analysis of American ideas on law and government, authority and liberty, oligarch and democracy.
5 cl. Prereq: 210; or philosophy course work numbered 200 or higher; or grad standing; or permission of instructor.

574 Political Participation and Voting Behavior UGRD 5
A study of political participation and Its correlates, determinants of the vote decision, and analysis of recent American elections.
5 cl. Not open to students with credit for 674.

575 American Political Parties UGRD 5
Theories of political parties, party organization, individual voting behavior, nominating and electoral politics, the party in government. GEC soc sci organizations and politics course.

576 Religion and American Politics UGRD 5
Investigates relationship between politics and religion in America, considering historical context and influence of religion on political culture, coalitions and political behavior.
Au, Wi, Sp Qtrs. 2-2 hr cl.

577 Political Manipulation UGRD 5
Examines how political actors manipulate the rules, salience and availability of information to shift political outcomes in their favor.
Au, Sp Qtr.

578 The Comparative Politics of the Welfare State UGRD 5
Analyzes different kinds of welfare capitalism including social, economic, and political considerations shaping welfare policy; and contemporary welfare reform as exercise in reallocation, reorganization, budget-cutting.
Sp Qtr.

579 Domestic Politics of International Conflict UGRD 5
Examination of war and the impact of domestic politics on the decision; influence of domestic institutions and public opinion on leaders' ability/willingness to wage war.
580 State and Economy UGRD 5
Introduction to comparative political economy; relations between the state and the economy, politics and markets, and democracy and capitalism; the consequences of state intervention.
Wi Qtr. 2 2-hr cl.

586 Research Methods in Political Science UGRD 5
Research methods for a variety of political science applications, ranging from data presentation and analysis to legal research.
Prereq: 585, Stat 135, or equiv.

589 Student Internship in Politics and Public Policy UGRD 0-15
Combines experience in political institutions or policy processes with analysis of that experience in light of relevant scholarly literature.
Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

590.01 Topics in Political Science UGRD 3-5
Selected issues and topics in American, international, or comparative politics, public policy or public policy; topics vary by section and instructor.
Repeatable to a maximum of 10 cr hrs.

590.02 Topics in Political Science UGRD 3-5
Selected issues and topics in American, international, or comparative politics, public policy or public policy; topics vary by section and instructor.
Repeatable to a maximum of 10 cr hrs.

590.03 Topics in Political Science UGRD 3-5
Selected issues and topics in American, international, or comparative politics, public policy or public policy; topics vary by section and instructor.
Repeatable to a maximum of 10 cr hrs.

590.04 Topics in Political Science UGRD 3-5
Selected issues and topics in American, international, or comparative politics, public policy or public policy; topics vary by section and instructor.
Repeatable to a maximum of 10 cr hrs.

590.05 Topics in Political Science UGRD 3-5
Selected issues and topics in American, international, or comparative politics, public policy or public policy; topics vary by section and instructor.
Repeatable to a maximum of 10 cr hrs.

593 Individual Studies UGRD 1-15
Students will devote their time to special projects including papers, exams, and practical political experience.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

596.01H Honors Seminar in Political Science UGRD 3-5
Intensive study of selected political science topics and issues in seminar format; topics vary.
Prereq: Enrollment in an honors program or permission of instructor. Repeatable to a maximum of 20 cr hrs.

596.02H Honors Seminar in Political Science UGRD 3-5
Intensive study of selected political science topics and issues in seminar format; topics vary.
Prereq: Enrollment in an honors program or permission of instructor. Repeatable to a maximum of 20 cr hrs.

596.03H Honors Seminar in Political Science UGRD 3-5
Intensive study of selected political science topics and issues in seminar format; topics vary.
Prereq: Enrollment in an honors program or permission of instructor. Repeatable to a maximum of 20 cr hrs.

596.04H Honors Seminar in Political Science UGRD 3-5
Intensive study of selected political science topics and issues in seminar format; topics vary.
Prereq: Enrollment in an honors program or permission of instructor. Repeatable to a maximum of 20 cr hrs.

596.05H Honors Seminar in Political Science UGRD 3-5
Intensive study of selected political science topics and issues in seminar format; topics vary.
Prereq: Enrollment in an honors program or permission of instructor. Repeatable to a maximum of 20 cr hrs.

597.01 Interdependence and Nationalism in World Politics UGRD 5
An examination of the relationships industrialized countries have with each other and nations in the Third World; focus on the potential for cooperation and conflict.
Sp Qtr. 3 1 1/3-hr cl or 2 2-hr cl or 5 cl. 597.01H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Jr or sr standing. Not open to students with credit for 350. GEC contemporary world courses.

597.02 Political Problems of the Contemporary World UGRD 5
Critical political problems of industrialized and Third World societies, including governmental legitimacy, conflict and violence, social welfare, equality, and economic development.
Au, Wi, Sp Qtr. 5 cl. 597.02H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Jr or sr standing. Not open to students with credit for 325. GEC contemporary world courses. E597.02 may be offered for honors embedded experience at the regional campuses.

597.03 Gender and Democracy in the Contemporary World UGRD 5
Highlighting perspectives from various contexts across the globe, this course explores issues of gender and democracy in the contemporary world.
Wi Qtr. Prereq: Level 4 rank or permission of instructor. Not open to students with credit for Woman's Studies 597. GEC issues of the contemporary world course. Cross listed in Woman's Studies 597.

608 Ethnic Politics in the American Cities UGRD 5
Group conflict along ethnic lines in major American cities: factors contributing to group cohesion in politics; strategies and resources for exercising power through collective political action.

612 Political Leadership UGRD 5
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.
Sp Qtr. 2 2-hr cl. Prereq: 100 or 101 or 300 or permission of instructor. Not open to students with credit for 510.

614 Urban Politics UGRD 5
The study of political problems facing the cities: including community power, poverty welfare, urban renewal, urban education, law enforcement, and violence.
5 cl.

627.01 Government and Politics in Europe: An Overview UGRD 5
An analysis of European politics, focusing on the political institutions of European democracies, and the emergence of the European Union.
Sp Qtr. Prereq: Two polit sc courses or permission of instructor.

627.02 Government and Politics in Southern Europe UGRD 5
An analysis of the emergence and distinguishing characteristics of stable democracies and modern societies in Italy, Spain, Portugal, and Greece.
Au Qtr. Prereq: 535 or 627.01, or permission of instructor.

627.04 Government and Politics in Central and Eastern Europe UGRD 5
A comparative analysis of political and social developments in the region since the end of Communism, and the establishment of democratic governments and market economies.
Au Qtr. Prereq: 535 or 627.01, or permission of instructor.

628 Political Integration in Western Europe UGRD 5
A study of the European Union including pooled sovereignty models of international cooperation, and political integration.
Wi Qtr. 2 2-hr cl.

635 Government and Politics of Japan UGRD 5
The government and politics of Japan, with special emphasis being given to the impact of cultural and social patterns on the processes of government with imported political institutions.

636 Southeast Asia UGRD 5
Governments and politics of the Philippines, Indonesia, Indo-China, Malaysia, Thailand, and Burma; contemporary problems of this region in relation to world politics.
5 cl.

670 Ancient and Medieval Political Thought UGRD 5
The study of major works in ancient and medieval political thought, including texts by Plato, Aristotle, Machiavelli and others.
2 2-hr cl. Prereq: Grad standing; or permission of instructor.

671 Early Modern Political Thought UGRD 5
The study of major works in early modern political thought including texts by Hobbes Locke, Rousseau and others.
2 2-hr cl. Prereq: Grad standing; or permission of instructor.
673 Topics in Contemporary Political Thought GRAD 5
A graduate-level survey of significant debates in contemporary political theory. 
Su Qtr. 2-2 hr cl. Prereq: Grad standing; or permission of instructor.

678 Political Decision-Making and Public Policy UGRD 5
Comparative analysis of decision-making processes of contemporary nations 
considering the welfare, education, economic, and environmental policy arenas. 
3 cr, 1 lab. Not open to students with credit for 578.

679 Policy Analysis UGRD 5
An analysis of the policy process emphasizing the determinants of public policy, theories of public choice, and the implementation, impact, and evaluation of policy decisions. 
5 cl.

680 Models of Politics UGRD 5
An introduction of major approaches used in modelling politics, including social choice, game theory, and probability models. 
Au Qtr. 5 cl.

684 Introduction to Political Science Research GRAD 5 Methods
Introduction to political science research with emphasis on survey and experimental designs, data generation techniques, data processing, and computer utilization. 
2-2 hr cl. Prereq: Grad standing in polit sc or permission of instructor.

685 Methods of Quantitative Analysis: Elementary GRAD 5
Explication, interpretation, and application of techniques for quantitative analysis of political data: descriptive and inferential statistics, with emphasis on bivariate analysis 
5 cl. Prereq: Grad standing in polit sc or permission of instructor.

686 Methods of Quantitative Analysis: Intermediate GRAD 5
Descriptive and inferential statistics with emphasis on multivariate analysis; addition topics offered as desired and possible: scaling, index construction, sampling, measurement reliability. 
5 cl. Prereq: 685 and grad standing in polit sc, or permission of instructor.

694.01 Contemporary Political Problems UGRD 3-5
Contemporary Political Problems. 
Prereq: Sr standing and 15 cr hrs in polit sc. Repeatable to a maximum of 30 cr hrs.

694.02 Contemporary Political Problems UGRD 3-5
Contemporary Political Problems. 
Prereq: Sr standing and 15 cr hrs in polit sc. Repeatable to a maximum of 30 cr hrs.

694.03 Contemporary Political Problems UGRD 3-5
Contemporary Political Problems. 
Prereq: Sr standing and 15 cr hrs in polit sc. Repeatable to a maximum of 30 cr hrs.

694.04 Contemporary Political Problems UGRD 3-5
Contemporary Political Problems. 
Prereq: Sr standing and 15 cr hrs in polit sc. Repeatable to a maximum of 30 cr hrs.

694.05 Contemporary Political Problems UGRD 3-5
Contemporary Political Problems. 
Prereq: Sr standing and 15 cr hrs in polit sc. Repeatable to a maximum of 30 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State 
credit for that work. 
Su, Au, Wi Qtr. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. 
This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

700 Basic Theories in the Study of American GRAD 5
Politics
Examination of basic concepts and approaches; consideration of methodological and substantive problems encountered at various levels of analysis. 
* 2-2 hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

701 Seminar on the American Presidency GRAD 5
Examination of presidential research and analysis of literature on selected aspects of the presidency. 
2-2 hr cl. Prereq: 501 or grad standing or permission of instructor. Not open to students with credit for 601.

702 Questions on Surveys GRAD 5
Theories of the survey research response process and their implications for question wording and question order effects. 
Wi Qtr. 2-2 hr cl.

703 Readings in Public Opinion GRAD 5
Intensive analysis of literature on selected topics in public opinion. 
* 2-2 hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

704 Readings in State and Local Politics GRAD 5
Intensive review of selected aspects of the literature on state and local politics in the United States. 
2-2 hr cl. Prereq: 604 or 614 or equiv; and grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

707.01 Seminar in Race and Ethnicity in American Politics GRAD 5
An examination of the role of race and ethnicity in American politics, including public opinion, political incorporation, electoral behavior, and minority representation. 
Introduction to the central research areas and literature of the field of race and ethnicity in American politics. 
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

707.02 Selected Topics in Race and Ethnicity in American Politics GRAD 5
An examination of the role of race and ethnicity in American politics, including public opinion, political incorporation, electoral behavior, and minority representation. 
Intensive readings and discussions on selected topics in the study of race and ethnicity in American politics. 
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

709 Seminar in American Politics GRAD 5
Introduction to the central research areas and literature of the field of American politics. 
Wi Qtr. 5 cl. Prereq: Grad standing in polit sc or permission of instructor. Not open to students with credit for this topic under 894.

711 Organized Interest Groups GRAD 5
Roles and impact of interest groups in American politics, including formation, recruitment, and maintenance of organizations; grassroots mobilization; and lobbying in legislatures, courts, and bureaucracies. 
Wi Qtr. 2-2 hr cl. Prereq: Grad standing.

712 Gender and American Politics GRAD 5
An examination of the role of gender in American politics, including public opinion, electoral behavior, political institutions, and policy making. 
Wi Qtr. 2-2 hr cl. Prereq: Grad standing or permission of instructor.

713 Political Communication GRAD 5
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. 
Wi Qtr. 2-2 hr cl. Prereq: Grad standing or permission of instructor. Not open to students with credit for J Com 713. Cross-listed in Journalism and Communication.

715 Judicial Politics: Process and Policy Making GRAD 5
Examination of the judicial process with emphasis on the work of trial courts and the 
roles of courts as policy makers. 
2-2 hr cl. Prereq: Grad standing or permission of instructor.

716 Judicial Politics: Decision Making GRAD 5
Examination of decision making in appellate courts. 
2-2 hr cl. Prereq: Grad standing or permission of instructor.

717 Readings in Legislative Politics and Policy-Making GRAD 5
A theoretical-empirical analysis of the functioning and policy product of American 
legislatures; intensive reviews of selected aspects of the legislative literature to be 
conducted. 
2-2 hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

719 African American Political Leadership GRAD 5
An intensive reading course that examines Black people's struggle to acquire power. 
Wi Qtr. 2-2 hr cl. Prereq: Grad standing or permission of instructor. Not open to students with credit for AfAm&AS 694 (WI08) or 717. Cross-listed with AfAm&AS 717.

725 Basic Theories in the Study of Comparative Politics GRAD 5
Examination of such concepts and theories as structural-functional analysis; general systems theory; and sociocultural systems as determinants of governmental structures. 
3 cl. Prereq: Grad standing or permission of instructor.

726 Methods and Approaches in Comparative Politics GRAD 5
Overview of the various approaches, methods, and data used in comparative politics; discussion of the strengths and shortcomings of each approach. 
2-2 hr cl. Prereq: Grad standing or permission of instructor.

727.01 Special Topics in European Politics GRAD 5
Intensive investigation of special topics in European politics and government. 
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.
727.02 Government and Politics of Southern Europe  GRAD  5
A comprehensive overview of government and politics in Greece, Italy, Portugal, and Spain.
Prereq: Grad standing or permission of instructor.

727.03 Government and Politics of Northern Europe  GRAD  5
A comprehensive overview of government and politics in the United Kingdom, Germany, France, and the smaller European democracies.
Prereq: Grad standing or permission of instructor.

727.04 The Politics of Central and Eastern Europe  GRAD  5
An examination of the transformation of East European societies since the end of the Communist era.
Prereq: Grad standing or permission of instructor.

730 Seminar in Soviet and Post-Soviet Politics  GRAD  5
Introduction to the literature on Soviet politics; examination of theoretical and empirical analyses of socio-economic and political transformation in the Soviet successor states.
Wi Qtr. 2 2-hr cl.

734 Readings on Chinese Politics  GRAD  5
A seminar for the purpose of reading advanced scholarly materials on contemporary Chinese politics.
^ 1 3-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

735 Comparative Political Economy  GRAD  5
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.
Wi Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in Econ 735. Cross-listed in Economics.

736 Seminar on East Asian Politics  GRAD  5
An examination of approaches to the study of contemporary East Asian politics.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

737 Identity Politics  GRAD  5
Explores origins, reproduction, and effects of social identity from perspectives of self, group, society, and state. Includes examinations of nation, ethnicity, gender, and race in identity politics.
Wi Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor.

739 Seminar on the Contemporary Politics of South Asia  GRAD  5
Examination of core theories in the study of South Asian politics. Topics include party and electoral politics, religious violence, economic development and reform, international conflict.
Prereq: Grad standing or permission of instructor.

740 Problems in Latin American Politics  GRAD  5
An advanced seminar devoted to a structured examination of the major theories, concepts, and approaches used in the analysis of Latin American politics.
^ 1 3-hr cl. Prereq: 562 or 640; and grad standing or permission of instructor.

741 Politics of the Developing World  GRAD  5
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.
2 2-hr cl. Prereq: Grad standing or permission of instructor.

743 Peasant Politics  GRAD  5
Intensive study of selected aspects of peasant political behavior, with particular attention to non-institutionalized political participation and collective action.
Au Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor.

744 Democratic Transitions  GRAD  5
Theoretical examination of the dynamics of the transition from authoritarian to democratic regimes, with special attention to Southern Europe and South America.
Au Qtr. 1 3-hr cl. Prereq: Grad standing or permission of instructor.

745 Basic Theories in the Study of International Politics  GRAD  5
Examination of such basic concepts and theories as equilibrium models, balance of power, national interest, geopolitical configurations.
2 3-hr cl. Prereq: Grad standing or permission of instructor.

746 Synthesizing International Politics Scholarship  GRAD  5
Synthesis of international politics research and writings, intended for advanced graduate students.
2 2-hr cl. Prereq: Grad standing or permission of instructor.

747 Research Methods in International Politics  GRAD  5
Examines a number of research techniques and approaches common in international politics such as content analysis, simulation, mathematical modeling, and factor analysis.
2 2-hr cl. Prereq: Grad standing or permission of instructor.

748 Social Theories of International Politics  GRAD  5
An examination of the main themes, debates, and social theories of world politics.
Sp Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor.

750 Research on Cognition in International Politics  GRAD  5
Problem representation and research in cognition in international politics and foreign policy, including computational research, text analysis, and experimentation with such cognition.
Au Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor.

751 Conflict and Peace  GRAD  5
Sources and types of social conflict with special attention to international violence; causes of war, their avoidance and control.
^ 2 2-hr cl. Prereq: Grad standing or permission of instructor.

752 Security Policy for the Post-Cold War World  GRAD  5
Theories of conflict and war causation and an assessment of their durability in a new era of world politics.
Wi Qtr. 2 2-hr cl. Prereq: Any prior course work in international relations and permission of instructor; or grad standing.

753 Theories of International Political Economy  GRAD  5
Contemporary literatures in international political economy; their ties to classical schools of thought in international relations and political economy; points of contention between them.
2 2-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

756 Foreign Policy Design  GRAD  5
Problems of designing foreign policy including organizational, contextual, economic, and public opinion constraints; how to create an information retrieval system to aid decision-making.
2 2-hr cl. Prereq: Grad standing or permission of instructor.

757 Comparative Foreign Policies  GRAD  5
Examines comparatively the sources and classes of behavior of territorial actors in the international political system.
2 2-hr cl. Prereq: Grad standing or permission of instructor.

759 International Organization  GRAD  5
Comprehensive view of international governmental, non-governmental, and business organizations; their roles in solving problems such as poverty, war, pollution; particular attention to the U.N. system.
2 2-hr cl. Prereq: Grad standing or permission of instructor.

760 Transnational Relations  GRAD  5
Comprehensive view of nongovernmental relations (trade, agriculture, science, religion, health, labor) between people in different nation-states with particular attention to opportunities for increased citizen control.
2 2-hr cl. Prereq: Grad standing or permission of instructor.

761 Political Psychology and International Relations  GRAD  5
A seminar introducing students to theories of international relations that employ psychological perspectives; cognitive world views and political identity, especially nationalism, receive special attention.
Sp Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor.

763 Fundamental Concepts in Political Theory  GRAD  5
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: Grad standing or permission of instructor.

765 Interpretation of Texts in Political Theory  GRAD  5
Approaches to interpretation of texts of political theory, contemporary as well as classic, grounded in study of selected texts.
2 2-hr cl. Prereq: Grad standing or permission of instructor.

766 Selected Topics in Political Theory  GRAD  5
Intensive joint readings and discussions concentrating upon one of the major themes, problems, or movements in political theory; topic information available from instructor.
2 2-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

768 Contemporary Political Analysis  GRAD  5
An examination of theories and concepts used in modern qualitative political analysis including attention to political economy and political institutions.
1 3-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.
770 Institutions and International Political Economy  
Examines international political economy from the perspective of institutions and institutionalist theories in political science, economics and international relations. Wi Qtr. 1 3-hr cl.

773 International Security and Political Economy  
Examination of connections between economic growth/stagnation and interstate conflict, and the effect of economic ties upon cooperation and armed strife. Prereq: Permission of instructor.

774 Readings in Political Participation and Voting Behavior  
Intensive examination of literature on selected topics in the area of participation and voting behavior in the United States. 2 2-hr cl. Prereq: 674 or equiv, and grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

775 Readings in American Political Parties  
Intensive study of literature on selected aspects of American political parties. 3 cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

776 Comparative Political Institutions  
Study of state building process, regime types, and contemporary governmental institutions from a broad cross-national perspective. 3 cl. Prereq: Grad standing or permission of instructor.

777 Comparative Political Behavior  
A cross-national examination of political behavior, including such topics as socialization, participation, voting, elite behavior, mass-elite linkages. 3 cl. Prereq: Grad standing or permission of instructor.

778 Comparative Political Parties and Interest Groups  
Comparative analysis of the nature and role of political parties and interest groups in contemporary societies.

779 Readings on the Policy Process  
Consideration of the basic theories, concepts, and techniques used in policy analysis; the determinants of public policy; and the impact and evaluation of public policy. 2 2-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 10 cr hrs.

780 The Field of Political Economy  
The modern field of political economy; the interaction of markets and politics as well as the use of the tools of economics to explain social behavior. Wi Qtr. 2 2-hr cl. Not open to students with credit for Econ 780. Cross-listed in Economics.

781 The Political Economy of Income Inequality, Volatility, and Mobility  
Examines patterns, political and institutional foundations, and consequences of income inequality, volatility, and mobility, plus dynamic aspects of income distributions. Emphasizes data-handling and empirical approaches. Wi Qtr.

783H Honors Research  
Honors Research. Prereq: 4th yr standing and 40 cr hrs in social sciences, including 15 cr hrs in polit sc with a record of A at least half of the polit sc courses and an average of B in the remainder; and permission of instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee. Repeatable to a maximum of 15 cr hrs. At least 2 qtrs are required of candidates for the degree BA with distinction in polit sc. Failure to receive a mark of S in this course is a disqualification for special honors. A special topic is assigned to each student and results are tested by the requirement of papers and special examinations. This course is graded S/U.

786 Causal Analysis  
Analysis of causal models by Simon-Blalock techniques, recursive and nonrecursive path estimation; special topics include measurement error, standardization, and ordina data.

787 Scaling and Dimensional Analysis in Political Science  
Topics include measurement and data theory, unfolding, proximity and dominance (Garman) scaling, multidimensional scaling, and factor analysis.

788 Mathematical Theories of Politics  
Introduction to various major mathematical theories of political phenomena and the role of formal analysis in political science.

789 Survey Research Practicum  

790 Foundations of Political Science  
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. 2 2-hr cl or equiv. Prereq: Grad standing or permission of instructor.

793.01 American Politics  
Individual studies in political science; student work is evaluated by papers and/or special examinations.

793.02 Comparative Politics  
Individual studies in political science; student work is evaluated by papers and/or special examinations.

793.03 International Politics  
Individual studies in political science; student work is evaluated by papers and/or special examinations.

793.04 Political Theory  
Individual studies in political science; student work is evaluated by papers and/or special examinations.

793.05 Political Methodology  
Individual studies in political science; student work is evaluated by papers and/or special examinations.

795 Teaching Political Science  
Examination of issues in teaching political science in colleges and universities and preparation for teaching careers. Wi Qtr. 1 2-hr cl. Prereq: Grad standing in polit sc. This course is graded S/U.

800.01 Design of Research in American Politics  
Development of a research design on a selected topic in American politics; consultation on substantive and methodological problems offered by faculty. Wi Qtr. 1 2-hr cl, arr time. Prereq: 45 cr hrs of graduate work in polit sc or permission of instructor. Repeatable hrs include hrs earned in 894.

800.02 Research in American Politics  
Execution of a research design on a selected topic in American politics; consultation on substantive and methodological problems offered by faculty. Sp Qtr. 1 2-hr cl, arr time. Prereq: 800.01 or permission of instructor. Repeatable hrs include hrs earned in 894.

803 Research in Public Opinion  
Development and execution of a research design focusing on a problem in American public opinion; consultation on substantive and methodological problems offered by instructor. 1 2-hr cl. Prereq: 702 or permission of instructor. Repeatable to a maximum of 10 cr hrs.

805 Experimental Research in Political Psychology  
Experimental methods appropriate for research in political psychology. Wi Qtr. 2 2-hr cl. Prereq: 882 and grad standing; or permission of instructor.

806 Foundations of Political Science  
Overview of the field of political psychology; causes, dynamics, and consequences of human thinking and action in politics. Sp Qtr. 1 3-hr cl.

812 Seminar: Political Elites and Leadership  
Advanced research seminar on political leadership behavior and political elite structure. Sp Qtr. 2 2-hr cl.
817 Research in Legislative Politics and Policy- Making
Development and execution of a research design focusing on a particular problem in American legislative research; consultation on substantive and methodological problems offered by instructor.
1 2-hr cl. Prereq: 717 or equiv. Repeatable to a maximum of 10 cr hrs.

826 Research in Comparative Politics
Research seminar on various topics in comparative politics.
1 2-hr cl. Prereq: 2 pol sic courses in foreign governments at 600-level or above, or equiv. Repeatable to a maximum of 15 cr hrs.

846 Research in International Politics
Research seminar in international politics.
1 2-hr cl. Repeatable to a maximum of 15 cr hrs.

848 Game Theory for International Relations
The refinement and application of game theory techniques in such areas as war, deterrence, cooperation, and institution building.
Wi Qtr. 2 2-hr cl. Prereq: 788 or permission of instructor.

853 Advanced Research in International Political Economy
Advanced study and research in international political economy.
Wi Qtr. 1 3-hr cl. Prereq: 753 or permission of instructor.

866 Research in Political Theory
Research seminar in political theory; intensive treatment of selected topics.
1 2-hr cl. Repeatable to a maximum of 10 cr hrs.

867 Research in Mathematical Political Science
Design and examination of research focusing on a problem in mathematical political science.
2 2-hr cl. Repeatable to a maximum of 10 cr hrs.

874 Research in Mass Political Behavior
Development and execution of a research design focusing on a problem in electoral or public opinion research; consultation with instructor on substantive and methodological issues.
1 2-hr cl. Prereq: 763 or 774 or equiv. Repeatable to a maximum of 10 cr hrs.

875 Research on American Political Parties
Development and execution of a research design focusing on a problem relating to American political parties; consultation on substantive and methodological problems offered by instructor.
1 2-hr cl. Repeatable to a maximum of 10 cr hrs.

879 Research on Public Policy
Research into the process of policy making and the substance of public policy; consultation on substantive and methodological problems offered by instructor.
1 2-hr cl. Repeatable to a maximum of 15 cr hrs.

892 Workshop
Intensive study of an area or problem in political science.
Arr cl. Repeatable to a maximum of 15 cr hrs.

894.01 Contemporary Political Problems
Group studies to examine specific contemporary political problems.
5 cl. Repeatable to a maximum of 30 cr hrs.

894.02 Contemporary Political Problems
Group studies to examine specific contemporary political problems.
5 cl. Repeatable to a maximum of 30 cr hrs.

894.03 Contemporary Political Problems
Group studies to examine specific contemporary political problems.
5 cl. Repeatable to a maximum of 30 cr hrs.

894.04 Contemporary Political Problems
Group studies to examine specific contemporary political problems.
5 cl. Repeatable to a maximum of 30 cr hrs.

894.05 Contemporary Political Problems
Group studies to examine specific contemporary political problems.
5 cl. Repeatable to a maximum of 30 cr hrs.

899 Interdepartmental Seminar
Two or more departments may collaborate in presenting seminars on subjects of mutual interest; topics to be announced. Repeatable with permission.

999 Research in Political Science
Research for thesis or dissertation purposes only. Repeatable. This course is graded S/U.

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Portuguese

101.01 Elementary Portuguese I
Elements of Portuguese grammar, with oral and written exercises; attention to ear training, oral practices and customs.
Wi Qtr. Not open to native speakers of this language through regular course enrollment or EM credit. Not open to students with credit for 101. GEC for lang course. FL Admis Cond course.

101.51 Elementary Portuguese I: Individualized
Track
Elements of Portuguese grammar, with oral and written exercises; attention to ear training, oral practices and customs.
Not open to native speakers of this language through regular course enrollment or EM credit. Not open to students with credit for 101, 102.40, or 501. Repeatable to a maximum of 5 cr hrs. GEC for lang course. FL Admis Cond course. Students may enroll for fewer than 5 credits and complete the course over more than one quarter. Students may enroll for a maximum of 5 cr hrs of Port I.I in any given quarter.

102.01 Elementary Portuguese II
The elements of Portuguese grammar with abundant oral and written exercises; development of conversational skill; reading, vocabulary building.
Wi Qtr. Prereq: 101 or 101.01 or 5 cr 101.51. Not open to students with credit for 102; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course.

102.51 Elementary Portuguese II: Individualized
Track
The elements of Portuguese grammar with abundant oral and written exercises; development of conversational skill; reading, vocabulary building.
Prereq: 101 or 101.01 or 5 cr 101.51. Not open to students with credit for 102; or to native speakers of this language through regular course enrollment or EM credit. Not open to students with credit for 102, 102.40, or 501. Repeatable to a maximum of 5 cr hrs. GEC for lang course. FL Admis Cond course. Students may enroll for fewer than 5 credits and complete the course over more than one quarter. Students may enroll for a maximum of 5 cr hrs of Port I.I in any given quarter.

103.01 Intermediate Portuguese I
Continuation of Portuguese grammar; reading of short stories, plays, and novels; increased attention to development of oral proficiency.
Wi Qtr. Prereq: 102 or 102.01 or 5 cr 102.51 or 102.40 or 501. Not open to students with credit for 103, 502 or native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

103.51 Intermediate Portuguese I: Individualized
Track
Continuation of Portuguese grammar; reading of short stories, plays, and novels; increased attention to development of oral proficiency.
Prereq: 102 or 102.01 or 5 cr 102.51 or 102.40 or 501. Not open to students with credit for 103, 502 or native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 5 cr hrs. GEC for lang course. Students may enroll for fewer than 5 credits and complete the course over more than one quarter. Students may enroll for a maximum of 5 cr hrs of Port I.I in any given quarter.

104.01 Intermediate Portuguese II
Reading of Portuguese plays, short stories, and novels; emphasis on oral practice; non fiction of cultural and historical significance.
Sp Qtr. Prereq: 103 or 103.01 or 103.51. Not open to students with credit for 104, 502 or to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

104.51 Intermediate Portuguese II: Individualized
Track
Reading of Portuguese plays, short stories, and novels; emphasis on oral practice; non fiction of cultural and historical significance.
Prereq: 103 or 103.01 or 103.51. Not open to students with credit for 104, 502 or to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 5 cr hrs. GEC for lang course. Students may enroll for fewer than 5 credits and complete the course over more than one quarter. Students may enroll for a maximum of 5 cr hrs of Port I.I in any given quarter.

150 Introduction to the Literatures of the Portuguese-Speaking World
This course offers an overview of major works of the literatures of the Portuguese-speaking world. Students learn about major periods, authors and aesthetic currents.
Au Qtr. GEC for lang course. FL Admis Cond course.

159 Narratives of Travel and Intercultural Contact in the Early Modern Imperial World
Studies relationship between literature and empire by reading early modern narratives of travel and intercultural contact, with particular attention to Portuguese role in European expansion.
Wi Qtr. GEC for lang course. FL Admis Cond course.
330 Introduction to Brazilian Culture UGRD 5
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.
2-2 hr cl. Knowledge of Portuguese not needed. GEC arts and hums cultures and ideas course.

331 Portuguese Culture and Society UGRD 5
This course examines Portuguese culture, taking into account intersections with other cultural contexts (e.g., in Europe, Africa, Asia, and the Americas). Taught in English. Sp Qtr. GEC culture and ideas and international issues/non-western or global course.

335 Cannibal Brazil: Cultural Encounters and Negotiations of Identity in Literature and Culture UGRD 5
Explores a fundamental topic within Brazilian culture, from colonial times to present; Cannibalism as cultural practice in both literal and discursive realms.
Prereq: English 110.01 or 110.02 or 110.03. GEC arts and hums cultures and ideas course.

395 Topics in Foreign Study UGRD 1-15
Credit from study abroad for courses not offered by department.
Su, Au, Wi, Sp Qtrs. Arr. Used only to convert 697 credit to more appropriate level. Repeatable to a maximum of 99 cr hrs. Arranged only with permission of Departmental study abroad adviser.

401 Advanced Portuguese Grammar UGRD 5
Advanced review of Portuguese grammar.
2 2-hr cl. Prereq: 104 or 502 or permission of instructor.

402 Portuguese Reading and Listening UGRD 5
Development of students' reading and listening skills through newspapers, magazines, radio and TV stories and newscasts.
Prereq: 104 or 502 or permission of instructor. Not open to native speakers of this language through regular course enrolment or EM credit.

403 Portuguese Conversation and Composition UGRD 5
Intensive practice in conversation and composition based on short stories written by lusophone authors with review of grammar.
2 2-hr cl. Prereq: 104 or 502 or permission of instructor. Not open to students with credit for 202.

450 Introduction to the Study of Literatures and Cultures UGRD 5
Strategies for reading and extensive practice in analyzing literary and cultural texts from the Portuguese-speaking world.
Prereq: 401 or 402 or 403 or 502 or permission of instructor.

501 Portuguese for Spanish Speakers I UGRD 5
Rapid introduction to Portuguese language intended for students with at least intermediate-level Spanish skills.
Wi Qtr. 5 cl. Prereq: Spanish 104 or equiv. Not open to students with credit for 101, 102, 103, or 104.

502 Portuguese for Spanish Speakers II UGRD 5
Continuation of 501; Portuguese language for students with at least intermediate-level Spanish skills.
Su (2nd term), Sp Qtrs. 5 cl. Prereq: 501. Not open to students with credit for 101, 102, 103, or 104.

510 Portuguese Translation UGRD 5
Advanced practice in Portuguese-to-English translation based primarily on the contemporary written Portuguese of Brazil and Portugal; emphasis on formal grammar and style.
3 80-min cl. Prereq: 401 or permission of instructor.

511 Literature from the Middle Ages to Neoclassicism UGRD 5
Overview of Portuguese and Brazilian literatures from the 12th to 18th centuries, with emphasis on representative authors and literary works.
2 2-hr cl. Prereq: 450, or 502 and grad standing, or permission of instructor.

552 Literature from Romanticism to the Present UGRD 5
Overview of Portuguese and Brazilian literatures from the 19th and 20th centuries, with emphasis on representative authors and literary works.
2 2-hr cl. Prereq: 450, or 502 and grad standing, or permission of instructor.

560 Cultural Expressions of Portugal and Lusophone Africa UGRD 5
The culture of Portugal and Portuguese Africa from their founding to the present through the study of selected Portuguese-language literature, news, and film.

561 Cultural Expressions of Brazil UGRD 5
Study of the development of Brazilian culture through its Portuguese language, literature, folklore, music, art, and film; special emphasis on contemporary issues.

595 Special Topics in Foreign Study UGRD 1-15
Credit from study abroad for courses not offered by department but eligible for Portuguese major core.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 401 or 502 or special permission. Used only to convert 697 credit to more appropriate level. Repeatable to a maximum of 99 cr hrs. Arranged only with permission of Departmental study abroad adviser.

597.01 Coloniality and Postcoloniality in the Literatures of Portugal and Portuguese-speaking Africa UGRD 5
Focuses on literary representations of the Portuguese colonial experience in Africa in Portuguese and African texts, and their contribution to understanding contemporary postcolonial issues.
Wi Qtr. Prereq: English 110. GEC issues of the contemp world and international issues/non-western or global course.

597.02 Representing Identity in the Cinema of the Portuguese-Speaking World UGRD 5
This course examines how film in the contemporary Portuguese-speaking world (e.g., Brazil, Portugal, Angola) reflect on race, ethnicity, multiculturalism, and transnational contact.
Sp Qtr. Prereq: English 110. GEC issues of the contemp world and international issues/non-western or global course.

606 Business Culture and Communication in Portuguese UGRD 5
Use of Portuguese in work- and business-related situations; development of oral and written language to be used in business.
2 2-hr cl. Prereq: 104 or 502 or permission of instructor.

611 The Portuguese Language UGRD 5
Phonetic transcription from tapes of major continental and Brazilian dialects; the phonological pattern of modern Portuguese; general characteristics of its historical evolution from Hispano-Romance.
* 4 cl, 1 lab hr. Prereq: 401 or 402 or 403; or 502 and grad standing; or permission of instructor.

650 Studies in Literatures and Cultures of the Portuguese-Speaking World UGRD 5
Intensive exploration of a specific topic or problem; topic varies, for example: modern Brazilian novel, Luso-African literature, Portuguese poetry since 1974.
* 2-2 hr cl. Prereq: 450 and one 500 level literature and/or course or 502 and grad standing, or permission of instructor. Repeatable to a maximum of 15 cr hrs.

693 Individual Studies UGRD 1-30
Individual Studies.
Prereq: Permission of instructor. Repeatable to a maximum of 99 cr hrs. This course is graded S/U.

694 Group Studies UGRD 1-15
Group Studies.
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

730 Studies in Portuguese Linguistics GRAD 5
Analysis of Portuguese morphology and phonology using contemporary linguistic framework; topic varies from year to year and may be historical or synchronic.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing, or Portuguese 611, or Spanish 430, or Linguistics 601, or permission of instructor. Repeatable to a maximum of 10 cr hrs.

750 Studies in Literatures and Cultures of the Portuguese-Speaking World UGRD 5
Study of topics in the literature and culture of Brazil, Portugal, or Lusophone Africa.
Sp Qtrs. Prereq: 401 or 502 and grad standing; or 2 of 551, 552, 560, or 561; or permission of instructor. Repeatable to a maximum of 15 cr hrs.

783H Honors Research UGRD 3-15
A program of research for each student which includes individual conferences and which culminates in an honors thesis or oral defense.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Approved candidacy for graduation with distinction which includes faculty adviser and ASC Honors Committee approval of project, a minimum 3.50 pt-hr ratio in the field of distinction, sr standing, and CPHR Individual Studies.

893 Individual Studies GRAD 1-15
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 99 cr hrs. This course is graded S/U.
Investigation of minor problems in the various fields of Portuguese literature and language.

Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs.

**Psychiatry**

**793 Individual Studies in Psychiatry**

A supervised, scholarly investigation of some aspects of psychiatry in which there is interest by the student and expertise by the faculty.

Su, Au, Wi, Sp Qtrs. Prereq: Adequate clinical training in psychiatry and permission of chairperson and instructor. Repeatable to a maximum of 18 cr hrs. 1, 2, or 3 months. This course is graded S/U.

850.01 Seminar: Clinical Psychiatry

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

850.02 Seminar: Group Therapy

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

850.03 Seminar: Psychotherapy

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

850.04 Seminar: Psychiatric Literature

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

850.05 Seminar: Child Psychiatry

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

999 Psychiatry Research

Research for thesis purposes only.

Su, Au, Wi, Sp Qtrs. Prereq: MD and residency in psychiatry. Repeatable. This course is graded S/U.

**Psychology**

**100 General Psychology**

Introductory psychology, a prerequisite to advanced courses; the application of the scientific method to behavior; topics include learning, motivation, perception, personality, physiological basis of behavior.

Su, Au, Wi, Sp Qtrs. 5 cl. 100H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. SS Admin Cond course. This course is available for EM credit. GEC soc sci individuals and groups course. GEC soc div in US course. E100 may be available for honors embedded experience at the regional campuses.

120 The Psychology of Academic and Personal Effectiveness

A survey of theories and practices designed to improve higher level skills in reading, perception, learning, and adjustments.

2 cl, 1-2-hr lab. Available at regional campuses only.

220 Introduction to Data Analysis in Psychology

Introduction to statistical analysis of psychological data; random samples, graphical and numerical techniques of descriptive statistics, correlation, regression, probability, sampling distribution, and hypothesis testing.

Au, Wi, Sp Qtrs. 2.1.5-hr cl, 1.2-hr lab. Prereq: 100 and Stat 145 or Math 130 or Math 148 or equiv. Not open to students with credit for 320 or Stat 245.

220H Introduction to Data Analysis in Psychology

Introduction to statistical analysis of psychological data; random samples, graphical and numerical techniques of descriptive statistics, correlation, regression, probability, sampling distribution, and hypothesis testing.

Au, Wi Qtrs. 2.1.5-hr cl. Prereq: 100 and Math 148 or equiv; and honors standing or permission of instructor. Not open to students with credit for H320 or Stat 245.

300 Research in Psychology: An Introduction

An overview of issues, methods, and techniques of scientific psychological research.

Au, Wi, Sp Qtrs. Prereq: 100.

301 Psychology of Extraordinary Beliefs

Considers beliefs in extraordinary phenomena through the application of the findings and principles of psychological science.

2-2.5-hr cl.

302 Introduction to the Psychology of Listening and Reading

The recognition of spoken and written words will be traced from their registration by the senses to their storage in memory.

Prereq: 100 or permission of instructor.
304H Introduction to Life Span Developmental Psychology UGRD 5
Consideration of theories and research on psychological development across the lifespan; includes consideration of social policies that influence developmental outcomes.
Prereq: 100 and honors standing or permission of instructor.

350 Contemporary Issues in Developmental Psychology UGRD 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.
3 cl. Prereq: 100.

367.01 Social Psychology UGRD 5
Survey of group processes as they affect individual behavior; topics include individual motivation, group behavior, attitudes, and perception of self and others.
Prereq: 100, English 110 or 111 or equiv, and soph standing or above. Not open to students with credit for 325. GEC second writing course.

371 Language and the Mind UGRD 5
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: 100, or linguistics 201 or 202 or 601, or permission of instructor. Not open to students with credit for linguistics 271 or 371. Cross-listed in linguistics. GEC sci individuals and groups course.

375 Stereotyping and Prejudice UGRD 4
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: 100. GEC soc diversity course.

376 Interpersonal Relationships UGRD 5
Surveys the scientific literature on interpersonal relationships, including family, friends, and romantic partnerships.
2 2-hr cl. Prereq: 100.

389 Career Exploration in Psychology UGRD 3
Designed for psychology majors to explore career paths of interest, as well as facilitate vocational development and acquisition of career search skills.
Prereq: 100; psych majors only. Credit does not apply to the hours in psychology major. This course is graded S/U.

394 Group Studies UGRD 1-5
Undergraduate seminar; topics vary and will be announced.
\* Prereq: 100. Repeatable to a maximum of 10 cr hrs. Including cr hrs earned in 294.

415H Psychobiology of Aggression UGRD 5
Examination of the biological mechanisms underlying aggression with an emphasis on genes, brain structure, and neurotransmitters to understand animal aggression and human violence.

420 Psychology Applied to Sport UGRD 5
Psychological factors that influence sport participation and performance; psychological techniques to enhance performance; psychological problems associated with sport.
2 2-hr cl. Prereq: 100.

425 Attention and Distraction UGRD 5
Survey of research on attention selected for relevance across areas of psychology, including cognition, neuroscience and psychopathology. Topics include alertness, concentration, distraction and attention disorders.
Prereq: 100 or permission of instructor.

462 Psychology of Creativity UGRD 5
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: 100 or grad standing or permission of instructor.

465 Cognition: Language and Memory UGRD 4
Explores cognitive processes of language comprehension and memory through readings, class discussion, and demonstration experiments.
2 2-hr cl. Prereq: Soph standing or higher.

475 The Self UGRD 5
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: 325 or 367.01 or 375.

485 Psychology and the Law UGRD 4
Contributions of psychological theories to the legal system and the role of mental health professionals in this system.
2 2-hr cl. Prereq: 100 or permission of instructor.

489 Internship in Psychology UGRD 4
Provides psychology majors with an opportunity to intern in a professional setting to integrate academic knowledge with experience in the world of work.
Prereq: 100; psych majors only; jr or sr standing and permission of instructor.

500 Experimental Psychology UGRD 5
An overview of experimental methodological techniques with experiments selected for cultural value; as preparation for technical study; and to represent paradigms used in human and animal research.
2 cl, 3 lab hrs. Prereq: 100; 220 or 320, or Stat 145 or 245; and 300; and English 110 or 111 or equivs with permission of instructor. Open only to psy majors. GEC third writing course.

501 Advanced Behavioral Neurosciences UGRD 4
Advanced discussion of contemporary issues in neuroscience, including: synaptic pharmacology, drugs, and behavior, neurodegenerative diseases and the biological bases of psychopathology.
Wi Qtr. Prereq: 313.

503 Introduction to Cognitive Psychology UGRD 4
A study of cognitive processes from an information processing perspective; including attention, memory, language representation, reasoning, problem solving, and others.
Prereq: 220 or 320 or 321, or Stat 145 or 245, and 310 or 312, or permission of instructor.

505 Historical Development of Psychology UGRD 5
Development of psychology from the 19th century to present status as science and profession. Emphasis on contributions and lives of psychologists.
3 1.5-hr cl. Prereq: 100.

508 Psychology of Judgment and Decision-Making UGRD 5
An overview of current models and empirical research on cognitive processes in human decision-making and judgment under risk or uncertainty.
Su, Au, Wi, Sp Qtrs. Field trips may be required. Prereq: 220 or 320, or Stat 145 or 245; or permission of instructor.

508H Psychology of Judgment and Decision-Making UGRD 5
An overview of current models and empirical research on cognitive processes in human decision-making and judgment under risk or uncertainty.
Prereq: 220 or 320, or Stat 145 or 245, and honors standing or permission of instructor.

510 Research Methods in Cognitive Psychology UGRD 5
Issues in experimental design; laboratory experiments include topics such as memory, perception, and attention.
2 cl, 1 3-hr lab. Prereq: 100; 220 or 320, or Stat 145 or 245; and 300 and jr or sr standing. Open only to psy majors. GEC third writing course.

511 Psychological Testing UGRD 4
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.
2 2-hr cl. Prereq: 100; 220 or 320 or 321 or Stat 145 or 245. Not open to students with credit for 597.02.

512H Human Memory and Cognition UGRD 5
Provides an overview of memory and cognition with a focus on simple memory models.
Prereq: Math 151 or equiv; enrollment in an honors program or by permission of instructor.

513 Introduction to Cognitive Neuroscience UGRD 4
Examination of the neuroscientific approach to the study of cognition; primary focus on the psychobiology of memory, attention, language, and spatial orientation.
Prereq: 313 or permission of instructor.

515 Psychology of Emotions UGRD 5
An examination of emotion focusing on how emotions are interconnected to other basic psychological processes such as cognition, motivation, decision making, and well-being.
2 2-hr cl. Prereq: 100 and 300.

518 Attitudes: Structure, Function, and Consequences UGRD 4
Survey of theory and evidence related to the structure and functional value of attitude and their effects on information processing, judgments, and behavior.
Prereq: 325 or 367.01 or 375 or 376 or grad standing.

520 Experimental Social Psychology UGRD 5
Training in experimental and qualitative methods in social psychology.
Au, Wi, Sp Qtrs. Prereq: 212 cl, 4 lab hrs. Prereq: 100; 220 or 221 or 320 or Stat 145 or 245; 300 and 325 or 367.01 or permission of instructor. Open only to psy majors. GEC third writing course.

521 Personnel Psychology UGRD 4
Overview of theory, method, and practices of personnel psychology: job analysis, recruiting, personnel section, performance appraisal, and training.
Prereq: 100; 220 or 320, or Stat 145 or 245.
522 Organizational Psychology UGRD 4
Overview of theory, method, and practice of organizational psychology: motivation, job attitudes, leadership, groups, organizational design.
Prereq: 100; 220 or 320 or Stat 145 or 245.

525 Psychology of Personal Security: Global and Local Perspectives UGRD 5
Surveys the diverse psychological literature on personal security, a key ingredient in psychological well-being.
Wi Qtr. 2 cl. Prereq: 100.

530 Psychology of Personality UGRD 4
Major theoretical and research orientations in the study of personality; consideration of psychological processes involved in the attribution of personality characteristics.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 100.

531 Health Psychology UGRD 4
Introduction to health psychology; health-promoting and health-damaging behaviors; modification of health behaviors; stress and coping; management of illness; stress management strategies.
Prereq: 100. Not open to students with credit for 531.03.

532 Clinical Psychological Science UGRD 5
Surveys the scientific foundations of clinical psychological interventions and assessment techniques and considers their implications for the profession of clinical psychology.
Au, Sp Qtrs. 2.5-hr cl. Prereq: 331. Not open to students with credit for 332.

539 Stress, Social Support, and the Professional Helper UGRD 3
Stress at work and elsewhere; emphasis on treatment through social support. Designed for health professionals, personnel workers, teachers, and related specialists in human services.
Prereq: 100. Not open to students with credit for 640. Available at Newark campus.

540 Counseling Psychology: An Introduction UGRD 4
Introduction to the theories, research, and practice of counseling psychology.
Su, Au, Wi, Sp Qtrs. Prereq: 100.

543 Psychology of Women UGRD 5
Exploration of the nature and causes of sex differences in behavior patterns and factors influencing development of women through psychological theory and research.
Prereq: 100.

545 Cross-Cultural Psychology UGRD 4
Introduction to cross-cultural theories and research in various specialties in psychology (e.g., social, developmental, and abnormal psychology).
Prereq: 100.

550 Psychology of Childhood UGRD 4
Presentation of psychological aspects of growth and development in early and middle childhood.
Su, Au, Wi, Sp Qtrs. Prereq: 100.

550H Psychology of Childhood UGRD 4
Presentation of psychological aspects of growth and development in early and middle childhood.
Prereq: 100 and honors standing or permission of instructor.

551 Adolescence UGRD 5
An examination of the biological, psychological, and social aspects of normal adolescent development.
Su, Au, Wi, Sp Qtrs. Prereq: 100.

552 Psychology of the Adult Years UGRD 3
Theory and research related to adulthood as a sequence of psychological stages involving adjustment and coping behaviors; relationship of adulthood to other life-spans.
Prereq: 100.

554 Language Development UGRD 5
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.
Au Qtr. 2.2-hr cl. Prereq: 100 or Linguist 201 or permission of instructor.

555 Adolescent Sexuality UGRD 5
An examination of the psychological, biological, and social influences on adolescent sexuality.
Prereq: 100.

560 Educational Psychology UGRD 3
Critical appraisal of the implications for education of modern psychological findings in advanced educational psychology.
Prereq: 100. Available at Marion campus.
612 Introduction to Cognitive Science UGRD 3
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 or a total of 12 cr hrs from at least two of the following areas: cptr/inf, linguist, philos, and psyh. Not open to students with credit for 794 (Sp Qtr 1989) or 794A (Wi Qtr 1990), Cptr/Inf 612, Linguist 612, Philos 612. Cross-listed in Computer and Information Science, Linguistics, and Philosophy.

613H Biological Bases of Psychopathology UGRD 4
Provides a contemporary overview of the biological bases of several significant psychopathologies, including: mood disorders, schizophrenia, and PTSD/dissociative identity disorders.
Sp Qtr. Prereq: 501 or permission of instructor.

615 Psychology of Language UGRD 3
An introduction to high-level language processing, including word recognition, sentence understanding, and discourse processing.
Prereq: Linguist 201 or 202 or 601 or permission of instructor.

616 Psychological Scaling UGRD 4
Theory and applications of unidimensional and multidimensional scaling methods for property and preference data; emphasis on multidimensional scaling.
Prereq: 608 or grad standing.

617 Neural Network Models in Psychology UGRD 4
Basic principles of neural network modeling and their applications in perception, memory, and language.
Prereq: 321 and 608, or grad standing or permission of instructor. Course requires knowledge of calculus and matrix algebra.

618 Introduction to Computational Cognitive Neuroscience UGRD 4
Biologically plausible models of perception, memory, language, and high-level cognition. Hands-on exercises with a state-of-the-art neural network simulator. Interdisciplinary emphasis.
Au Qtr. Prereq: 310 or 312 or graduate standing or permission of instructor. 612 recommended. Not open to students with credit for 878 in Winter 2009.

619 Visual Information Processing UGRD 5
Rapid visual decisions: how the visual representation is formed, stored, and interpreted, enabling one to read, drive, and look for and compare visual objects.
Prereq: 100 and an additional 7 cr hrs of psyh beyond the 300 level (310 or 312 or 500 recommended).

620 Human Performance UGRD 5
Research and theory on perceptual, cognitive, and motor processes that limit performance; topics include memory, attention, pattern discrimination, motor control.
Prereq: 100 or grad standing or permission of instructor (310 or 312 or 500 recommended).

623 Biological Clocks and Behavior UGRD 4
Biological rhythms of animals and humans, including ultradian, daily, lunar, tidal and annual cycles; role of nervous and endocrine systems in relation to behavioral rhythm.
Prereq: 313 or permission of instructor.

624 Psychology of Monkeys and Apes UGRD 5
Research about monkeys and apes with emphasis on their learning, arts, memory, curiosity, language, and neuropsychological problems.
Prereq: 219 or 220 or Stat 329 or Stat 145 or 245; and 310 or grad standing or permission of instructor.

625 Introduction to Auditory Perception UGRD 3
Theory and research in auditory perception; traditional psychoacoustic and new ecological approaches.
Prereq: 100; and 219 or 220 or 320, or Stat 145 or 245; and 310 or grad standing or permission of instructor.

630 Psychology of Public Attitudes UGRD 3
Attitude organization and change; study of the determinants of attitude.
Prereq: 219 or 220 or Stat 329 or Stat 145 or 245; and 325 or 367.01 or grad standing.

632 Sensory Evaluation UGRD 4
Fundamentals of sensory evaluation and the perception of taste, smell, and flavor. Emphasis on statistical interpretation and industrial application.
Prereq: 219 or 220 or Stat 329 or Stat 145 or 245; and 325 or 367.01 or grad standing.

644 Hormones and Behavior UGRD 4
Exploration of the interactions among hormones, brain, and behavior through an integrative approach.
Prereq: 313 or grad standing or permission of instructor.
693.08 Individual Studies: Psychobiology UGRD 1-15
Individual reading or research projects by special agreement between instructor and student.
Prereq: 300, an additional 9 cr hrs of psych, and permission of instructor. Repeatable to a maximum of 30 cr hrs for undergrads and to a maximum of 45 cr hrs for grads in any combination of decimal subdivisions. Maximum 6 credit hours may be applied to the undergraduate major in psychology. This course is graded S/U.

693.09 Individual Studies: Mental Retardation and UGRD 1-15 Developmental Disabilities
Individual reading or research projects by special agreement between instructor and student.
Prereq: 300, an additional 9 cr hrs of psych, and permission of instructor. Repeatable to a maximum of 30 cr hrs for undergrads and to a maximum of 45 cr hrs for grads in any combination of decimal subdivisions. Maximum 6 credit hours may be applied to the undergraduate major in psychology. This course is graded S/U.

695.01 Seminars in Psychology: Clinical UGRD 2-5
Prereq: Written permission of instructor; either 219 or 220 or 320, or Stat 145 or 245; and 17 cr hrs of psych course work above the 200 level; or grad standing. No more than 6 cr hrs in any combination of decimal subdivisions may be counted toward the undergrad major. Repeatable.

695.02 Seminars in Psychology: Counseling UGRD 2-5
Prereq: Written permission of instructor; either 219 or 220 or 320, or Stat 145 or 245; and 17 cr hrs of psych course work above the 200 level; or grad standing. No more than 6 cr hrs in any combination of decimal subdivisions may be counted toward the undergrad major. Repeatable.

695.03 Seminars in Psychology: Developmental UGRD 2-5
Prereq: Written permission of instructor; either 219 or 220 or 320, or Stat 145 or 245; and 17 cr hrs of psych course work above the 200 level; or grad standing. No more than 6 cr hrs in any combination of decimal subdivisions may be counted toward the undergrad major. Repeatable.

695.04 Seminars in Psychology: Human Experimental UGRD 2-5
Prereq: Written permission of instructor; either 219 or 220 or 320, or Stat 145 or 245; and 17 cr hrs of psych course work above the 200 level; or grad standing. No more than 6 cr hrs in any combination of decimal subdivisions may be counted toward the undergrad major. Repeatable.

695.05 Seminars in Psychology: Quantitative UGRD 2-5
Prereq: Written permission of instructor; either 219 or 220 or 320, or Stat 145 or 245; and 17 cr hrs of psych course work above the 200 level; or grad standing. No more than 6 cr hrs in any combination of decimal subdivisions may be counted toward the undergrad major. Repeatable.

695.06 Seminars in Psychology: Social UGRD 2-5
Prereq: Written permission of instructor; either 219 or 220 or 320, or Stat 145 or 245; and 17 cr hrs of psych course work above the 200 level; or grad standing. No more than 6 cr hrs in any combination of decimal subdivisions may be counted toward the undergrad major. Repeatable.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtr. Arr. Prereq: 100 and written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

699 Undergraduate Research in Psychology UGRD 1-15 Supervised, collaborative research in psychology.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 100 and permission of instructor. Repeatable to a maximum of 15 cr hrs. No more than 6 hrs (together with Psych 493.0x and Psych 489) may be counted toward psychology major requirements. This course is graded S/U.

708 Psychology of Judgment and Decision Making GRAD 5
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.
As Qtr. 2-2 hr cl. Prereq: Concurrent enrollment in or completion of graduate-level course in statistical methods.

717.01 Family Systems: An Interdisciplinary Approach to Families of Handicapped Children UGRD 3
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Qualitative and quantitative approaches for resource and problem identification with families of handicapped children, effective parenting strategies, strategies to follow at-risk families, and family intervention models.
Prereq: Permission of instructor. Not open to students with credit for 717.02 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science, Human Nutrition Nursing, Social Work, and Speech and Hearing Science.

717.02 The Interdisciplinary Team: Clinical and Administrative Issues UGRD 3
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Investigation and critical examination of function of interdisciplinary clinical and administrative teams in mental retardation and developmental disabilities.
Prereq: Permission of instructor. Not open to students with credit for 717.03 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science, Human Nutrition Nursing, Social Work, and Speech and Hearing Science.

717.03 Developmental Disabilities UGRD 3
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Focus on the most pertinent scientific and societal issues of developmental disabilities.
Prereq: Permission of instructor. Not open to students with credit for 717.03 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science, Human Nutrition Nursing, Social Work, and Speech and Hearing Science.

726 Introduction to Behavioral Neuroscience UGRD 5
Team-taught seminar on selected topics from contemporary research areas in the field of behavior neuroscience.
Su Qtr. 3 hrs wk (2 1.5-hr cl). Prereq: Permission of instructor. Cross-listed in Neuroscience Graduate Studies Program.

737 Proseminar in Cognitive Science UGRD 3
An in-depth examination of the interdisciplinary field of cognitive science; emphasize fundamental issues of each discipline, provides illustrations of representative research being conducted at OSU.
Prereq: Grad standing or permission of instructor. Cross-listed in CS&E Industrial Systems Engineering, Linguistics, Philosophy, and Speech and Hearing Science. Repeatable to a maximum of 4 cr hrs.

783.01H Honors Research UGRD 3
A program of readings, conferences, and reports selected to aid the student in completing a senior honors thesis.
Sp Qtr. Repeatable to a maximum of 9 cr hrs. Prereq: Candidate for degree with distinction.

783.02H Honors Research UGRD 3
A program of readings, conferences, and reports selected to aid the student in completing a senior honors thesis.
Au Qtr. Repeatable to a maximum of 9 cr hrs. Prereq: Candidate for degree with distinction.

783.03H Honors Research UGRD 3
A program of readings, conferences, and reports selected to aid the student in completing a senior honors thesis.
Wi Qtr. Repeatable to a maximum of 9 cr hrs. Prereq: Candidate for degree with distinction.

788 Laboratory in Attitude Measurement UGRD 3
Laboratory in Attitude Measurement.
^ 1 cl, 4 lab hrs. Prereq: Written permission of instructor.

789 Survey Research Practicum GRAD 5
Hands-on applications for students interested in the planning, implementation, and analysis of a scientific sample survey.

794 Group Studies UGRD 1-5
The topics vary from quarter to quarter and will be announced at least one month in advance.
Prereq: 15 cr hrs in psych at the 500 level or above and permission of instructor.

800 Advanced Experimental Laboratory GRAD 3-15
Advanced training in the experimental and quantitative methods in the several areas of general experimental psychology and comparative psychology.
Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.
804 Topics in Advanced Comparative Psychology
Grad 3
Contemporary literature in comparative psychology; topics vary every quarter.
Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs.

806 Survey of Behavioral Neuroscience I
Grad 3
The first in a three quarter sequence surveying the field of behavioral neuroscience. Covers basic neuroscience, with emphasis on normal and dysfunctional behavior. 3 cl.

807 Survey of Behavioral Neuroscience II
Grad 3
Behavioral neuroscience of motivation and emotion. Topics include reward, pain and aversion, hunger and food intake, stress and anxiety, psychophysicsiology, psychoneuroimmunology, and clinical syndromes. 3 cl. Prereq: 806.

808 Survey of Behavioral Neuroscience III
Grad 3
Behavioral neuroscience of cognition, learning, memory, and language. Topics include cognitive neurosciences and neuropsychology, cortical functions, consequences of brain damage, and the dementias. 3 cl. Prereq: 807.

809 History and Systems of Psychology
Grad 3
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: 16 cr hrs in psych.

811 Seminar in Experimental Psychology
Grad 2
Seminar in Experimental Psychology. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

814 Psychological Issues in Knowledge Representation
Grad 3
Psychological approaches to how knowledge is represented by humans, including empirical and architectural constraints, format differences, generalization abilities, and development of representations. * 1 * 1.2-hr cl, 1 hr arr. Prereq: Grad standing in psych, undergrad inferential statistics strongly recommended.

815 Decision Processes
Grad 4
Introductory course in the application of statistical decision theory as a normative model and analytic technique in the experimental study of cognitive processes. * Prereq: Grad standing in psych, undergrad inferential statistics strongly recommended.

816 Human Performance Theory
Grad 4
Research and theory on the discrete and on the continuous cases of human information processing; topics include input processes, central processing functions, and output processes. * Prereq: 620 or written permission of instructor.

819.04 Seminars in Industrial and Organizational Psychology: Theoretical Developments and Issues
Grad 3
Psychology: Theoretical Developments and Issues. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

820 Fundamentals of Factor Analysis
Grad 4
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.

821 Fundamentals of Item Response Theory
Grad 4
This course will introduce the basic concepts underlying item response theory and provide an overview of more advanced topics. 1 2.5-hr cl. Prereq: 828 or permission of instructor.

824.01 Seminars in Psychological Measurement: Models for Psychophysiology
Grad 2-4
Models for Psychophysiology. Repeatable to a maximum of 10 cr hrs.

824.02 Seminars in Psychological Measurement: Models for Measurement and Scaling
Grad 2-4
Models for Measurement and Scaling. Repeatable to a maximum of 10 cr hrs.

824.03 Seminars in Psychological Measurement: Models for Interpersonal Analysis
Grad 2-4
Models for Interpersonal Analysis. Repeatable to a maximum of 10 cr hrs.

826 Statistics in Psychology
Grad 4
Basic concepts of descriptive and inferential statistics; includes estimation, hypothesis testing, and introductory treatment of analysis of variance, correlation and regression, and non-parametric techniques. 2 1.5-hr cl, 2 lab hrs. Prereq: 320, or Stat 145, or equiv and grad standing in psych, or permission of instructor.

827 Analysis of Variance
Grad 4
Statistical inference in analysis of variance designs; basic concepts and procedures in one-way designs; factorial, repeated measures, randomized blocks, mixed models designs; procedures for planned and post hoc comparisons. 2 1.5-hr cl, 2 lab hrs. Prereq: 826 or equiv.

828 Correlational Analysis
Grad 4
Correlation and regression techniques for quantitative and qualitative data analysis; simple linear regression and correlation, multiple linear regression, nominal scales, interactions; other related multivariate methods; use of computer programs. 2 1.5-hr cl, 2 lab hrs. Prereq: 827 or equiv.

830 Covariance Structure Models
Grad 4
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: 820 and 828, or permission of instructor.

831.01 Seminars in Psychological Statistics: Analysis of Variance
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

831.02 Seminars in Psychological Statistics: Experimental Design
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

831.03 Seminars in Psychological Statistics: Factor Analysis
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

831.04 Seminars in Psychological Statistics: Mathematical Models and Theory
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

831.05 Seminars in Psychological Statistics: Non-Parametric Statistics
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

831.06 Seminars in Psychological Statistics: Quasi-Experimental Design
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

831.07 Seminars in Psychological Statistics: Advanced Multivariate Analysis
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

831.08 Seminars in Psychological Statistics: Current Practices and Trends
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

831.09 Seminars in Psychological Statistics: Computer Simulation Research
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

831.10 Seminars in Psychological Statistics: Special Topics
Grad 1-5
Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

832 Lifespan Sociomoral Development
Grad 5
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).

834 Psychology of Infancy
Grad 3
Psychological development during the first four years of life with particular reference to neonatal period and research methodology in studies involving infants.

835 Child Development
Grad 3
Major developmental aspects of childhood; review of theory, methodology, research studies, and historical and contemporary writing about children; consideration of interdisciplinary approaches.

836 Adolescence
Grad 3
Comprehensive view of adolescence as a stage in human development; theory, methodology, research and application to family, school and community; relation to other developmental stages. Not open to students with credit for 836.01.

837 Maturity and Aging
Grad 3
Psychology of adulthood and aging; social and intimate interactions; problems of coping; normative episodes; stress; cognitive functioning and influence of contexts. Not open to students with credit for 836.02.

840 Practicum in Developmental Psychology
Grad 3-9
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. 1 cl, lab hrs. Prereq: 2nd yr grad standing in psych and permission of instructor. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>841</td>
<td>Current Issues in Developmental Psychology</td>
<td>GRAD 3</td>
<td>An examination of current issues in developmental psychology, especially fundamental questions, controversies and applications. Topics vary year to year. 1.5-bar cl. Prereq: Grad standing. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.01</td>
<td>Seminar in Developmental Psychology: Current Theoretical Issues</td>
<td>GRAD 3</td>
<td>Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.02</td>
<td>Seminar in Developmental Psychology: Development of Dimensions of Cognitive Differences</td>
<td>GRAD 3</td>
<td>Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.03</td>
<td>Seminar in Developmental Psychology: Development of Social Cognition</td>
<td>GRAD 3</td>
<td>Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.04</td>
<td>Seminar in Developmental Psychology: Cultural Influences on Human Development</td>
<td>GRAD 3</td>
<td>Ethnic Minority Children and Adolescence. Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.05</td>
<td>Seminar in Developmental Psychology: Social Development During Adolescence</td>
<td>GRAD 3</td>
<td>Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.06</td>
<td>Seminar in Developmental Psychology: Development of Creative Behavior</td>
<td>GRAD 3</td>
<td>Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.07</td>
<td>Seminar in Developmental Psychology: Deviant Behavior in Childhood and Adolescence</td>
<td>GRAD 3</td>
<td>Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.08</td>
<td>Seminar in Developmental Psychology: Aging and Senescence</td>
<td>GRAD 3</td>
<td>Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.09</td>
<td>Seminar in Developmental Psychology: The Development of the Self Concept</td>
<td>GRAD 3</td>
<td>Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>842.11</td>
<td>Seminar in Developmental Psychology: Deafness and Communication Disorders</td>
<td>GRAD 3</td>
<td>Development of Language: Deafness and Communication Disorders. Prereq: Permission of instructor. Selected topics. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>843.02</td>
<td>Cognitive, Organic, and Structural Theories</td>
<td>GRAD 3</td>
<td>Comparative presentation of significant major historical and modern developmental theories with specific evaluation of their relevance in the formulation of a comprehensive psychological theory. Sp Qtr. 1.5-bar cl.</td>
</tr>
<tr>
<td>844.01</td>
<td>Psychopathology of Childhood: Concepts</td>
<td>GRAD 3</td>
<td>A study of psychopathological conditions of childhood, such as autism, schizophrenia, neurosis, acting out, and behavior problems from a developmental point of view. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>845</td>
<td>Cognitive Development</td>
<td>GRAD 3</td>
<td>Intensive survey of theory and research in cognitive development, including development of perception, language, memory, concepts, reasoning, academic skills, and social cognition. Sp Qtr. 1.5-bar cl.</td>
</tr>
<tr>
<td>846</td>
<td>Current Issues in Cognitive Development</td>
<td>GRAD 3</td>
<td>Current Issues in Cognitive Development. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>847</td>
<td>Language Development</td>
<td>GRAD 3</td>
<td>Survey of language acquisition, including phonemes, words, morphology, syntax. Considers universal grammar, linguistic input, social interaction, and statistical learning. Training in use of CHILDES database. Wi Qtr. 1.5-bar cl. Prereq: Grad standing.</td>
</tr>
<tr>
<td>849</td>
<td>Research Methods in Developmental Psychology</td>
<td>GRAD 3</td>
<td>A critical survey and evaluation of concepts and techniques in study of developmental psychology. 3 cr. Not open to students with credit for 822.</td>
</tr>
<tr>
<td>851</td>
<td>Seminar on the Teaching of Psychology</td>
<td>GRAD 3</td>
<td>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 in psych.</td>
</tr>
<tr>
<td>854</td>
<td>Issues in Adult Psychopathology</td>
<td>GRAD 4</td>
<td>To survey the phenomena of psychopathology in adults and become familiar with the present diagnostic system used by the majority of mental health professionals. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>856</td>
<td>Child Behavior Assessment and Therapy</td>
<td>GRAD 3</td>
<td>Assessment and treatment approaches for child behavior. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>859</td>
<td>Seminars in the Psychology of Exceptional Children and Adults</td>
<td>GRAD 3</td>
<td>Advanced topics in research strategies and methodology; specialized topics on the growing edge of the psychology of exceptional children and adults. Prereq: Written permission of instructor. Repeatable to a maximum of 12 cr hrs.</td>
</tr>
<tr>
<td>861</td>
<td>Research Design and Methods in Clinical Psychology</td>
<td>GRAD 3</td>
<td>Introduction to the theory and use of clinical methods in psychology, designed for first year graduate students in clinical psychology. Prereq: Permission of instructor. Open only to clinical psych grad students. Repeatable to a maximum of 6 cr hrs.</td>
</tr>
<tr>
<td>862</td>
<td>Positive Psychology</td>
<td>GRAD 3</td>
<td>Introduction to the field of positive psychology. Topics include positive affect, subjective well-being, optimism, psychological strengths, emotional intelligence, compassion, humor, and spirituality. Sp Qtr. 1.5-bar cl.</td>
</tr>
<tr>
<td>864.01</td>
<td>Psychological Appraisal: Lecture</td>
<td>GRAD 3</td>
<td>Concepts and procedures for appraising human behavior. Theories and methods of psychological appraisal; integration of different theories and approaches. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>864.06</td>
<td>Psychological Appraisal: Special Topics</td>
<td>GRAD 1-4</td>
<td>Concepts and procedures for appraising human behavior: Special Topics. * Prereq: Permission of instructor. Repeatable to a maximum of 8 cr hrs. Course ordinarily involves both classroom and practicum experiences.</td>
</tr>
<tr>
<td>865</td>
<td>Introduction to Clinical Psychology</td>
<td>GRAD 3</td>
<td>Overview of clinical interviewing skills, theory and application of a cognitive-behavioral orientation to psychotherapy and ethical issues in clinical psychology. 1.5-bar cl. Prereq: Admission to psychology's clinical doctoral program.</td>
</tr>
<tr>
<td>866.02</td>
<td>Interventions with Individuals: Behavior Modification</td>
<td>GRAD 1-5</td>
<td>Concepts and practices of various interventions into the troubled behavior of individuals. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. Course ordinarily involves both classroom and practicum experience.</td>
</tr>
<tr>
<td>868</td>
<td>Systematic Theory in Social Psychology</td>
<td>GRAD 3</td>
<td>Survey of major classic and contemporary theories in social psychology and discussion of the role of theory in scientific endeavor. Prereq: Permission of instructor. Not open to students with credit for this topic under 873.</td>
</tr>
<tr>
<td>870</td>
<td>Advanced Social Psychology</td>
<td>GRAD 3</td>
<td>Survey of research and theory in experimental social psychology; covers attitudes, social cognition, group processes, and related topics. Prereq: Grad standing.</td>
</tr>
<tr>
<td>871.01</td>
<td>Survey of Social Psychology: Social Cognition</td>
<td>GRAD 3</td>
<td>Introduction to the cognitive underpinnings of social behavior. Prereq: Grad standing in psych or 870 or permission of instructor.</td>
</tr>
<tr>
<td>871.02</td>
<td>Survey of Social Psychology: Social Motivation</td>
<td>GRAD 3</td>
<td>Survey of research on motivational underpinnings of social behavior. Prereq: Grad standing in psych or 870 or permission of instructor.</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credit Hours</td>
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<tr>
<td>872</td>
<td>Social Psychology Laboratory</td>
<td>GRAD 3</td>
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<tr>
<td>873.01</td>
<td>Seminar in Social Psychology: Contemporary Theory</td>
<td>GRAD 3-5</td>
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<tr>
<td>873.02</td>
<td>Seminar in Social Psychology: Social Behavior</td>
<td>GRAD 3-5</td>
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<tr>
<td>873.03</td>
<td>Seminar in Social Psychology: Attribution Theory</td>
<td>GRAD 3-5</td>
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<tr>
<td>873.04</td>
<td>Seminar in Social Psychology: Current Research</td>
<td>GRAD 3-5</td>
<td></td>
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<tr>
<td>873.05</td>
<td>Seminar in Social Psychology: Group Processes</td>
<td>GRAD 3-5</td>
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<tr>
<td>873.06</td>
<td>Seminar in Social Psychology: Cognition</td>
<td>GRAD 3-5</td>
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<tr>
<td>873.07</td>
<td>Seminar in Social Psychology: The Self</td>
<td>GRAD 3-5</td>
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<tr>
<td>874</td>
<td>Cognition</td>
<td>GRAD 4</td>
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<tr>
<td>875.01</td>
<td>Practicum in Social Psychology I</td>
<td>GRAD 3</td>
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<tr>
<td>875.02</td>
<td>Practicum in Social Psychology II</td>
<td>GRAD 3</td>
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<tr>
<td>876.01</td>
<td>Research Methods in Social Psychology I</td>
<td>GRAD 3</td>
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<tr>
<td>876.02</td>
<td>Research Methods in Social Psychology II</td>
<td>GRAD 3</td>
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<tr>
<td>876.03</td>
<td>Research Methods in Social Psychology III</td>
<td>GRAD 3</td>
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<tr>
<td>877</td>
<td>Human Learning I: Learning</td>
<td>GRAD 4</td>
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<tr>
<td>878</td>
<td>Human Learning II: Memory</td>
<td>GRAD 4</td>
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<tr>
<td>879</td>
<td>Human Learning III: Cognitive Processes</td>
<td>GRAD 4</td>
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<tr>
<td>887.01</td>
<td>Seminar: Counseling Older Adults</td>
<td>GRAD 3</td>
<td></td>
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<tr>
<td>887.02</td>
<td>Seminar: Tests and Assessment in Counseling</td>
<td>GRAD 3</td>
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<tr>
<td>887.03</td>
<td>Seminar: Ethics and Professional Issues</td>
<td>GRAD 3</td>
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<tr>
<td>887.04</td>
<td>Seminar: Cognitive Approaches to Counseling</td>
<td>GRAD 3</td>
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<tr>
<td>887.05</td>
<td>Seminar: Counseling Women</td>
<td>GRAD 3</td>
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<tr>
<td>887.06</td>
<td>Seminar: Psychological Assessment in a VA Hospital Setting</td>
<td>GRAD 3</td>
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<tr>
<td>887.07</td>
<td>Seminar: Existential and Phenomenological Approaches to Counseling</td>
<td>GRAD 3</td>
<td></td>
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<tr>
<td>887.08</td>
<td>Seminar: Foundations of Multicultural Counseling and Therapy</td>
<td>GRAD 5</td>
<td></td>
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<tr>
<td>887.09</td>
<td>Seminar: Counseling Supervision</td>
<td>GRAD 3</td>
<td></td>
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<tr>
<td>887.10</td>
<td>Seminar: Adult Career Development Problems</td>
<td>GRAD 3</td>
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<tr>
<td>887.11</td>
<td>Seminar: Special Topics</td>
<td>GRAD 3</td>
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</tr>
<tr>
<td>889</td>
<td>Practicum in Clinical Psychology</td>
<td>GRAD 1-30</td>
<td></td>
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<tr>
<td>889.11</td>
<td>Seminar: Special Topics</td>
<td>GRAD 3</td>
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<tr>
<td>892</td>
<td>Workshop</td>
<td>GRAD 1-15</td>
<td></td>
</tr>
<tr>
<td>900</td>
<td>Supervised Field Experience in Psychology</td>
<td>GRAD 1-15</td>
<td></td>
</tr>
<tr>
<td>909</td>
<td>Internship in Psychology</td>
<td>GRAD 0-15</td>
<td></td>
</tr>
<tr>
<td>999</td>
<td>Research in Psychology</td>
<td>GRAD 1-18</td>
<td></td>
</tr>
</tbody>
</table>

**Public Affairs, John Glenn School of**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Introduction to Public Affairs</td>
<td>UGRD 5</td>
</tr>
<tr>
<td>240</td>
<td>Public Service and Civic Engagement</td>
<td>UGRD 5</td>
</tr>
<tr>
<td>290</td>
<td>Leadership in the Public and Nonprofit Sectors</td>
<td>UGRD 5</td>
</tr>
</tbody>
</table>

- **Advising Notes:**
  - Courses beyond the first 24 credit hours require written permission of an adviser.
  - Courses beyond the first 36 credit hours require written permission of the director of the program.
  - Courses beyond the first 45 credit hours require written permission of the training director.

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2.15-hr cl. At least 10 cr hrs of undergard psych course work.
Introduction to analytical techniques employed at policy formulation, implementation, and evaluation stages of public policy analysis process, strengths and weaknesses of techniques, research strategies development.

^ Su, Su Term 1 Qtrs. 2-2 hr cl.

State and Local Government Finance  
UGRD 5  
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 530 or PubAffs 730 or equivalent. Not open to students with credit for Econ 531. Cross-listed in Econ.

Student Internship in Public Affairs:  
UGRD 1-5  
Washington DC  
Provides internship credit for students engaged in internships that explore public policy issues and links experience to theoretical foundations.  

Group Studies  
UGRD 1-5  
Designed to give groups of students an opportunity to pursue special studies in topics not otherwise offered. Repeatable to a maximum of 15 cr hrs.

Federal Finance and Fiscal Policy  
UGRD 3  
The economics of government spending and taxation; analysis of the fiscal role and instruments and their effects on the economy.  
^ 1 2.5-hr cl. Prereq: Econ 530 or equiv. Not open to students with credit for 630 or Econ 631. Cross-listed in Economics.

State and Local Government Finance  
UGRD 3  
Economic analysis of revenues and expenditures of state and local governments; vertical and horizontal relationships between agencies and units; specific problems in these areas.  
^ 1 2.5-hr cl. Prereq: Econ 530 or equiv. Not open to students with credit for Econ 633. Cross-listed in Economics.

Rebuilding Failed and Weak States  
UGRD 5  
Tackles the question of how to design policies and programs to rebuild failed and weak states into functioning, if not vibrant democracies.  
Sp Qtr. 2-2 hr cl. Prereq: Second yr standing or higher or permission of instructor. Not open to students with credit for Int Stds 670. Cross-listed in International Studies.

Public Affairs Decision-Making:  
UGRD 5  
Capstone for PubAffs majors to gain exposure to current public policy issues and competing interests and actors involved in the creation of legislation and policy.  
Prereq: Junior standing. Not open to students with credit for Public Affairs 678.02.

Public Affairs Decision-Making:  
UGRD 5  
Washington DC  
Outlines decision making process in the public and nonprofit sectors.  
Su, Au, Wi, Sp Qtrs. Prereq: Junior standing. Concur: 589 and 679.02. Not open to students with credit for 678.01.

Policy Analysis Application  
UGRD 5  
Capstone course for PubAffs majors to write an analytic policy analysis paper.  
Prereq: Junior standing. Not open to students with credit for Public Affairs 679.02.

UGRD 5  
Focuses on the application of public policy analysis and understanding the impact of that analysis.  
Su, Au, Wi, Sp Qtrs. Prereq: Junior standing. Concur: 589 and 678.02. Not open to students with credit for Public Affairs 679.01.

Public Finance  
GRAD 5  
Comprehensive survey and analysis of the principle fiscal activities of contemporary governments; logic of public sector activity, taxation principles and practice, intergovernmental relations, and current fiscal problems.  
Wi Qtr. 2-2 hr cl. Prereq: 530 or Econ 501A and grad standing, or permission of instructor. Not open to students with credit for Econ 530 or 730. Cross-listed in Economics.

Public Policy: The Business-Government Relationship  
UGRD 4  
Business tools and strategy for influencing government; evolution and direction of public policy toward business.  
^ 2 2-hr cl. Prereq: Sr standing or permission of instructor.

Managing in the Political Environment  
UGRD 4  
Introduction to public policy process and stakeholder approaches to issue management; strategic options and policy tools (political action committees, advocacy and image advertising), state policy incentives, and international relations.  
^ 2 2-hr cl. Prereq: Sr standing or permission of instructor.

Interdepartmental Seminar  
GRAD 1-5  
Two or more departments may collaborate in presenting seminars in subjects of mutual interest; topics to be announced. Repeatable by permission.

Public Policy: The Business-Government Relationship  
UGRD 4  
Business tools and strategy for influencing government; evolution and direction of public policy toward business.  
^ 2 2-hr cl. Prereq: Sr standing or permission of instructor.

Public Policy Formulation and Implementation  
GRAD 5  
Analysis of the operating environment of the public administrator; public policy processes, public organization behavior, and policy formulation in the U.S. federal system.  
Au Qtr. 1-3 hr cl. Prereq: Poli Sc 300 or equiv.

Legal Environment of Public Organizations  
GRAD 4  
An examination and analysis of the constraints imposed upon public administrative processes by the legal environment including judicial policy-making and the evolving legal order.  
Sp Qtr. 1-3 hr cl.

Public Policy Implementation  
GRAD 4  
Policy implementation process in a political setting emphasizing planned changes; organizational design, systems analytic program management and evaluation; conflict management within a public bureaucracy.  
^ 2 2-hr cl. Prereq: 801.

Public and Non-Profit Program Evaluation  
GRAD 4  
Provides an understanding of the conceptual, methodological, bureaucratic, political, and organizational issues surrounding evaluation research.  
Wi Qtr. 1 2.5 hr cl. Prereq: 801.

Policy Problem Seminar I  
GRAD 5  
Multidisciplinary seminar integrated with field experience in the solution of actual public administrative and policy problems; organized around problem areas.  
Su, Au, Wi, Sp Qtrs. 1 2-2 hr cl. Prereq: 730, 801, 802, 804, 810, 811, 820, 821, 822, 830, 834 or permission of instructor. This course is Progress (P) graded. 2-qtr sequence with 809. Final grade assigned for both 808 and 809 at completion of 809.

Policy Problem Seminar II  
GRAD 4  
Continuation of 808.  
Su, Au, Wi, Sp Qtrs. 1 2-2 hr cl. Prereq: 808. This course is Progress (P) graded. Offered in a series with 808.

Managing Public Organizations  
GRAD 4  
The conducting of a strategic assessment of an agency; identifying strengths, weaknesses, opportunities, and threats; and with development of accompanying management strategy.  
Wi Qtr. 1 2.5 hr cl.

Leadership and Human Resources in Public Organizations  
GRAD 4  
Development of management skills essential for beginning and mid-level managers and supervisors in public sector agencies.  
Sp Qtr. 1-3 hr cl.

Strategy for Public Organizations  
GRAD 4  
Provides a strategic perspective on the management and leadership of public sector organizations through the critical assessment of balanced scorecard, strategy maps, and logic models.  
Au Qtr. 1 3 hr cl. Prereq: 810.

Data Analysis for Public Policy and Management  
GRAD 4  
Introduction to types of problems encountered in public policy and management; problem formulation and basic research methods tools required to tackle them.  
Wi Qtr. 1 2.5-hr cl. Prereq: A course in statistics.

Public Management Information Systems  
GRAD 4  
Critical study of the administration and design of management information systems for public agencies; selected case studies.  
Au Qtr. 1 1.5-hr cl.

Multivariate Data Analysis for Public Policy and Management  
GRAD 4  
Multivariate model building using theoretical and exploratory data analysis perspectives for use in public sector decision support systems; public sector case studies.  
Sp Qtr. 1 2.5 hr cl. Prereq: 820.

Systems Analysis for Public Policy Decisions  
GRAD 3  
Studies in the application of systems analysis to administrative and policy problems in the public sector; selected case studies and problems.  
^ 2 2-hr cl.
830 Economics of Public and Non-Profit Management GRAD 4
Economic analysis applied to problems of public policy selection and government management operations; efficiency criteria, market failure, and public choice applied to administrative decision-making.
Au Qtr. 1.5-hr cl. Prereq: Econ 200 or equiv.

834 Public Budgeting GRAD 4
Budgeting as analysis of resource allocation, planning evaluation, and control; tools of analysis for program budgeting and measurement of program results; case studies.
Sp Qtr. 2.5-hr cl. Prereq: 830.

835 Seminar in Fiscal Administration GRAD 3
Current professional practices and issues in public sector fiscal administration, including budget and expenditure administration, revenue administration, financial management, and borrowing and debt management.
^1 1.5-hr cl. Prereq: 834.

836 Financial Management GRAD 3
Exploration of capital programming and budgeting, debt management, and other aspects of major urban capital developments.
^1 2.5-hr cl. Prereq: 730 or Econ 730.

837 Grants Policy and Administration GRAD 4
Investigation of grant-related policy issues, the distributional impact of grant policy, and how federal grants may have influenced city-suburban hardship disparities.
Au Qtr. 1.5-hr cl. Prereq: 730 or Econ 730. Not open to students with credit for 880B02.

850 The Political Economy of Administrative Regulation GRAD 3
Development of an understanding of the origin, intent, and technical elements of administrative regulation with special reference to economic and social regulation.
Au Qtr. 1.2-hr cl.

851 Current Issues, Practices, and Concepts in Administrative Commission Regulation GRAD 3
Focus on the economic regulation of transport, power, and communications, and the social regulation of business in the form of environmental and safety standards.
Wi Qtr. 1.2-hr cl.

852 Governmental and Non-Profit Accounting GRAD 4
The application of accounting principles to governments and other not-for-profit entities; problems relating to funds, appropriations, and budgetary controls.
Au Qtr. 2.5-hr cl. Prereq: Accr&MIS 310 or equiv or permission of instructor. Not open to students with credit for Accr&MIS 852. Cross-listed in Accounting and Management Information Systems.

870 Urban Policy and Management I GRAD 3
Management processes affecting city growth or decline, and issues facing those involved in the administration of an urban area.
^1 2.5-hr cl.

871 Urban Policy and Management II GRAD 3
Introduction to the field of economic development, emphasizing the role of public management.
^1 2.5-hr cl. Prereq: 870.

880.02 Advanced Seminar: Fiscal Policy and Management GRAD 1-6
Special studies of selected problems which may include readings, case studies, internships, field investigations, simulation, system analysis, role playing, team teaching, and other experimental techniques.

880.04 Advanced Seminar: Human Resources Policy and Management GRAD 1-6
Special studies of selected problems which may include readings, case studies, internships, field investigations, simulation, system analysis, role playing, team teaching, and other experimental techniques.
Su, Au, Wi, Sp Qtrs. Repeatable.

880.05 Advanced Seminar: Management Information Systems' Administration GRAD 1-6
Special studies of selected problems which may include readings, case studies, internships, field investigations, simulation, system analysis, role playing, team teaching, and other experimental techniques.

880.06 Advanced Seminar: Public Policy and Management GRAD 1-6
Special studies of selected problems which may include readings, case studies, internships, field investigations, simulation, system analysis, role playing, team teaching, and other experimental techniques.
Su, Au, Wi, Sp Qtrs. Repeatable.

880.07 Advanced Seminar: Regulation Policy and Management GRAD 1-6
Special studies of selected problems which may include readings, case studies, internships, field investigations, simulation, system analysis, role playing, team teaching, and other experimental techniques.
Su, Au, Wi, Sp Qtrs. Repeatable.

880.08 Advanced Seminar: Urban Policy and Management GRAD 1-6
Special studies of selected problems which may include readings, case studies, internships, field investigations, simulation, system analysis, role playing, team teaching, and other experimental techniques.
Su, Au, Wi, Sp Qtrs. Repeatable.

890 Research Methods in Public Administration GRAD 3
Logic of inquiry for public policy and management.
Wi Qtr.

893 Individual Studies GRAD 1-6
Advanced individual studies in public policy and management.
Prereq: Grad standing in pub pol&mgt and written permission of instructor. Repeatable to a maximum of 15 cr hrs. including cr hrs earned in decimal subdivisions. This course is graded S/U.

894 Group Studies GRAD 1-6
Advanced group studies in public policy and management.
Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs. including cr hrs earned in decimal subdivisions.

899 Interdepartmental Seminar GRAD 1-5
Two or more departments may collaborate in presenting seminars on subjects of mutual interest; topics to be announced.

998 Research in Public Administration: Thesis GRAD 1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

999 Research in Public Administration: Dissertation GRAD 1-18
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 45 cr hrs. This course is graded S/U.

Public Health

400 Introduction to Public Health UGRAD 4
Introduction to the principles and practice of public health, including the history and organization of public health services; survey of fields of professional practice in public health.
Au, Sp Qtrs. 2.2-hr cl.

600 Introduction to Global Health GRAD 2
The purposes of this survey course are to provide an overview of current and emerging global health issues and their determinants.
Wi, Sp Qtrs. Prereq: permission of instructor.

670.01 Topics in Applied Public Health Practice: General Public Health Practice GRAD 1-4
Theory and applications relevant to specific rubrics of applied public health practice. Theme: general public health.
Repeatable to a maximum of 10 cr hrs.

670.02 Topics in Applied Public Health Practice: Public Health Management and Leadership GRAD 1-4
Theory and applications relevant to specific rubrics of applied public health practice. Theme: Public Health Management and Leadership.
Repeatable to a maximum of 10 cr hrs.

670.03 Topics in Applied Public Health Practice: Public Health Research Tools GRAD 1-4
Theory and applications relevant to specific rubrics of applied public health practice. Theme: Public Health Research Tools.
Repeatable to a maximum of 10 cr hrs.

670.04 Topics in Applied Public Health Practice: Public Health Preparedness GRAD 1-4
Theory and applications relevant to specific rubrics of applied public health practice. Theme: Public Health Preparedness.
Repeatable to a maximum of 10 cr hrs.

685 Field Experience in Public Health GRAD 1-8
Placement in a public health agency or related site for supervised practice experience.
Su, Au, Wi, Sp Qtrs. Prereq: Enrollment in MPH program and permission of instructor. Repeatable to a maximum of 8 cr hrs. 30 hours of on-site time per credit hour, arranged with adviser. This course is graded S/U.
686 Field Experience in Global Health GRAD 1-3
Affords students an opportunity to apply theoretical learning toward the achievement of practical skills in the global setting. This course is graded S/U.

700 Public Health in Developing Countries GRAD 4
This course is required for PUBH students in the GIS in Global Health. The course is designed to apply public health principles to global problems. Wi Qtr. Prereq or concur: PUBH-EHS 731, PUBH-EPI 710, PUBH-HBHP 720, HSMP 800.

741 Public Health Organization GRAD 4
History and development of public health agencies; structure and functions of governmental, voluntary, and proprietary health organizations. Sp, Su Qtr. 2.2-hr cl. Prereq: Permission of instructor.

750 Special Topics in Public Health GRAD 1-4
Regular class on topics that are relevant to students enrolled in programs in Public Health. Su, Au, Wi, Sp Qtr. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

785 Culminating Project in Public Health GRAD 1-8
Final project for MPH degree that can be a research report, program evaluation or grant proposal. Students should see division specific requirements. Su, Au, Wi, Sp Qtr. 2.2-hr cl. Prereq: Grad standing in Public Health and permission of instructor. Not open to students with credit for HSMP, PUBHIO, PUBHEHS, PUBHEPI, PUBHHBP 785. Repeatable to a maximum of 8 cr hrs.

789 Survey Research Practicum GRAD 5

793 Individual Studies in Public Health GRAD 1-6
Individual Studies in Public Health. Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

794 Group Studies in Public Health GRAD 1-6

795 Topics in Clinical and Translational Science GRAD 1-2
Seminar addressing topics in clinical and translational research; literature review, guest speakers, discussion of issues, student research presentations. Su, Au, Wi, Sp Qtrs. 1.2-hr cl. Prereq: Grad standing in public health or permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

799 Research in Public Health GRAD 1-18
Designed for the student who is conducting master’s or pre-candidacy doctoral research. Su, Au, Wi, Sp Qtrs. 2.2-hr cl and online. Prereq: Grad standing in public health and permission of instructor. Repeatable to a maximum of 99 cr hrs.

850 Seminar in Public Health GRAD 1-4
Seminar in Public Health. Su, Au, Wi, Sp Qtrs. Prereq: Grad standing in pub lth or permission of instructor. Repeatable to a maximum of 8 cr hrs.

875 Doctoral Seminar in Public Health GRAD 1-4
Doctoral level seminar on topics that are relevant to students enrolled in the PhD program in Public Health. Su, Au, Wi, Sp Qtrs. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

999 Research in Public Health GRAD 1-18
Research for post-candidacy dissertation purposes only. Su, Au, Wi, Sp Qtrs. Prereq: Prereq: Grad standing in Public Health and permission of instructor. Repeatable. This course is graded S/U.

### Public Health: Biostatistics

601 Statistical Methods for Public Health GRAD 4
**Practice I**
Introduction to biostatistical methods and their applications in epidemiologic studies and public health practice. Wi Qtr. 10 hrs on 3 3-day weekends. Prereq: Enrollment in MPH Program for Experienced Professionals or permission of instructor. Not open to students with credit for 701 or PUB Hlth 752.

602 Statistical Methods for Public Health Practice II
Continuation of 601, with emphasis on non-parametric methods, correlation, and regression analysis; critical reading of current articles in public health. Su Qtr. 10 hrs on 3 3-day weekends. Prereq: Enrollment in MPH Program for Experienced Professionals or permission of instructor. Not open to students with credit for 702 or PUB Hlth 753.

604 Introduction to SAS for Public Health Students
Introduction to programming using SAS software to accomplish public health data management and analysis. Wi Qtr. 2-hr cl. Open only to Public Health Students. This course is graded S/U.

605 Applied Survival Analysis GRAD 4
Techniques for analyzing censored data including: life table and product limit estimator, k-sample tests, and proportional hazards regression. Wi Qtr. 2.2-hr cl. Prereq: Stat 521 and 645 or PUBH-BIO 703; or permission of instructor. Not open to students with credit for Biostat 605. Cross-listed in Biostatistics. Offered in even years.

606 Applied Logistic Regression GRAD 4
Theoretical and practical training in statistical modeling of a categorical response variable; conditional and unconditional models, assessment of model performance, determination of scale. Wi Qtr. 2.2-hr cl. Prereq: B- or above in 702 or permission of instructor. Offered in odd years.

607 Practical Biostatistics for Biomedical Laboratory Researchers
Introduction to statistical principles and methods appropriate for experimental laboratory data with applications in biomedical sciences. Su Qtr. 2-hr cl. Prereq: Enrollment in the Integrated Biomedical Science Graduate Program or permission of instructor.

624 Applied Longitudinal Data Analysis GRAD 4
Statistical models and methods for the analysis of data arising from longitudinal studies with repeated measurements on subjects over time. Au Qtr. 2.2-hr cl. Prereq: 703 or permission of instructor. Offered in odd years.

625 Multi-dimensional Data Analysis with Applications from Current Health Sciences Research
Introduction to statistical models for analyzing multi-dimensional data in the health sciences, with emphasis on experience in use of statistical software. Sp Qtr. 2.2-hr cl. Prereq: B- or above in 702 or permission of instructor.

651 Survey Sampling Methods GRAD 4
Sampling from finite populations, simple random, stratified, systematic and cluster sampling designs, ratio and regression estimates; non-sampling errors. Au Qtr. 2-hr cl. Prereq: 703 or permission of instructor. Offered in even years.

652 Applied Statistical Analysis with Missing Data GRAD 4
Models and methods for the dataset with missing values, including imputation and likelihood and Bayesian-based models. Au Qtr. 2-hr cl. Prereq: 703, Stat 529 or permission of instructor. Not open to students with credit for Stat 651. Cross-listed in Statistics. Offered in even years.

685 Field Experience in Biostatistics GRAD 1-8
Placement in a public health agency or related site for supervised practice experience. Su, Au, Wi, Sp Qtrs. Prereq: Enrollment in MPH program and permission of instructor. Repeatable to a maximum of 8 cr hrs. 30 hours of on-site time per credit hour, arranged with adviser. This course is graded S/U.

701 Design and Analysis of Studies in the Health Sciences I GRAD 4
Theory and application of basic statistical concepts for design of studies in health sciences, integrated with statistical software applications. Au, Wi Qtr. 2.2-hr cl. Prereq: Grad standing in Pub Hlth or permission of instructor.

702 Design and Analysis of Studies in the Health Sciences II GRAD 4
Review of the fundamental concepts of biostatistics, including more complex analysis of variance designs, integrated with application of computer statistical packages. Wi, Sp Qtrs. 2.2-hr cl. Prereq: B- or above in 701 or permission of instructor.

703 A Problem-Oriented Approach to Biostatistics
The employment of actual health-related problems to illustrate the use of computers and applied statistical methods important to epidemiologists and other health professionals. Sp Qtr. 2.2-hr cl. Prereq: B- or above in 702 or permission of instructor.
706 Regression Modeling of Time-to-Event Data  GRAD  4
Common parametric models for survival data; competing risks, cumulative incidence functions, life table methods, additive hazards regression models, regression diagnostics, multivariate survival analysis.
Sp Qtr. 2 2-hr cl. Prereq: 605 or Biostat 605 or permission of instructor. Offered in odd years.

726 Models for Continuous and Discrete Longitudinal Data  GRAD  4
Classical and modern statistical approaches to analyze continuous and discrete longitudinal data.
Sp Qtr. Prereq: Grad standing in Statistics or Biostatistics. Stat 622 and Stat 645, or permission of instructor. Not open to students with credit for Stat 726. Cross-listed in Statistics. Offered in even years.

727 Statistical Methods in Toxicological Risk Assessment  GRAD  4
Statistical techniques for quantifying the risk of adverse health effects from exposure to harmful substances.
^Au Qtr. 2 2-hr cl. Prereq: B- or above in 702 or permission of instructor.

750 Topics in Biostatistics  GRAD  1-4
Regular class on topics that are relevant to students enrolled in programs in the Division of Biostatistics.
Su, Au, Wi, Sp Qtrs. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

785 Culminating Project in Public Health  GRAD  1-8
Final project for MPH degree that can be a research report, program evaluation or grant proposal. Students should see division specific requirements.
Su, Au, Wi, Sp Qtrs. 2 2-hr. Prereq: Graduate standing in Public Health and permission of instructor. Not open to students with credit for PUBHLTH, HSMP, PUBHEHS, PUBHEPI, PUBHHBP 785. Repeatable to a maximum of 8 cr hrs.

786 Biostatistics Consulting Laboratory  GRAD  3
Participation in consultations offered to biomedical researchers, combined with individualized faculty guidance.
Sp Qtr. 1 3-hr lab and 2 1-hr conf. Prereq: 703 or permission of instructor. Repeatable to a maximum of 6 cr hrs.

793 Individual Studies in Biostatistics  GRAD  1-6
Individual Studies in Biostatistics.
Su, Au, Wi, Sp Qtrs. Prereq: permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

794 Group Studies in Biostatistics  GRAD  1-6
Group Studies in Biostatistics.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs.

850 Seminar in Biostatistics  GRAD  1-4
Seminar on topics that are relevant to students enrolled in programs in the Division of Biostatistics.
Su, Au, Wi, Sp Qtrs. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

875 Doctoral Seminar in Biostatistics  GRAD  1-4
Doctoral seminar on topics that are relevant to PhD students enrolled in Biostatistics.
Su, Au, Wi, Sp Qtrs. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

Public Health: Environmental Health Sciences

530 Current Issues in Environmental Health  UGRD  4
Critical review and discussion of current issues in environmental health; occupational and environmental hazards and responses.
Wi Qtr. 2 2-hr cl.

685 Field Experience in Environmental Health  GRAD  1-8
Placement in a public health agency or related site for supervised practice experience.
Su, Au, Wi, Sp Qtrs. Prereq: Enrollment in MPH program and permission of instructor. Repeatable to a maximum of 8 cr hrs. 30 hours of on-site time per credit hour, arranged with advisor. This course is graded S/U.

731 Principles of Environmental Health  GRAD  4
Survey of major environmental factors affecting human health, including air, water, and land pollution, occupational hazards, trace metals, chemical carcinogens, radiation, and noise.
Au, Wi Qtr. 2 2-hr cl.

732 Basic Concepts in Toxicology  GRAD  4
Fundamentals of dose-response, exposure, and the disposition and biotransformation of chemicals in mammalian systems; actions of toxicants in major organ systems.
Wi Qtr. 2 2-hr cl.

733 Toxicology of Chemical Agents  GRAD  4
Disruption of biological systems by chemical agents; discussion of classes of chemica toxins and the health effects they produce; experimental toxicology and epidemiology focused on human health.
Sp Qtr. 2 2-hr cl. Prereq: 732 or permission of instructor.

735 Introduction to Water and Human Health Risk  GRAD  4
Water-related pathogens and their pathways to humans; water supply, sanitation and hygiene development; assessing risk to individuals and populations; infectious diseases and outbreak investigation.
Sp Qtr. 2 2-hr cl. Prereq: 731 and PUBHBio 701, or permission of instructor.

736 Environmental Law and Policy for Public Health  GRAD  2
Basic concepts of environmental law and policy relevant to public health practice.
Wi Qtr. 2 hr cl. Prereq: Grad standing in Public Health. Offered in even years.

741 Environmental Health Management  GRAD  2
This applied course will provide students with an overview of environmental and occupational health issues and how these issues interact with health care organization.
Au Qtr.

750 Special Topics in Environmental Health Sciences  GRAD  1-4
Regular course on topics that are relevant to students enrolled in programs in the Division of Environmental Health Sciences.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

794 Group Studies in Environmental Health Sciences  UGRD  1-6
Group Studies in Environmental Health Sciences.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs.

830 Principles of Occupational Health  GRAD  4
Principles and practice of occupational health and medicine.
Au Qtr. 2 2-hr cl.

831 Principles of Risk Assessment  GRAD  4
Introduction to the basic components of quantitative toxicological risk assessment.
Wi Qtr. 2 2-hr cl.

832 Principles of Exposure Assessment  GRAD  4
Introductory course that includes discussion of a variety of topics in exposure assessment.
Sp Qtr. 2 2-hr cl. Prereq: 732 and PUBHEPI 710 or permission of instructor.

835 Molecular Techniques for Environmental Health Sciences  GRAD  5
Practical introduction to molecular techniques, as applied to research in environmental health sciences.
Sp Qtr. 2 hr cl, 6-hr lab. Prereq: Permission of instructor. Offered in even years.

850 Seminar in Environmental Health Sciences  GRAD  1-4
Seminar on topics that relevant to students enrolled in programs in the Division on Environmental Health Sciences.
Su, Au, Wi, Sp Qtrs. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

875 Doctoral Seminar in Environmental Health Sciences  GRAD  1-4
Doctoral level seminar on topics that are relevant to PhD students in the Division of Environmental Health Sciences.
Su, Au, Wi, Sp Qtrs. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

Public Health: Epidemiology

510 Introduction to Epidemiology  UGRD  4
Introduction to the study of population health, history, methods, applications, and issues in epidemiology.
Au, Wi Qtrs. 2 2-hr cl. Prereq or concur: Stat 135 or 145 or equiv.
615 Field Epidemiology UGRD 3
Principles and practice of field epidemiology, including outbreak investigation and disease surveillance. Wi Qtr. Prereq: 510 or 710 or permission of instructor.

685 Field Experience in Epidemiology GRAD 1-8
Placement in a public health agency or related site for supervised practice experience. Su, Au, Wi. Sp Qtrs. Prereq: Enrollment in MPH program and permission of instructor. Repeatable to a maximum of 8 cr hrs. 30 hours of on-site time per credit hour, arranged with adviser. This course is graded S/U.

700 Epidemiology for Experienced Health Professionals GRAD 4
Epidemiologic concepts and methods useful for public health practice, with applications including understanding and control of infectious diseases, environmental health hazards, and accidents. Au Qtr. 10 hrs on 3-day weekends. Prereq: Enrollment in MPH Program for Experienced Professionals or permission of instructor. Not open to students with credit for 710.

704 Biological Basis of Public Health GRAD 4
Molecular and epidemiologic evidence of biological mechanisms in major diseases of concern for public health. Au Qtr. 1 3.5-hr cl. Prereq: Grad standing in Public Health or permission of instructor.

705 Design and Implementation of Health Surveys GRAD 4
Introduction to health survey methods, with public health applications. Wi Qtr. 2 2-hr cl and 1 1-hr cl. Prereq: 710 or permission of instructor.

710 Principles of Epidemiology GRAD 4
Introduction to the nature and scope of epidemiology; survey of basic epidemiological methods and their application to selected acute and chronic health problems. Au, Wi Qtr. 2 2-hr cl. Prereq: Grad standing in PUB HLTH or permission of instructor.

711 Epidemiology I GRAD 4
Principles of epidemiology with special emphasis on methods employed in current epidemiologic studies. Wi, Sp Qtrs. 2 2-hr cl. Prereq: 710 or permission of instructor.

712 Epidemiology II GRAD 4
Design of epidemiologic studies of major health problems; review of key studies; application of epidemiologic data to public health programs and medical care delivery. Sp Qtr. 2 2-hr cl. Prereq: 711 and PUBHI-BO 702 or permission of instructor.

713 Epidemiology in Environmental Health GRAD 4
Principles and application of epidemiologic methods in the investigation and control of health problems stemming from environmental hazards. Au Qtr. 2 2-hr cl. Prereq: 711 or permission of instructor.

714 Injury Epidemiology GRAD 3
Introduction to injury epidemiology; historical context, trends, research methods and issues; survey of areas of injury epidemiology and prevention. Sp Qtr. 1 3-hr cl. Prereq: 710 or permission of instructor. Offered in even years.

715 Principles and Procedures for Human Clinical Trials GRAD 4
Basic principles and procedures for clinical professionals in the design, conduct and analysis of human clinical trials. Sp Qtr. Prereq: 711 and PUBHHBio 702 or permission of instructor.

716 Psychiatric Epidemiology GRAD 3
Course on the epidemiology of mental health disorders and the methods used in the field of psychiatric epidemiology. Wi Qtr. 1 3-hr cl. Prereq: 710 or permission of instructor. Offered in odd years.

717 Tuberculosis: A Public Health Issue GRAD 1
Course on the epidemiology of tuberculosis in the United States and internationally. Sp Qtr. 1 1-hr cl. Prereq: 710 or permission of instructor. Offered in even years.

718 Infectious Diseases in the Developing World UGRD 2
This course is designed to provide students with an overview of the field of infectious diseases in the developing world. Sp Qtr. Basic epidemiology course (510 or 710) recommended but not required.

724 Molecular Epidemiology of Infectious Diseases GRAD 3
Provides students with the knowledge and skills to study disease outbreaks in humans and animals using molecular biology techniques. Sp Qtr. Prereq: Some basic knowledge of infectious diseases and molecular biology or permission of the instructors. Not open to student with credit for VetPrev 700. Cross-listed in VetPrev 700.

750 Topics in Epidemiology GRAD 1-4
Regular class on topics that are relevant to students enrolled in programs in the Division of Epidemiology. Su, Au, Wi, Sp Qtrs. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

785 Culminating Project in Public Health GRAD 1-8
Final project for MPH degree that can be a research report, program evaluation or grant proposal. Students should divide specific requirements. Su, Au, Wi, Sp Qtrs. 2 2-hr. Prereq: Graduate standing in Public Health and permission of instructor. Not open to students with credit for PUBHLTH, PUBHHBio, PUBHHEIS, HSMTP, PUBHHPB 785. Repeatable to a maximum of 8 cr hrs.

793 Individual Studies in Epidemiology GRAD 1-6
Individual Studies in Epidemiology. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

794 Group Studies in Epidemiology GRAD 1-6

803 Health Data: Sources and Uses GRAD 4
Study of compilation of health and health-related data and their utilization; local, state, regional, and national surveys; and life tables and community health indices. Su Qtr. 2 2-hr cl. Prereq: PUBHHBio 702 or permission of instructor.

810 Epidemiologic Methods GRAD 4
Critique and justification for methods of designing, analyzing and interpreting epidemiological data; social, historical and philosophical foundations of epidemiological methods. Au Qtr. 2 2-hr cl. Prereq: 712 & PUBHHBio 703 or permission of instructor.

814 Chronic Disease Epidemiology GRAD 4
Survey of the epidemiology of chronic diseases, including cancer, heart disease, stroke, diabetes mellitus, chronic obstructive pulmonary disease, and neurodegenerative disease. Wi Qtr. 2 2-hr cl. Prereq: 711 or permission of instructor.

815 Infectious Disease Epidemiology GRAD 4
Introduction to the epidemiology of infectious diseases, with focus on methods for investigation, control and prevention of communicable disease. Wi Qtr. 2 2-hr cl. Prereq: 710 or permission of instructor.

816 Cancer Epidemiology GRAD 4
Epidemiology of cancer, including etiology, risk factors, neoplastic processes, screening, control; application of statistical methods; molecular genetic basis of carcinogenesis. Sp Qtr. 2 2-hr cl. Prereq: 710 or permission of instructor.

817 Cardiovascular Disease Epidemiology GRAD 4
Introduction to the epidemiology of cardiovascular disease; risk factors, specific diseases, diagnostic procedures; review of classic and current studies. Sp Qtr. 2 2-hr cl. Prereq: 711 or permission of instructor.

818 Women's Health Issues GRAD 3
Overview of issues related to women's health from epidemiological and behavioral perspectives. * Wi Qtr. Prereq: 710 or permission of instructor. Taught in even years.

819 Epidemiology of Obesity GRAD 4
Prevalence, trends, risk factors, measurement, outcomes and issues related to obesity; critical reading and discussion of research on epidemiology of obesity. Sp Qtr. 2 2-hr cl. Prereq: 711 and PUBHHBio 701 or permission of instructor.

820 Reproductive and Perinatal Epidemiology GRAD 4
This course will provide students with an overview of the epidemiology of reproductive and perinatal health issues and methodologic challenges unique to the field. Sp Qtr. Prereq: PUBH-EPI 710 or permission of instructor. Offered in odd years.

821 Design and Analysis of Group-Randomized Trials GRAD 4
Models and methods for the design and analysis of group-randomized trials in public health research. Wi Qtr. 2 2-hr cl. Prereq: 712 and PUBHHBio 703, or permission of instructor. Offered in odd years.

822 Molecular Cancer Epidemiology GRAD 4
This course provides an introduction to the molecular biology underlying cancer and the molecular alterations that initiate or promote the progression of cancer. Au Qtr. Prereq: 816.

850 Seminar in Epidemiology GRAD 1-4
Seminar on topics that are relevant to students enrolled in programs in the Division of Epidemiology. Su, Au, Wi, Sp Qtrs. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

875 Doctoral Seminar in Epidemiology GRAD 1-4
Seminar for doctoral students in Epidemiology. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
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<tbody>
<tr>
<td>520</td>
<td>The Role of Behavior in Public Health</td>
<td>4</td>
<td>UGRD</td>
<td>Introduction to concepts of behavior change and its role in public health; social determinants of health; applications to selected community health problems and issues.</td>
</tr>
<tr>
<td>685</td>
<td>Field Experience in Health Behavior and Promotion</td>
<td>1-8</td>
<td></td>
<td>Placement in a public health agency or related site for supervised practice experience.</td>
</tr>
<tr>
<td>720</td>
<td>Preventing Disease and Promoting Health</td>
<td>4</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>725</td>
<td>Behavioral Science Foundations for Health</td>
<td>2</td>
<td></td>
<td>Conceptual frameworks and strategies for behavioral and social change efforts, with applications for health care management.</td>
</tr>
<tr>
<td>750</td>
<td>Special Topics in Health Behavior and Promotion</td>
<td>1-4</td>
<td></td>
<td>Regular class on topics that are relevant to students enrolled in programs in the Division of Health Behavior and Health Promotion.</td>
</tr>
<tr>
<td>785</td>
<td>Culminating Project in Public Health</td>
<td>1-8</td>
<td></td>
<td>Final project for MPH degree that can be a research report, program evaluation or grant proposal. Students should divide specific requirements.</td>
</tr>
<tr>
<td>793</td>
<td>Individual Studies in Health Behavior and Promotion</td>
<td>1-6</td>
<td></td>
<td>Independent study work.</td>
</tr>
<tr>
<td>800</td>
<td>Health Care Organization I</td>
<td>4</td>
<td>UGRD</td>
<td>Analysis of arrangements for the organization, financing, and delivery of health care services.</td>
</tr>
<tr>
<td>801</td>
<td>Health Care Organization II</td>
<td>4</td>
<td></td>
<td>Continuation of 800, with emphasis on managing health services for a defined population.</td>
</tr>
<tr>
<td>802</td>
<td>Economic Analysis of Health Services</td>
<td>4</td>
<td></td>
<td>Applications of microeconomic analysis to the health services industry, with emphasis on the market structure and managerial decisions.</td>
</tr>
<tr>
<td>803</td>
<td>Economics of Health Care I</td>
<td>4</td>
<td></td>
<td>Microeconomic principles of consumer demand with emphasis on health care use; role of uncertainty and health insurance.</td>
</tr>
<tr>
<td>804</td>
<td>Economics of Health Care II</td>
<td>4</td>
<td></td>
<td>Microeconomic principles of supply with applications to the provision of health care services; market place for nurses and physicians.</td>
</tr>
</tbody>
</table>

**Public Health: Health Services Management & Policy**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>550</td>
<td>Health Care in America</td>
<td>4</td>
<td>UGRD</td>
<td>Introduction to the history, organization and politics of the American health care system; critical review of selected issues using different analytic frameworks.</td>
</tr>
<tr>
<td>685</td>
<td>Field Experience in HSMP</td>
<td>1-8</td>
<td>HSMP</td>
<td>Placement in a public health agency or related site for supervised practice experience.</td>
</tr>
<tr>
<td>693</td>
<td>Individual Studies</td>
<td>1-5</td>
<td></td>
<td>Study of individually designed topics not otherwise available in the curriculum.</td>
</tr>
<tr>
<td>694</td>
<td>Group Studies</td>
<td>1-5</td>
<td></td>
<td>Group studies of special topics within health services management and policy.</td>
</tr>
<tr>
<td>700</td>
<td>Special Topics in Health Services Management and Policy</td>
<td>1-4</td>
<td></td>
<td>Regular class on topics that are relevant to students enrolled in programs in Health Services Management and Policy.</td>
</tr>
<tr>
<td>750</td>
<td>Seminar</td>
<td>1-3</td>
<td></td>
<td>Investigation of current topics of significance to health services management and policy.</td>
</tr>
<tr>
<td>800</td>
<td>Health Care Organization I</td>
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</tbody>
</table>
805 Introduction to Health Policy GRAD 4
Introduction to public policy concepts and process as they apply to the organization, financing, and delivery of health services.
Sp Qtr. 2-2 hr cl. Prereq: 800 or permission of instructor.

811 Legal Environment of Health Care GRAD 4
Law as it affects health care, including malpractice, licensure, professional and business relationships, and legal-ethical decisions.
Au Qtr. 2-2 hr cl. Prereq: Grad standing in Public Health or Biostatics, or permission of instructor.

815 Health Services Organizational Management GRAD 4
Principles of organizational behavior and management applied to health services organizations; emphasis on professionalism, leadership, and unique problems of health care settings.
Au Qtr. 2-2 hr cl. Prereq: Grad standing in Public Health or Biostatics, or permission of instructor.

817 Leadership in Health Care GRAD 4
Overview of leadership in health care with an emphasis on theory, leadership development, and leadership styles.
Sp Qtr. 2-2 hr cl. Prereq: Grad standing in Public Health or Biostatics, or permission of instructor.

820 Health Services Finance I GRAD 4
Principles of finance and accounting applied to health service organizations.
Wi Qtr. 2-2 hr cl. Prereq: An introduction to financial accounting course or permission of instructor.

821 Health Services Finance II GRAD 4
Continuation of 820 emphasizing financial analysis, financial planning, and management control.
Sp Qtr. 2-2 hr cl. Prereq: 820 or permission of instructor.

822 Health Services Financial Decision-Making GRAD 4
Principles of financial decision-making in health service organizations, with emphasis on applications of decision support systems.
Au Qtr. 2-2 hr cl. Prereq: 821 or permission of instructor.

823 Financial Management of Public Health GRAD 4
Programs
Principles of accounting and finance applied to the management of public health agencies and programs.
Wi Qtr. 2-2 hr cl. Prereq: Enrollment in MPH Program for Experienced Professionals and an intro to accounting course or permission of instructor.

831 Strategic Management and Program Development
Techniques and methods for strategic management and project planning in health care organizations and settings.
Sp Qtr. 2-2 hr cl. Prereq: Enrollment in MHA program or permission of instructor. Repeatable to a maximum of 4 cr hrs.

840 Disability Policy and Politics GRAD 4
Investigation of public policy in the area of disability and the politics that is the origin and result of these policies.
* Wi Qtr. 2-2 hr cl.

850 Seminar in Health Service Management and Policy
Small group seminar with focus on integrative projects in health services management and policy.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Enrollment in MHA program or permission of instructor. Repeatable to a maximum of 4 cr hrs.

870.01 Advanced Studies: General GRAD 2-4
Seminar in special topics in health services management and policy with content varying from quarter to quarter.
Prereq: Grad standing in HSMP or permission of instructor. Repeatable to a maximum of 14 cr hrs.

870.02 Advanced Studies: Clinical Rotations GRAD 2-4
Seminar in special topics in health services management and policy with content varying from quarter to quarter.
Prereq: Grad standing in HSMP or permission of instructor. Repeatable to a maximum of 14 cr hrs.

870.03 Advanced Studies: Data Analysis GRAD 2-4
Seminar in special topics in health services management and policy with content varying from quarter to quarter.
Prereq: Grad standing in HSMP or permission of instructor. Repeatable to a maximum of 14 cr hrs.

870.04 Advanced Studies: Ethics GRAD 2-4
Seminar in special topics in health services management and policy with content varying from quarter to quarter.
Prereq: Grad standing in HSMP or permission of instructor. Repeatable to a maximum of 14 cr hrs.

870.05 Advanced Studies: Human Resources GRAD 2-4
Seminar in special topics in health services management and policy with content varying from quarter to quarter.
Prereq: Grad standing in HSMP or permission of instructor. Repeatable to a maximum of 14 cr hrs.

870.06 Advanced Studies: Marketing GRAD 2-4
Seminar in special topics in health services management and policy with content varying from quarter to quarter.
Prereq: Grad standing in HSMP or permission of instructor. Repeatable to a maximum of 14 cr hrs.

870.07 Advanced Studies: Quantitative Methods GRAD 2-4
Seminar in special topics in health services management and policy with content varying from quarter to quarter.
Prereq: Grad standing in HSMP or permission of instructor. Repeatable to a maximum of 14 cr hrs.

871 Introduction to Health Services Research GRAD 4
Provides an overview of the field of health services research and the role of health services research in improving health care delivery.
Wi Qtr. 2 2-hr cl. Prereq: PubH 701 and PubHEp 710, or permission of instructor.

875 Doctoral Seminar in Health Services Management and Policy
Doctoral level seminar on topics that are relevant to PhD students enrolled in Health Services Management and Policy.
Sp Qtrs. Prereq: Graduate standing in Public Health and permission of instructor. Repeatable to a maximum of 12 cr hrs.

880 Operations Management for Health Service Organizations
Concepts and techniques for managing operations in health service organizations; emphasis on management perspective and decision-making.
Wi Qtr. 2-2 hr cl. Prereq: Grad standing in HSMP or permission of instructor.

881 Topics in Health Services Operations Management
Selected topics in health services operations management, such as operations strategy, quality management, process design, materials management, and facility location.
Wi Qtr. Prereq: 870 or permission of instructor.

882 Information Systems for Health Services Organizations
Information systems concepts, issues, and challenges for health services organizations; emphasis on management perspective and decision-making.
Wi Qtr. 2-2 hr cl. Prereq: Grad standing in HSMP or permission of instructor.

900 Advanced Topics in Health Services Management
Seminar on issues and methods of inquiry in health services management and policy.
Arr. Prereq: Enrollment in PhD in public health or permission of instructor. Repeatable to a maximum of 12 cr hrs.

998 Thesis Research GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable. This course is graded S/U.

Quechua

501 Beginning Quechua I UGRD 5
Introduction to Quechua; development of listening, reading, speaking and writing skills.
Au, Wi Qtrs. Prereq: Spanish 104 or 104H or Portuguese 104 or 502 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit.

502 Beginning Quechua II UGRD 5
Continuation of Quechua I; development of listening, reading, speaking and writing skills.
Prereq: Quechua 501 or equivalent language experience. Not open to native speakers of this language through regular course enrollment or EM credit.

Radiologic Sciences and Therapy

200 Careers in Radiologic Technology UGRD 2
Provides an orientation to radi tech and describes professional roles and responsibilities available within health care. Professional and career development opportunities described.
Au, Wi Qtrs. 1 cl. A direct field experience will provide the student with 10 hours of clinical experience in the Radiology Department of a clinical affiliate. E200 may be available for honors embedded experience.
210H Interdisciplinary Research: Osteoporosis UGRD 3
Diagnosis, Prevention, and Treatment
An interdisciplinary team approach to research on the diagnosis, prevention, and
treatment of osteoporosis is presented. Students will complete a pre-pilot project of
their own design.
Wi Qtr. 2-hr cl, 4 hrs clinical. Prereq: 2nd yr standing honors student. Not open to
students with credit for Med Diet H2110. Cross-listed in Medical Dietetics.

310 Patient Care in Medical Imaging UGRD 3
Principles of patient care including analysis of ethical and legal issues pertaining to the
delivery of medical imaging services.
Au Qtr. 2 1.5-hr cl. Prereq: Enrollment in Radiologic Sciences and Therapy Division.

311 Patient Care, Ethics and Law in Radiation Therapy UGRD 3
An overview of patient care, ethics, legalities, and patients rights in radiation therapy,
including consideration for the physical and psychological needs of the patient/family.
Wi Qtr. 2 1-hr cl, 1 2-hr lab. Prereq: Enrollment in Radiation Therapy program.

411 Radiographic Procedures I UGRD 4
Principles of radiography of the chest, bronchial tree, abdomen, urinary systems,
alimentary tract, and appendicular skeleton, with application in the laboratory.
Au Qtr. 3 cl, 1 2-hr lab. Prereq: Permission of instructor and enrollment in rad tech; concur: 440.

412 Radiographic Procedures II UGRD 4
Principles of radiography of the vertebral column, spinal canal, bony thorax, cerebral
and visceral cranium, mammary glands, and reproductive systems.
Wi Qtr. 3 cl, 1 2-hr lab. Prereq: 411.

414 Radiation Therapy Techniques I UGRD 3
Introduction to the technical aspects of radiation therapy including terminology and
technical parameters. Modalities of treatment and patient preparation considerations are
discussed.
Au Qtr. 2 cl, 1 2-hr lab. Prereq: Enrollment in the Radiation Therapy Program.

415 Radiation Therapy Techniques II UGRD 3
Focus on simulation and treatment machine components, QA and functions. The
methods and importance of the precise beam alignment will be emphasized.
Wi Qtr. 2 1.5-hr cl. Prereq: 414.

416 Radiation Therapy Simulation UGRD 1
Designed to introduce students to the simulation techniques used for each of the
different body sites that are treated with radiation therapy.
Su Qtr. 1 2-hr lab. Prereq: Enrollment in Radiation Therapy program; concurrent with
550.42.

420 Basic Elements of Sonography UGRD 3
An introduction to the medical sonography profession and ultrasound physics with an
emphasis on abdominal and OB/GYN diagnostic medical sonography.
Au Qtr. 2 1.5-hr cl. Prereq: Enrollment in Diagnostic Medical Sonography program.

425 Principles of Radiologic Imaging I UGRD 3
Investigation of the principles of radiation protection and radiologic imaging; include
accessory equipment used in radiology departments.
Au Qtr. 3 cl. Prereq: Enrollment in diagnostic medical sonography.

426 Principles of Radiologic Imaging II UGRD 4
Evaluation of image quality, including sensitometry, processor monitoring, and
accessory devices.
Sp Qtr. 3 cl, 1 2-hr lab. Prereq: 425.

430 Obstetric and Gynecologic Sonography UGRD 4
Provides instruction in the care and imaging of patients for obstetric and gynecologic
diagnostic medical sonography procedures.
Wi Qtr. 2 2-hr cl. Prereq: Enrollment in Diagnostic Medical Sonography program.

431 Abdominal Sonography UGRD 4
Provides content information about the use of sonography to image anatomy and
pathology associated with the abdominal organs.
Sp Qtr. 2 2-hr cl. Prereq: Enrollment in Diagnostic Medical Sonography program.

432 Superficial Structures Sonography UGRD 3
Focuses on the use of medical sonography to image anatomy and pathology associated
with the neck, breast, scrotum, and extremities.
Su Qtr. 2 1.5-hr cl. Prereq: Enrollment in Diagnostic Medical Sonography program.

440.01 Applied Medical Imaging and Therapeutics UGRD 1-6
1 - Radiography
Clinical application of diagnostic radiographic and fluoroscopic imaging performed in
radiology.
Au Qtr. Prereq: Enrollment in rad tech. Repeatable to a maximum of 8 cr hrs. A direct
field experience will provide the student with 16-24 hours of clinical experience in
imaging and radiation oncology departments of a clinical affiliate.
487 Ultrasound Physics II UGRD 3
A continuation of Rad Sci 486 with emphasis on the physics of ultrasound with practical application to obstetrics and gynecologic sonography. Sp Qtr. 2 1.5-hr cl. Prereq: Enrollment in Diagnostic Medical Sonography program.

488 Ultrasound Physics III UGRD 3
A continuation of Rad Sci 487 with emphasis on the physics of spectral Doppler, color Doppler, and total quality management with practical application to sonography. Su Qtr. 2 1.5-hr cl. Prereq: Enrollment in Diagnostic Medical Sonography program.

520 Vascular Sonography I UGRD 3
An introduction to venous imaging and noninvasive testing of the upper and lower extremities. Au Qtr. 2 1.5-hr cl. Prereq: Enrollment in Radiologic Sciences and Therapy - Sonography.

521 Vascular Sonography II UGRD 3
An introduction to arterial imaging and noninvasive testing of the upper and lower extremities. Wi Qtr. 2 1.5-hr cl. Prereq: Enrollment in Radiologic Sciences and Therapy - Sonography, Rad Sci 520.

522 Vascular Sonography III UGRD 3
An introduction to sonographic imaging and noninvasive testing of the vascular integration of the carotid arteries, bypass grafts, and transplanted organs. Sp Qtr. 2 1.5-hr cl. Prereq: Enrollment of Radiologic Sciences and Therapy - Sonography, Rad Sci 520, 521.

530 Quality Management in the Radiologic UGRD 4
Investigation of quality management principles and techniques specific to the imaging sciences including modality specific quality control testing and national/state requirements. Au Qtr. 3 cl, 12-hr lab. Prereq: 425.

540.01 Applied Medical Imaging and Therapeutics UGRD 1-6
II - Radiography
Clinical application of diagnostic radiographic and fluoroscopic procedures performed in medical imaging. Su Qtr. Prereq: Enrollment in rad tech. Repeatable to a maximum of 10 cr hrs. A direct field experience will provide the student with 16-24 hours of clinical experience in imaging and radiation oncology departments of a clinical affiliate.

540.02 Applied Medical Imaging and Therapeutics UGRD 1-6
II - Radiography
Clinical application of diagnostic radiographic and fluoroscopic procedures performed in medical imaging. Su Qtr. Prereq: Enrollment in rad tech. Repeatable to a maximum of 10 cr hrs. A direct field experience will provide the student with 16-24 hours of clinical experience in imaging and radiation oncology departments of a clinical affiliate.

540.03 Applied Medical Imaging and Therapeutics UGRD 1-6
II - Radiography
Clinical application of diagnostic radiographic and fluoroscopic procedures performed in medical imaging. Au Qtr. Prereq: Enrollment in rad tech. Repeatable to a maximum of 10 cr hrs. A direct field experience will provide the student with 16-24 hours of clinical experience in imaging and radiation oncology departments of a clinical affiliate.

540.04 Applied Medical Imaging and Therapeutics UGRD 1-6
II - Radiography
Clinical application of diagnostic radiographic and fluoroscopic procedures performed in medical imaging. Wi Qtr. Prereq: Enrollment in rad tech. Repeatable to a maximum of 10 cr hrs. A direct field experience will provide the student with 16-24 hours of clinical experience in imaging and radiation oncology departments of a clinical affiliate.

540.05 Applied Medical Imaging and Therapeutics UGRD 1-6
II - Radiography
Clinical application of diagnostic radiographic and fluoroscopic procedures performed in medical imaging. Sp Qtr. Prereq: Enrollment in rad tech. Repeatable to a maximum of 10 cr hrs. A direct field experience will provide the student with 16-24 hours of clinical experience in imaging and radiation oncology departments of a clinical affiliate.

541.01 Applied Radiation Therapy II UGRD 1-6
Continuation of Rad Sci 441 with clinical application of advanced planning and treatment procedures performed in radiation therapy. Su Qtr. Prereq: Enrollment in Radiation Therapy program. Repeatable to a maximum of 20 cr hrs.

541.02 Applied Radiation Therapy II UGRD 1-6
Continuation of Rad Sci 441 with clinical application of advanced planning and treatment procedures performed in radiation therapy. Su Qtr. Prereq: Enrollment in Radiation Therapy program. Repeatable to a maximum of 20 cr hrs.

541.03 Applied Radiation Therapy II UGRD 1-6
Continuation of Rad Sci 441 with clinical application of advanced planning and treatment procedures performed in radiation therapy. Au Qtr. Prereq: Enrollment in Radiation Therapy program. Repeatable to a maximum of 20 cr hrs.

541.04 Applied Radiation Therapy II UGRD 1-6
Continuation of Rad Sci 441 with clinical application of advanced planning and treatment procedures performed in radiation therapy. Wi Qtr. Prereq: Enrollment in Radiation Therapy program. Repeatable to a maximum of 20 cr hrs.

541.05 Applied Radiation Therapy II UGRD 1-6
Continuation of Rad Sci 441 with clinical application of advanced planning and treatment procedures performed in radiation therapy. Sp Qtr. Prereq: Enrollment in Radiation Therapy program. Repeatable to a maximum of 20 cr hrs.

542.01 Applied Diagnostic Medical Sonography II UGRD 1-6
Continuation of Rad Sci 442 emphasizing instruction and experience in the performance and interpretation of superficial and small structure sonographic imaging. Su Qtr. Prereq: Enrollment in Diagnostic Medical Sonography program. Repeatable to a maximum of 18 cr hrs.

542.02 Applied Diagnostic Medical Sonography II UGRD 1-6
Continuation of Rad Sci 442 emphasizing instruction and experience in the performance and interpretation of superficial and small structure sonographic imaging. Au Qtr. Prereq: Enrollment in Diagnostic Medical Sonography program. Repeatable to a maximum of 18 cr hrs.

542.03 Applied Diagnostic Medical Sonography II UGRD 1-6
Continuation of Rad Sci 442 emphasizing instruction and experience in the performance and interpretation of superficial and small structure sonographic imaging. Au Qtr. Prereq: Enrollment in Diagnostic Medical Sonography program. Repeatable to a maximum of 18 cr hrs.

542.04 Applied Diagnostic Medical Sonography II UGRD 1-6
Continuation of Rad Sci 442 emphasizing instruction and experience in the performance and interpretation of superficial and small structure sonographic imaging. Wi Qtr. Prereq: Enrollment in Diagnostic Medical Sonography program. Repeatable to a maximum of 18 cr hrs.

542.05 Applied Diagnostic Medical Sonography II UGRD 1-6
Continuation of Rad Sci 442 emphasizing instruction and experience in the performance and interpretation of vascular sonographic imaging. Sp Qtr. Prereq: Enrollment in Diagnostic Medical Sonography program. Repeatable to a maximum of 18 cr hrs.

550.41 Practica: Cardiovascular and Interventional Radiologic Procedures UGRD 1-4
Theory and clinical education in radiographic and therapeutic interventional procedures related to vascular structures and organ systems. Su, Au, Wi, Sp Qtrs. 1 cl, 4-16 hrs clinical education. Prereq: Enrollment in rad tech or permission of instructor. Repeatable to a maximum of 17 cr hrs. 6 cr hrs required of rad tech majors.

550.42 Practica: Computed Tomography UGRD 1-4
Theory and clinical education in computed tomographic procedures. Su, Au, Wi, Sp Qtrs. 1 cl, 4-16 hrs clinical education. Prereq: Enrollment in rad tech or permission of instructor. Repeatable to a maximum of 17 cr hrs. 6 cr hrs required of rad tech majors.

550.60 Practica: Magnetic Resonance Technology UGRD 1-4
Theory and clinical education in magnetic resonance procedures. Su, Au, Wi, Sp Qtrs. 1 cl, 4-16 hrs clinical education. Prereq: Enrollment in rad tech or permission of instructor. Repeatable to a maximum of 17 cr hrs. 6 cr hrs required of rad tech majors.

550.65 Practica: Mammography UGRD 1-4
Theory and clinical education in mammographic procedures. Su, Au, Wi, Sp Qtrs. 1 cl, 4-16 hrs clinical education. Prereq: Enrollment in rad tech or permission of instructor. Repeatable to a maximum of 17 cr hrs. 6 cr hrs required of rad tech majors.

550.75 Practica: Pediatric Imaging Procedures UGRD 1-4
Theory and clinical education in pediatric medical imaging. Su, Au, Wi, Sp Qtrs. 1 cl, 4-16 hrs clinical education. Prereq: Enrollment in rad tech or permission of instructor. Repeatable to a maximum of 17 cr hrs. 6 cr hrs required of rad tech majors.

550.80 Practica: Operation of a Medical Imaging Department UGRD 1-4
Methods of delivering radiological services including evaluation of equipment, personnel, budgeting, and the impact of federal equipment regulations. Su, Au, Wi, Sp Qtrs. 1 cl, 4-16 hrs clinical education. Prereq: Alli Med 630 or Bus-MHR 490; enrollment in rad tech or permission of instructor. Repeatable to a maximum of 17 cr hrs. 6 cr hrs required of rad tech majors.
550.81 Practica: Quality Control in Diagnostic Medical Imaging
Examination of quality control methods utilized for radiographic CT and MRI imaging including management, implementation, and evaluation aspects. Su, Au, Wi, Sp. Prereq: Enrollment in rad tech or permission of instructor. Concur: 530, or permission of instructor. Repeatable to a maximum of 17 cr hrs. 6 cr hrs required of rad tech majors.

550.82 Practica: Radiology Informatics
Theory and clinical education in radiology informatics operations and management. Su, Au, Wi, Sp Qtrs. 1-hr cl, 4-16 hrs clinical. Prereq: 426, 560, and CS&E 100 or Allied Med 648 or 650 or equiv.; enrollment in rad tech or permission of instructor. Repeatable to a maximum of 17 cr hrs. 6 cr hrs required of rad tech majors.

550.90 Practica: Radiologic Technology Instruction
Planned professional teaching experience under supervision in a radiologic technology education program. Su, Au, Wi, Sp Qtrs. 1 cl, 4-16 hrs clinical education. Prereq: Enrollment in rad tech or permission of instructor. Repeatable to a maximum of 17 cr hrs. 6 cr hrs required of rad tech majors.

560 Medical Imaging Modalities
Investigation of the basic physical principles of medical imaging modalities and radiation oncology. Sp Qtr. 3 cl. Prereq: Enrollment in rad tech.

565 Administrative Aspects of Radiologic Technology
Analysis of radiology department management, evaluation of radiographic equipment, federal equipment specifications, accreditation, and licensure. Sp Qtr. 2 cl. Prereq: Enrollment in rad tech.

572 Applied Nuclear Medicine I
Observation and participation in performing static and dynamic examinations requiring the use of radiopharmaceuticals. Su, Au, Wi, Sp Qtrs. 4-24 hrs clinical education. Prereq: Enrollment in rad tech and permission of instructor. Not open to students with credit for 550.70. Repeatable to a maximum of 17 cr hrs.

573 Applied Technical Oncology I
Introduction to neoplastic disease including incidence, mortality, epidemiology, etiology, detection, prevention, risk, stage and grading. Course emphasizes radiation oncology treatment considerations and modalities. Wi Qtr. 2 cl. Prereq: Enrollment in radiation therapy program. No field experience.

574 Applied Technical Oncology II
Provides the student with the cognitive skills necessary to assess the types of neoplasms and integrate this knowledge with the oncology treatment process. Sp Qtr. 4 1-hr cl, 1 2-hr lab. Prereq: 573.

590 Introduction to Angiography
Introduction to the basic techniques employed in vascular and interventional procedures; emphasis placed on anatomical structures demonstrated, the equipment, and contrast agents used. Sp Qtr. 2 cl. Prereq: Enrollment in rad tech. Repeatable to a maximum of 9 cr hrs.

595 Seminar
Conferences, group discussions, and presentations of selected topics. Su, Au, Wi, Sp Qtrs. 1 3-hr cl. Prereq: Enrollment in rad tech. Repeatable to a maximum of 9 cr hrs.

615 Radiographic Clinical Correlations
Correlations of clinical experience relative to patient's medical history and quality and appropriateness of diagnostic images. Wi Qtr. 3 cl. Prereq: Enrollment in rad tech.

616 Advanced Clinical Correlations
Advanced fundamentals of radiographic diagnosis; emphasis on the correlations of the patient's medical history with the medical findings. Sp Qtr. 2 1.5-hr cl. Prereq: 615 and Sr standing in rad tech. Requires enrollment in a Rad Tech 550 series to facilitate the research paper topic being integrated with the specialty study.

618 Clinical Radiation Oncology Practice
Principles of neoplasms of the human body emphasizing epidemiology, clinical presentation, detection and diagnosis, staging and treatment techniques of the neoplasm relevant to radiation oncology. Sp Qtr. 2 1-hr cl. Prereq: Enrollment in Radiation Therapy program.

630.01 Transitions to the Imaging Workplace - Radiography
Provides the practical skills necessary to apply radiographic theory in clinical practice and prepares students for the transition from student to professional radiographer. Sp Qtr. 1 cl. Prereq: Sr standing in rad sci - radiography. This course is available for EM credit.

630.02 Transitions to the Imaging Workplace - Radiation Therapy
Provides the practical skills necessary to apply radiation therapy theory in clinical practice and prepares students for the transition from student to professional radiation therapist. Sp Qtr. 1 cl. Prereq: Sr standing in rad sci - radiation therapy. This course is available for EM credit.

630.03 Transitions to the Imaging Workplace - Diagnostic Sonography
Provides the practical skills necessary to apply diagnostic sonographic theory in clinical practice and prepares students for the transition from student to professional sonographer. Sp Qtr. 1 cl. Prereq: Sr standing in rad sci - diagnostic medical sonography. This course is available for EM credit.

670 Radiobiology for the Radiologic Technologist
Fundamentals of radiobiological principles and radioprotective procedures, including cellular and whole body as it relates to radiologic technology. Wi Qtr. 3 cl. Prereq: Enrollment in rad tech.

671 Radiobiology for Radiation Therapy
Principles of cellular biology and the reactions from types of ionizing radiation specific to radiation therapy. Emphasis is on the cellular effects from radiation exposure. Wi Qtr. 2 1.5-hr cl. Prereq: Enrollment in Radiation Therapy program.

672 Radiologic Sectional Anatomy
Identification of anatomic structures as seen in cadaver. Sp Qtr. 2 cl, 1 2-hr lab. Prereq: Enrollment in rad tech or permission of instructor.

740.01 Applied RA Practicum I
Students actively engage in the performance and analysis of various radiologic examinations and procedures. Su Qtr. Prereq: Admission to RA program, completion of comprehensive examination. This course is graded S/U.

740.02 Applied RA Practicum II
Students actively engage in the performance and analysis of various radiologic examinations and procedures. Au Qtr. Prereq: Admission to RA Program, completion of comprehensive examination; completion of 740.01. This course is graded S/U.

740.03 Applied RA Practicum III
Students actively engage in the performance and analysis of various radiologic examinations and procedures. Wi Qtr. Prereq: Admission to RA Program, completion of comprehensive examination; completion of 740.01 and 740.02. This course is graded S/U.

740.04 Radiologic Anatomy
Analysis of various radiographic examinations and the opportunity to make presentations. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

750 Radiologic Anatomy
Anatomy of specific regions or areas as it applies to the interpretation and understanding of diagnostic images. Sp Qtr. Prereq: Satisfactory completion of Med Coll 662, or Anatomy 712 or equiv and permission of instructor. Repeatable to a maximum of 8 cr hrs. Cross-listed with Cell Biology, Neurobiology and Anatomy 750.

813 Magnetic Resonance Spectroscopy and Imaging I
Presentation of the basic principles of MRM/RS, including basic MR physics, pulse sequences, adiabatic excitation, coil design, MR hardware, image formation, localized spectroscopy. * Wi Qtr. 2 1.5-hr cl. Prereq: Chem 521 or equiv, Biochem 511 or equiv, grad standing, and permission of instructor. Cross-listed in Biomedical Engineering.
450 Arterial Blood Gas Analysis UGRD 3

Study of the methods and procedures for obtaining arterial blood, the principles and standards of analysis, and application of the physiologic data. Wi Qtr. 2 1-hr cl, 1 2-hr lab. Prereq: 320, 430.

460 Pulmonary Function Testing UGRD 3

Study of the instruments and techniques for the evaluation of pulmonary function in both normal and abnormal subjects. Wi Qtr. 2 1-hr cl, 1 2-hr lab. Prereq: 400, 430.

475 Mechanical Ventilation UGRD 4

Study of mechanical ventilation, including basic principles of MRU/MRS including basic MR physics, pulse sequences, adiabatic excitation coil design, MR hardware, image formation, localized spectroscopy. * Sp Qtr. 2 1.5-hr cl. Prereq: 320, 430. Grad standing, permission of instructor. Cross-listed in Biomedical Engineering.

480 Respiratory Disease UGRD 2

Selected topics of particular current interests in both research and applications of ionizing radiation in the treatment of cancer. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

480.09 Seminar: Radiation Oncology UGRD 1

Selected topics of particular current interests in both research and applications of ionizing radiation in the treatment of cancer. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

480.10 Seminar: Radiobiology UGRD 1

Selected topics of particular current interests in both research and applications of ionizing radiation in the treatment of cancer. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

480.20 Seminar: Physics of Imaging UGRD 1

Selected topics of particular current interests in both research and applications of ionizing radiation in the treatment of cancer. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

480.26 Seminar: Physics of Radiation Therapy UGRD 1

Selected topics of particular current interests in both research and applications of ionizing radiation in the treatment of cancer. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

891.01 Interdisciplinary Seminar on Biomedical Imaging UGRD 1-2

Graduate seminar for Graduate Interdisciplinary Specialization in Comprehensive Engineering and Science of Medical Images. Prereq: 400, 410, 430, 450. Wi Qtr. 1 2-hr cl, 1 2-hr lab. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

999 Research in Radiology UGRD 1-18

Research for thesis purposes only. Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.

Respiratory Therapy

320 Components of Respiratory Health UGRD 4

Survey of normal respiratory mechanisms with specific consideration for the basis of respiratory therapeutics, the respirable environment and the role of the therapist. Au Qtr. 2 2-hr cl, 2 3-hr labs. Prereq: Admission to the Resp Ther Division.

400 Basic Respiratory Care UGRD 6

Study of the principles, procedures, and equipment utilized in delivering, monitoring, and evaluating basic respiratory therapeutics to patients with compromised respiratory function in the hospital setting. Au Qtr. 2 2-hr cl, 2 3-hr labs. Prereq: Admission to Resp Ther Division.

410 Introduction to Clinical Respiratory Care UGRD 4

Introduction to basic cardiopulmonary assessment and life support techniques, infection control, the medical record, and the clinical environment. Au Qtr. 1 1-hr cl, 1 3-hr lab, 1 3-hr clinical. Prereq: Admission to Resp Ther Division.

420 Pulmonary Rehabilitation and Continuing Care UGRD 3

Theories, procedures, equipment, standards, organizations, and legislation applicable to the delivery of respiratory therapeutics in non-hospital settings. Wi, Sp Qtr. 1 2-hr cl, 1 2-hr lab. Prereq: 400.

430 Pulmonary Function Testing UGRD 3

A study of the methods and procedures for obtaining pulmonary functions with consideration of mechanical and electronic principles of testing equipment. Au Qtr. 1 2-hr cl, 1 3-hr lab. Prereq: or concur: 320.

450 Arterial Blood Gas Analysis UGRD 3

A study of the methods and procedures for obtaining arterial blood, the principles and standards of analysis, and application of the physiologic data. Wi Qtr. 1 2-hr cl, 1 2-hr lab. Prereq: 320, 430.
600 Fundamentals of Respiratory Care Research UGRD 3
Survey of research problems, methods, and designs utilized in respiratory care, with emphasis on data presentation and analysis.
Au Qtr. 2 1.5-hr cl. Prereq: Psych 220, or Stat 135 or 145 or equiv, and 4th yr or grad standing.

Romance Linguistics

692 The Romance Languages UGRD 5
Examines the socio-historical factors and the linguistic processes that contributed to the Romance languages and to their divergences.
3 1.5-hr cl. Prereq: One year of a Romance language or permission of instructor. Not open to students with credit for French 692 or Italian 692. Cross-listed in French and Italian. Offered bi-annually. Taught in English. This course counts toward the Italian major (as one of the two courses taught in English), the French major (as an elective for all the major tracks), the Linguistics major or minor, the Spanish major (as an elective and the one course taught in English permitted to count for the major).

811 Romance Linguistics I GRAD 5
A general survey of the development of the Romance languages and an introduction to the basic materials and techniques of investigation.
* 2 2-hr cl. Prereq: Permission of instructor.

812 Romance Linguistics II GRAD 5
Topics and problems, both synchronic and diachronic; special attention to the minor Romance languages.
* 2 2-hr cl. Prereq: 811 or permission of instructor.

831 Seminar in Romance Linguistics GRAD 3-5
Seminar in Romance Linguistics.
* Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor.

893 Individual Studies GRAD 1-5
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

894 Group Studies GRAD 1-15
Investigation of minor problems in the various fields of Romance linguistics.
Prereq: Written permission of instructor. Repeatable to a maximum of 30 cr hrs.

999 Research in Romance Linguistics GRAD 1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Romanian

101 Elementary Romanian UGRD 5
Extensive practice in the basic language skills.
Au Qtr. Not open 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. GEC for lang course.

102 Elementary Romanian UGRD 5
The elements of Romanian grammar with oral and written exercises; development of conversational skill; reading, vocabulary building, attention to Romanian idioms.
Wi Qtr. 5 cl. Prereq: 101. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course.

104 Intermediate Romanian UGRD 5
Reading, oral and written practice, grammar review; balanced use of the four basic skills (reading, oral comprehension, speaking, and writing).
Au Qtr. 5 cl. Prereq: 112 or equiv with permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

111 Intensive Intermediate Romanian UGRD 10
An intensive course that combines the content of two quarters of Romanian to complete the presentation of the basic Romanian grammar and readings based on Romanian geography, history, and customs.
Prereq: 102. Equivalent to the third and fourth courses of the foreign language sequence; successful completion of 101-102-111 fulfills the Arts and Sciences foreign language requirement. Not open to students with credit for 104; or to native speakers of this language through regular course enrollment or EM credit. Students with credit for 103 or equiv will enroll for 5 cr hrs. GEC for lang course.

235 Introduction to Romanian Culture UGRD 5
Romanian literature in its cultural context, survey of the relationship of literature, art, cultural traditions from the beginnings to the present. Taught in English. GEC arts and hums cultures and ideas course.

293 Individual Studies UGRD 1-5
Individual studies in Romanian.
Au, Wi, Sp Qtrs. Prereq: Permission of dept. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.
693.04 Individual Studies: Research Methods in Rural Sociology
Prereq: 2.50 cumulative pt/hr ratio and written permission of instructor. Prereq: 2.5 cp/hr and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

693.05 Individual Studies: Rural Community and Institutions
Prereq: 2.50 cumulative pt/hr ratio and written permission of instructor. Prereq: 2.5 cp/hr and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

693.06 Individual Studies: Community Development
Prereq: 2.50 cumulative pt/hr ratio and written permission of instructor. Prereq: 2.5 cp/hr and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

693.07 Individual Studies: Diffusion of Technology
Prereq: 2.50 cumulative pt/hr ratio and written permission of instructor. Prereq: 2.5 cp/hr and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

693.08 Individual Studies: General Rural Sociology Individual Studies
Prereq: 2.50 cumulative pt/hr ratio and written permission of instructor. Prereq: 2.5 cp/hr and permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

694 Group Studies
An intensive study of a selected area in rural sociology appropriate to the needs of the group not provided in other courses.

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

733 Sociology of Agriculture and Food Systems
Overview of sociological theory and research related to agricultural change and food system development, focusing on individual, family, community and environmental impacts.

742 Concepts and Theories in Rural Sociology
Examines the sociological significance of "rurality" and the conceptual perspectives applied to major substantive areas in rural sociology, such as community, environment, and agriculture.

766 Environmental Sociology
Sociological approaches to the study of environmental policy. Analysis of major issues relating to the use and abuse of natural resources.

788 Sociological Theory Applied to Domestic Development
Application of general sociological theories and development research findings to the analysis of domestic rural development; emphasis upon consensus and conflict models.

789 Survey Research Practicum
Hands-on applications for students interested in the planning, implementation, and analysis of a scientific sample survey.

888 Social Action in Community Development
Analysis of the social action process and its application to rural community development.

892 Rural Sociology of Development and Social Change
Overview of sociological principles, theories, and practice applied to international development and social change in rural settings.

999 Research
Research for thesis and dissertation purposes only.

** Russian

101.01 Elementary Russian I
Development of oral and written language skills.

102.01 Elementary Russian II
Development of oral and written language skills.

103.01 Intermediate Russian I
Readings, oral and written practice, grammar review.

103.05 Intermediate Russian II: Individualized Track
Readings, oral and written practice, grammar review.

104.01 Intermediate Russian II
Readings, oral and written practice, grammar review. Balanced use of the four basic skills: reading, oral comprehension, speaking, and writing; emphasis on Russian literary texts.

105.01 Intermediate Russian II: Individualized Track
Readings, oral and written practice, grammar review: Individualized Track.
110 Intensive Elementary Russian  UGRD  5-10
An intensive course combining the content of 101.01 and 102.01.
* Not open to students with credit for 102, 102 decimal subdivisions, or 112, or to native speakers of this language through regular course enrollment or EM credit. Students with credit for 101 or any cr hrs of 101 decimal subdivisions may not register for more than 5 cr hrs. Equiv of first and second courses of the foreign language sequence; successful completion of 110-103-104 or 110-111 fulfills the ASC foreign language requirement. GEC for lang course.

111 Intensive Intermediate Russian  UGRD  5-10
An intensive course combining the content of 103.01 and 104.01.
* Prereq: 102. Not open to students with credit for 104 or 104 decimal subdivisions; or to native speakers of this language through regular course enrollment or EM credit. Equiv to third and fourth courses of the foreign language sequence; successful completion of 101-102-111 fulfills the Arts and Sciences foreign language requirement. Students with credit for 103 or any hours of 103 decimal subdivisions, or 112 may not register for more than 5 cr hrs. GEC for lang course.

135 Introduction to Russian Culture  UGRD  5
Russian literature in its cultural context, survey of the relationship of literature, art, music, and drama from the beginnings to the present.
Su, Au, Wi, Sp Qtrs. Taught in English. GEC arts and hums cultures and ideas course.

235 Modern Russian Culture: Magnificence, UGRD  5
Mayhem, and Mafia
Modern Russian culture (magnificence, mayhem, and mafia) through analysis of literature, film, and visual arts.
4 cl. Taught in English. GEC arts and hums cultures and ideas course.

250 Masterpieces of 19th Century Russian UGRD  5
Literature
Reading and analysis of great works of 19th century Russian literature by authors such as Alexander Pushkin, Ivan Turgenev, Fyodor Dostoevsky, Leo Tolstoy, and Anton Chekhov.
Su, Au, Wi, Sp Qtrs. Taught in English. GEC arts and hums lit course.

501 Contemporary Russian in Cultural and Literary Contexts I  UGRD  5
An intermediate Russian language course designed to improve the student's ability to communicate accurately and effectively in spoken and written Russian. Au Qtr. Prereq: 402.01 or 407.01, 5 cr hrs of 402.51 or 407.51, or permission of instructor.

502 Contemporary Russian in Cultural and Literary Contexts II  UGRD  5
An intermediate Russian language course designed to improve the student's ability to communicate accurately and effectively in spoken and written Russian. Wi Qtr. Prereq: 501 or 560, or permission of instructor.

503 Current Events through Russian Media  UGRD  5
An introduction to the Russian mass media with an emphasis on current events; focuses on developing skills for approaching written and oral native Russian texts. Sp Qtr. Prereq: 502 or 561, or permission of instructor.

511 Language Maintenance Course  UGRD  2
Intended for students desiring to maintain an active knowledge of Russian without enrolling in advanced courses in grammar, literature or linguistics. Intermediate level conversation and non-literary popular readings. 2 cl. Prereq: 407.01 or 407.51 or permission of instructor. Repeatable to a maximum of 12 cr hrs. Credit does not count for the major or minor. This course is graded S/U.

512 Practical Russian Conversation  UGRD  3
Contemporary Russian conversational patterns. Sp Qtr. 3 cl. Prereq: 30 hrs of Russian or permission or instructor. Not open to students with credit for 695, 895 or 995.

514 Camp Horizon (Lager’ Gorizont)  UGRD  1
A weekend total immersion Russian language camp; Russian only spoken; lectures, discussions, films, singing, dancing. * Friday 6 pm-Sunday 2 pm. Prereq: 560 or equiv, or permission of instructor. Repeatable to a maximum of 4 cr hrs. Travel and subsistence costs will be borne by the student. This course is graded S/U.

520 The Golden Age of Russian Literature  UGRD  5
Novels, stories, plays and poetry of the major early nineteenth-century Russian Writers, including Puskin, Lermontov and Gogol. Taught in English.

521 Russian Literature in the Age of Realism  UGRD  5
Exploration of the Age of Realism in Russia through prose writings of authors such as Turgenev, Dostoevsky, Tolstoy, Chernyshevsky, and Chekhov.
Prereq: English 110 or equiv. Taught in English.

522 Modernism and Revolution in Russian Literature  UGRD  5
Decadent, modernist and avant-garde currents in Russian literature and culture at the beginning of the 20th century. Taught in English.

523 Rise and Fall of Soviet Literature  UGRD  5
Literature of the Soviet and post-Soviet period representing some of the broad artistic and intellectual movements, such as socialist realism and postmodernism.

571 Basic Russian for Graduate Students  GRAD  5
Basic elements of Russian grammar.
Prereq: Grad standing. Credit does not apply to the minimum hours required for the master's or doctoral degrees.

572 Russian for Research I  GRAD  3
Russian for Research I.
Prereq: Grade of C or above in 571 or equiv. Credit does not apply to the minimum hours required for the master's or doctoral degrees. Repeatable to a maximum of 6 cr hrs. Satisfactory completion of this course (grade A or B) may be accepted by the student's dept as evidence of a dictionary reading knowledge in fulfillment of PhD language requirement. No audit.

573 Russian for Research II  GRAD  3
Reading of difficult material at a reasonable rate of speed and with only infrequent use of dictionaries.
Prereq: Grade of A or B in 572 or equiv preparation demonstrated by a placement test and permission of instructor. Open only to grad students. Repeatable to a maximum of 6 cr hrs. Completion of this course with a grade of A or B may be accepted by the student's dept as evidence of a thorough reading knowledge of Russian. Credit does not apply to minimum hrs required for the master's or PhD degree. No audit.

580.51 Reading Russian: Individualized Track  UGRD  1-5
Readings from a variety of sources, development of reading strategies. Su, Au, Wi, Sp Qtrs. Prereq: 402.01 or 407.01, or 5 cr hrs of 402.51 or 407.51, or permission of instructor. Repeatable to a maximum of 5 cr hrs.

581.51 Reading Russian: Individualized Track  UGRD  1-5
Readings from a variety of sources, development of reading strategies. Su, Au, Wi, Sp Qtrs. Arr. Prereq: 580.51 or permission of instructor. Repeatable to a maximum of 5 cr hrs.
582.51 Russian Grammar Review: Individualized UGRD 1-5
Track
Intensive review of Russian grammar and syntax.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 582.51 or permission of instructor. Repeatable to a
maximum of 5 cr hrs.

601 Advanced Russian I UGRD 5
Speaking, listening, reading and writing practice in Russian at the Advanced level.
Prereq: 503 or 562, or permission of instructor.

602 Advanced Russian II UGRD 5
Speaking, listening, reading, and writing practice in Russian at the Advanced level.
Prereq: 601 or permission of instructor.

617 Business Russian UGRD 5
Simulated trade negotiations with the Russians providing sufficient terminology to
facilitate bi-lingual trade negotiations.
** Prereq: 30 hrs of Russian or permission of instructor.

631 Introduction to Russian Linguistics UGRD 3
An introduction to linguistic concepts useful in the study of Russian; survey of major
figures in Russian historical and descriptive linguistics.
Prereq: 30 cr hrs in Russian.

635 Practical Russian Pronunciation UGRD 5
Lectures and practical exercises, use of phonetic symbols, corrective exercises, and
problems of teaching pronunciation.
Prereq: 30 cr hrs in Russian.

640 Introduction to the Structure of Russian UGRD 5
Elements of Russian pronunciation and grammar with comparisons to English.

644 Russian Folklore UGRD 5
From the beginning to present; proverbs, the oral epic, historical songs, folktales, the
folk theatre; analysis of the folklore component in modern Russian literature.
* Taught in English.

650 Dostoevsky UGRD 5
Critical analysis of the major novels and shorter works; intellectual and literary
development of Dostoevsky.
Prereq: Permission of instructor required of undergrad non-majors. Given in English
but undergrad majors in Slavic will do prescribed portions of the reading in the
original; grad students in Slavic must read in the original items starred on the
departmental MA reading list.

651 Tolstoy UGRD 5
Analysis of all major works including the novels, plays, stories, and important
teleological works.
Prereq: Permission of instructor required of undergrad non-majors. Given in English
but undergrad majors in Slavic will do prescribed portions of the reading in the
original; grad students in Slavic must read in the original items starred on the
departmental MA reading list.

653 Russian Drama UGRD 5
Emphasis on the period from 1850 to present day; Ostrovsky, Chekhov, Gorky, Andreyev,
Blok, and Soviet writers Leonov and Kataev.
** Prereq: 10 cr hrs in Russian or other literature courses at the 200 level or above.
Given in English but undergrad majors in Slavic will do prescribed portions of the
reading in the original; grad students in Slavic must read in the original items starred on the
departmental MA reading list.

656 Russian Women Writers UGRD 5
The contributions of women writers to Russian literature and culture in the 19th and
20th centuries; emphasis on the contesting and transformation of gender roles.

657 Gender and National Identity in Russian UGRD 5
Cinema
Explores changes of Russian national and gender identities during the twentieth
century as reflected in Russian cinema.
Sp Qtr. 2:23 hr cl. Prereq: 360 or English 263 or 378 or Film Std 270 or Wom Stds 317 or
grad standing or permission of instructor. Cross-listed in Women's Studies. Taught in
English. No prior knowledge of Russian language required.

660 Basic Approaches to the Study of Russian UGRD 3
Literature
Historical overview of Russian literary criticism and theory; basic practical
approaches to the study of literary texts.
Prereq: Grad standing in dept or 25 hrs of Russian literature, or permission of instructor.

674 Russian Opera: Meanings and Identities UGRD 5
Study of Russian opera from 1836-1936 in relation to concurrent literary, cultural and
social developments.
2 1.5-hr cl. Not open to students with credit for Music 674. Cross-listed in Music.

675 Writing Seminar on Topics of Russian UGRD 5
Literature, Language, and Life
Junior-senior seminar explores issues of Russian language and literature, focusing on
reading in Russian and on honing English oral and writing skills.
Prereq: GEC 2nd writing course; jr or standing; or permission of instructor. Not
open to grad students in Slavic. Repeatable to a maximum of 15 cr hrs.

693.20 Individual Studies: Literature UGRD 2-10
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept chairperson. Repeatable to a
maximum of 30 cr hrs (including cr hrs in 693.01 through 693.08) in any combination of
decimal subdivisions. This course is graded S/U.

693.30 Individual Studies: Linguistics UGRD 2-10
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept chairperson. Repeatable to a
maximum of 30 cr hrs (including cr hrs in 693.01 through 693.08) in any combination of
decimal subdivisions. This course is graded S/U.

693.40 Individual Studies: Language UGRD 2-10
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept chairperson. Repeatable to a
maximum of 30 cr hrs (including cr hrs in 693.01 through 693.08) in any combination of
decimal subdivisions. This course is graded S/U.

693.50 Individual Studies: Unspecified UGRD 2-10
Su, Au, Wi, Sp Qtrs. Prereq: Permission of dept chairperson. Repeatable to a
maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
Not open to grad students in Slavic. Repeatable to a maximum of 15 cr hrs.
Not open to students with credit for that work.

711 Advanced Russian Linguistic Stylistics GRAD 5
Advanced study of Russian morphological, syntactic and semantic features and their
stylistic function in a literary text.
Prereq: 610 or permission of instructor. Repeatable to a maximum of 10 cr hrs.

720 History of the Russian Language UGRD 5
Survey of phonetic, morphological, and syntactic changes in Russian from prehistory
to the present.
Not open to students with credit for 820.

723 Topics in Russian Poetry UGRD 5
Topics vary: the history of Russian poetry, versification theory; literary schools such
as symbolism, formalism, or futurism; study of individual poets from any period.
Prereq: 610 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

750 Pushkin and his Time GRAD 5
Analysis of Eugene Onegin as poetry and an encyclopedia of the times; social,
political, and cultural trends in the 1820s and 1830s; romantic poets.
Prereq: 10 hrs of Russian literature at the 200 level or above or permission of instructor.

752 Turgenev, Chekhov, and Aspects of Russian UGRD 5
Realism
Study of Russian prose works outside of the satirical genre and others than the prose
of Dostoevsky and Tolstoy.
Prereq: 10 hrs of Russian or other literature at the 200 level or above, or permission of
instructor.

754 Contemporary 20th-Century Russian UGRD 5
Literature
Russian literature of the 1960s through the present.
Prereq: Grad standing and good reading ability in Russian; or permission of instructor

755 Film Adaptations of Russian Literature GRAD 5
This course examines how Russian literary classics have been transposed into Russian
and foreign cinema. Readings and films include Dostoevsky, Tolstoy, and Chekhov.
Sp Qtr. Prereq: grad standing or permission of instructor.

801 College Teaching of Russian I GRAD 5
Methods and techniques for teaching Russian at the college level, selection and
preparation of teaching and testing materials, the language laboratory, and other aids.
Au Qtr. Prereq: 611 or equiv, or permission of instructor. Requires participation in
intensive workshop in September.

826 Topics in the Structure of Russian GRAD 5
Analysis and description of the structure of contemporary standard Russian.
Prereq: 640 or equiv with permission of instructor. Repeatable to a maximum of 15 cr hrs.
827 Topics in the History of Russian  GRAD  5
Development of Russian from Common Slavic to contemporary standard Russian with consideration of its place within East Slavic.
Prereq: 720 or equiv with permission of instructor. Repeatable to a maximum of 15 cr hrs.

829 Old Russian Literature: 15th-17th Century  GRAD  5
Study of literary works of various genres cultivated in this period.

831 Russian Literature, 1650-1800  GRAD  5
The baroque period, classicism, and sentimentalism; emphasis on the classical period of the 18th century.
Prereq: 2nd yr grad standing or permission of instructor.

851 Seminar in Russian Literature, 1820-1917  GRAD  3-5
Seminar in Russian Literature, 1820-1917.
Repeatable to a maximum of 15 cr hrs.

852 Seminar in Russian Literature since 1917  GRAD  3-5
Seminar in Russian Literature since 1917.
Repeatable to a maximum of 15 cr hrs.

993.20 Individual Studies: Literature  GRAD  2-10
Prereq: Permission of dept chairperson. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

993.30 Individual Studies: Linguistics  GRAD  2-10
Prereq: Permission of dept chairperson. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

993.40 Individual Studies: Language  GRAD  2-10
Prereq: Permission of dept chairperson. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

993.50 Individual Studies: Unspecified  GRAD  2-10
Prereq: Permission of dept chairperson. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions. This course is graded S/U.

Sanskrit

621 Elementary Sanskrit  UGRD  5
Introduction to Indo-European, Indic, and Sanskrit; reading of introductory texts.
* Not open to students with credit for Linguist 621.

622 Classical Sanskrit  UGRD  5
Reading of classical Sanskrit texts.
* Prereq: 621 or permission of instructor. Not open to students with credit for Linguist 622.

Scandinavian

222 Nordic Mythology and Medieval Culture  UGRD  5
The myths and gods of northern Europe and the culture which produced them within a modern social and psychological context.
Taught in English. GEC arts and hums lit course.

500 Masterpieces of Scandinavian Literature  UGRD  5
Selected masterpieces of Scandinavian literature in European cultural context.
Taught in English. GEC arts and hums lit course.

513 The Icelandic Saga  UGRD  5
Introduces students to the Icelandic sagas, the greatest vernacular literature of the European Middle Ages.
Wi Qtr. 2-3 hr cl. Taught in English. GEC arts and hums lit course.

520 The Films of Ingmar Bergman  UGRD  5
Major works of Sweden's foremost director; stress on film as a creative expression of the development of modern aesthetic and philosophical concerns.
3 cl. Taught in English. GEC arts and hums VPA course.

571 Reading the Scandinavian Languages  UGRD  5
Fundamentals of grammar of the Scandinavian languages for research purposes in the humanities, sciences, and social and behavioral sciences.
5 cl.

693 Individual Studies  UGRD  2-5
Investigation of problems in the various fields of Scandinavian literature and philolog
Au, Wi, Sp Qtrs. Arr. Prereq: Permission of chairperson. Repeatable to a maximum of 25 cr hrs. This course is graded S/U.

710 Introduction to Old Norse-Icelandic  UGRD  5
Introduction to the grammar of Old Norse-Icelandic language. Brief overview of Old Norse literature and the context of its production.
Wi Qtr.

783H Honors Research  UGRD  3-5
A program of research for each student which includes individual conferences and which culminates in an honors thesis or oral defense.
Au, Wi, Sp Qtrs. Arr. Prereq: Approved candidacy for graduation with distinction, which includes faculty adviser and ASC Honors Committee approval of project, a minimum 3.50 pt-hr ratio in the field of distinction, or standing, and cumulative pt-hr ratio commensurate with honors program membership. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

Sensory Biophysics

601 Introduction to Sensory Biophysics  UGRD  5
Anatomy and function of sensory systems; psychophysical research methods; mathematical descriptions of information transfer; biophysical models.
Wi Qtr. 5 cl. Prereq: Biology 101 or 113 or H115, Chem 122, Physics 112, and Math 117.

Serbo-Croatian

101.01 Elementary Serbo-Croatian I  UGRD  5
Not open 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. GEC for lang course. FL Admis Cond course.

102.01 Elementary Serbo-Croatian II  UGRD  5
Prereq: 101 or 101.01 or 5 cr hrs of 101.51 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course.

103.01 Intermediate Serbo-Croatian I  UGRD  5
Prereq: 102 or 102.01 or 5 cr hrs of 102.51 or permission of instructor. Not open to native speakers of this languages through regular course enrollment or EM credit. GEC for lang course.

104.01 Intermediate Serbo-Croatian II  UGRD  5
Continuation of 103; development of the four skills.
Prereq: 103.01 or 5 cr hrs of 103.51 or equiv or permission of instructor. Not open to students with credit for 104 or 111; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

405.01 Conversation and Composition I  UGRD  5
Reading texts of moderate difficulty, conversation, and simple compositions.
Prereq: 104.01 or 5 cr hrs of 104.51 or 111 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit.

405.51 Conversation and Composition I: Individualized Track  UGRD  1-5
Reading texts of moderate difficulty, conversations, and simple compositions.
* Prereq: 104.01 or 5 cr hrs of 104.51 or 111 or permission of instructor. Students register for and complete from 1 to 5 cr hrs during the qtr. Repeatable to a maximum of 5 cr hrs. Progress is sequential from one cr hr to the next, with proficiency at the level of 80 percent required for advancement. Students may register for 405.51 and 407.51 concurrently with permission of instructor.

407.01 Conversation and Composition II  UGRD  5
Reading from modern Serbo-Croatian literature, practice in writing and speaking.

407.51 Conversation and Composition II: Individualized Track  UGRD  1-5
Reading from modern Serbo-Croatian literature; practice in writing and speaking.
Prereq: 405.01 or 5 cr hrs of 405.51 or permission of instructor. Students register for and complete from 1 to 5 cr hrs during the qtr. Repeatable to a maximum of 5 cr hrs. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 405.51 and 407.51 concurrently with permission of instructor.

580.51 Reading Serbo-Croatian I: Individualized Track  UGRD  1-5
Development of reading skills; short texts and headlines from contemporary popular journals and newspapers.
Arr. Prereq: 5 cr hrs of 407 or permission of instructor. Students register for and complete from 1 to 5 cr hrs during the qtr. Repeatable to a maximum of 5 cr hrs. Progress is sequential from one cr hr to the next with proficiency at the level of 80% required for advancement. Students may register for 405.51 and 580.51 concurrently with permission of instructor.

581.51 Reading Serbo-Croatian II: Individualized Track  UGRD  1-5
Continuation of 580.51; reading of somewhat more difficult unedited texts from contemporary magazines and newspapers; reading for comprehension without a dictionary.
Arr. Prereq: 5 cr hrs of 580.51 or permission of instructor. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next with proficiency at the level of 80% required for advancement. Students may register for 580.51 and 581.51 concurrently with permission of instructor.

413
### Shona

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>101</td>
<td>Elementary Shona I</td>
<td>5</td>
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<tr>
<td>102</td>
<td>Elementary Shona II</td>
<td>5</td>
</tr>
<tr>
<td>103</td>
<td>Intermediate Shona I</td>
<td>5</td>
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<tr>
<td>104</td>
<td>Intermediate Shona II</td>
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### Slavic and East European Studies

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>694</td>
<td>Group Studies</td>
<td>UGRD 1-5</td>
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</table>

Selected topics focusing on Slavs and East Europeans and the countries of Eastern Europe.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.

### Slavic Languages and Literatures

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>130</td>
<td>Introduction to Slavic Culture: The Vampire in Eastern European Culture</td>
<td>5</td>
</tr>
<tr>
<td>245</td>
<td>Introduction to Slavic Literature and Culture</td>
<td>5</td>
</tr>
<tr>
<td>294</td>
<td>Group Studies</td>
<td>UGRD 1-5</td>
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<tr>
<td>360</td>
<td>Screening Minorities: Representations of the Other in Slavic Film</td>
<td>5</td>
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<tr>
<td>520.01H</td>
<td>Slavic and European Cities: The City of Sarajevo</td>
<td>5</td>
</tr>
<tr>
<td>583H</td>
<td>Cinderella's Fantasy: Gender and Women in Western and Eastern Europe</td>
<td>5</td>
</tr>
<tr>
<td>584H</td>
<td>Dead Man Writing: Literary Representations of Capital Punishment</td>
<td>5</td>
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</tbody>
</table>

### 672 Reading of Selected Slavic Languages

UGRD 5

Reading of elementary and intermediate texts and translation into English.
Prereq: 671 (same language) or equiv. Repeatable to a maximum of 25 cr hrs.
Individual languages not repeatable. Taught in English.

### 693.20 Individual Studies: Literature

UGRD 2-10

Prereq: Permission of dept chairperson. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

### 693.30 Individual Studies: Linguistics

UGRD 2-10

Prereq: Permission of dept chairperson. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

### 693.40 Individual Studies: Languages

UGRD 2-10

Prereq: Permission of dept chairperson. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

### 693.50 Individual Studies: Unspecified

UGRD 2-10

Prereq: Permission of dept chairperson. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

### 694 Group Studies

UGRD 1-10

Group Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 10 cr hrs.

### 697 Study at a Foreign Institution

UGRD 1-15

An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

### 700 Introduction to Slavic and East European Studies

GRAD 5

Central topics, current research, and research methodology in the Slavic and East European area studies.
Au Qtr. Prereq: Grad standing or permission of instructor.

### 760 Survey of the Slavic Languages

UGRD 5

A general survey of all the Slavic languages and their common features. Not open to students with credit for 860. Knowledge of a Slavic language is helpful but not required.

### 770 Violence and Alterity in the Balkans

UGRD 5

Au Qtr. 2-4 hr cl. Prereq: Grad standing or permission of instructor.

### 783H Honors Research

UGRD 3-5

Honors Research.
Au, Wi, Sp Qtrs. Prereq: 4th yr standing; a grade of A in at least half of the Slavic 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. Repeatable to a maximum of 15 cr hrs. Failure to receive a mark of S in this course is a disqualification for special honors. This course is graded S/U.

### 792 Interdepartmental Studies in the Humanities

GRAD 3-5

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.

### 802 Introduction to Second Language Acquisition

GRAD 5

This course follows the 801 workshop and RU801 training course and introduces students to the major issues in the field of Second Language Acquisition.
Wi Qtr. Prereq: Russian 801 or other 801 course.

### 810 Old Church Slavonic

GRAD 5

Study of the earliest Slavic language; reading and linguistic interpretation of original documents.

### 812 Readings in Church Slavonic Texts

GRAD 5

Reading and analysis of Church Slavonic texts of the later period.
Prereq: 810 or permission of instructor.

### 814 Slavic Paleography

GRAD 5

Fundamentals of Slavic paleography with special reference to the manuscripts on microfilm housed in the Hilandar Research Library.
Au Qtr. Prereq: 810 and 812 or permission of instructor.

### 821 Structure of Selected Slavic Languages

GRAD 5

Structure of any of the following: Belorussian, Bulgarian, Czech, Sorbian, Macedonian, Polish, Serbo-Croatian, Slovak, Slovenian, or Ukrainian.
Prereq: Permission of instructor. Repeatable to a maximum of 25 cr hrs. Individual languages not repeatable.
834 Medieval Slavic Literatures 9th-14th Century
Emphasis on the Eastern and South Slavic literatures.
Prereq: Permission of instructor.

861 History of the South Slavic Languages
Bulgarian, Macedonian, Serbo-Croatian, and Slovenian, with emphasis on Serbo-Croatian and its relation to the other South Slavic languages.
Prereq: Good command of Russian and acquaintance with a second Slavic language or permission of instructor.

862 History of the West Slavic Languages
Polish, Czech, Slovak, Polabian, Kashubian, and Sorbian, with special emphasis on Polish and its relation to the other West Slavic languages.
Prereq: Good command of Russian, and acquaintance with a second Slavic language or permission of instructor.

864 Comparative Slavic Grammar
Development of Indo-European phonology and morphology into Common Slavic and the development in contemporary Slavic languages.
Prereq: 760 or permission of instructor.

870 Seminar in Slavic Philology
Historical and comparative studies in the Slavic languages and related language families, including Baltic and Finno-Ugric.
Repeatable to a maximum of 20 cr hrs.

871 Seminar in Slavic Linguistics
Descriptive and transformational studies in Russian and other Slavic languages.
Repeatable to a maximum of 20 cr hrs.

875 Seminar in Slavic Literature
Selected topics from medieval and modern literature.
* Au Qtr. 2 cl. Repeatable to a maximum of 15 cr hrs.

894 Group Studies
Group Studies.
Su, Au, Wi, Sp Qtrs. Repeatable.

899 Interdepartmental Seminar
Two or more departments present seminars on subjects of mutual interest; topics to be announced.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

993.20 Individual Studies: Literature
Prereq: Permission of chairperson. Repeatable to a maximum of 40 cr hrs. This course is graded S/U.

993.30 Individual Studies: Linguistics
Prereq: Permission of chairperson. Repeatable to a maximum of 40 cr hrs. This course is graded S/U.

993.50 Individual Studies: Unspecified
Prereq: Permission of chairperson. Repeatable to a maximum of 40 cr hrs. This course is graded S/U.

999 Research in Slavic
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Social and Behavioral Sciences, College of

100 Social Work Survey
Academic requirements, University procedures, grading system, resources, student rights and responsibilities; overview of Social and Behavioral Sciences areas of study, Arts and Sciences services. Prereq: 100H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for UGRD 100 or 100H. GEC course.

101 Social Work Survey
Introduction to university undergraduate community and strategies for a successful transition; exploration of the social work profession. Su, Au, Wi, Sp Qtrs. 2 1-3 hr cl. Prereq: Enrollment in College of Social Work. Not open to students with credit for UGRD 100H.

220 Introduction to Social Welfare
Introduction to the history, structure, and function of the social welfare institution. Examines the nature and causes of social problems, explores the influence of societal values and beliefs on the social welfare system, considers issues of diversity and discrimination, and explores student values and beliefs related to social welfare issues. GEC Soc Sci Human, Natural, and Economic Resources course.

230 Introduction to Social Work in a Contemporary Society
An introduction to the core values, fundamental goals, unique functions and methods of the social work profession. Au, Wi, Sp Qtrs. 2 1.5-hr cl, 1 2-hr lab. GEC soc sci individuals/groups course.

300 Minority Perspectives: Race, Ethnicity, and Gender
Examination of the structure of human societies, cultures, and institutions, and the allocation of resources from the vantage point of oppressed minority populations. Au, Wi, Sp Qtrs. 2 1.5-hr cl, 1 2-hr lab. Prereq: 10 cr hrs of course work in pol sci, psych, or sociol. Not open to students with credit for UGRD 300. GEC course.

301 Needs and Social Conditions of Latino/as, Social Policies, and Human Services
Role of current social policies and human services in the lives of Latino/as, including public assistance health, education, immigration, border issues, and official language policy. Sp Qtr. 2 2.5-hr cl. Prereq: 10 cr hrs of course work in pol sci, psych, or sociol. GEC social diversity course.

310 Prevention and Youth Development through Sport, Recreation, and Play
Based on ecological theory, this course focuses on how human characteristics and environmental contexts contribute to social, academic, and health-related problems among youth.
Prereq: Sophomore, junior, or senior standing.

494 Group Studies
Designed to give groups of students an opportunity to pursue special studies not otherwise offered in social work.
Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 10 cr hrs.

503 Juvenile Delinquency: Origins and Social Control
Examination of juvenile delinquency as a social problem with emphasis on its history, policy initiatives, and treatment. Su, Au, Wi, Sp Qtrs. 2 1.5-hr cl, 1 1-hr cl, 1 1-hr lab. GEC course.

520 Problems, Policies, and Programs in Social Welfare I
An introduction to historical backgrounds and the utilization of an analytical framework in the study of the American social welfare system. Su, Wi, Sp Qtrs. 2 2.5-hr cl. Prereq: 100 cl. GEC Capstone 1.

521 Problems, Policies, and Programs in Social Welfare II
Application of an analytical framework to the study of current issues and problems of policies, programs and social welfare services in the perspective of the American welfare system. Wi, Sp Qtrs. 2 1.5-hr cl, 1 1-hr cl, 1 1-hr lab. GEC course.

533 Human Behavior in the Social Environment
Study of life cycle, growth, and development from birth through middle childhood from bio-psycho-social perspective; theories of personality discussed in relationship to growth and development. Au, Wi, Sp Qtrs. 2 3-hr cl. Prereq: 100 cl. GEC course.

534 Human Behavior in the Social Environment
Study of life cycle from young adulthood through old age including dying and death; discussion of influences on normal functioning of group relationships, organizations, and institutions. Wi, Sp Qtrs. 2 1.5-cl. Prereq: 533.
570 Quantitative Analyses of Social Data UGRD 5
Examination of social welfare data with a focus on data analysis; review of descriptive and inferential methods with a primary emphasis on interpretation and computer applications.
Wi Qtr. 2.2-hr cl, 1-hr lab arr. Prereq: 230 and Math 104 or equiv. GEC course. E570 may be available for honors embedded experience.

570E Quantitative Analyses of Social Data UGRD 5
Examination of social welfare data with a focus on data analysis; review of descriptive and inferential methods with a primary emphasis on interpretation and computer applications.
Wi Qtr. 2.2-hr cl, 1-hr lab. Prereq: Math 104, Math 116, Math 131, Math 130, Math 148, Math 150, Math 151, or Placement Levels MP/1Math.

571 Introduction to Research Methods In Social UGRD 4 Work
Science and society; research design; measuring variables; data collection, processing and analysis.
Au Qtr. 2.2-hr cl. 571H1 (honors) may be available to students enrolled in an honors program or by permission of department or instructor.

576 Critical Assessment of Social Research UGRD 5
Development of practical skills in critical and analytic writing in weighing competing ideas both in writing and oral forms.
Sp Qtr. 2.5-hr cl. Prereq: 571 or equiv, English 110 or 111, second writing course, and jr or sr standing. GEC/LAR course. E576 may be available for honors embedded experience.

576E Critical Assessment of Social Research UGRD 5
Critical Assessment of Social Research.

593 Individual Studies UGRD 1-5
Individual study projects on problems and services in selected areas of social welfare; report required.
Su, Au, Wi, Sp Qtrs. Prereq: 10 cr hrs in soc work or related courses, approval of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

597 Adolescent Parenthood and Sexuality: UGRD 5
International Perspectives
Examination of origins of adolescent sexual problems in milieus that develop different value systems; public policies and social programs designed to control adolescent sexuality and parenthood.
Su Qtr. 2.25-hr cl. Prereq: S2r standing; and 15 cr hrs of course work in social science in individual development, adolescence, the family, culture, and social change. Not open to MSW students. GEC/LAR course.

645 Social Work Practice I UGRD 5
Exploration and application of foundation professional values, knowledge, and change oriented actions of generalist social work, with an emphasis on practice with individuals.
Sp Qtr. 2.25-hr cl. Prereq: Jr standing; social work major only.

646 Social Work Practice II UGRD 3
Application of professional values, knowledge, and skills of generalist social work practice with families and small groups.
Au Qtr. 1.3-hr cl. Prereq: 645; soc work majors only.

647 Social Work Practice III UGRD 3
Application of professional values, knowledge, and skills of generalist social work practice with organizations and communities.
Wi Qtr. 1.3-hr cl. Prereq: 646. Open only to soc work majors.

688 Integrative Field Practicum Seminar UGRD 1
Integration of knowledge and practice; problem solving and discussion of social work practice issues, values, and ethics. Companion to field practicum. Concur: 645 and 688. Repeatable to a maximum of 3 cr hrs.

689 Field Practicum UGRD 1-15
Placement in social welfare organization as a teaching center; student expected to assume a service provision role in a progressively responsible manner.
Au, Wi, Sp, Su Qtrs. Social agency assignments. Prereq: 645, 688 concurrently, and proof of liability insurance. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

690 Ethical Issues in the Human Services UGRD 3
Historical, philosophical and legal foundations giving rise to ethical principles which underlie social work practice.
Su, Au, Wi, Sp Qtrs. 1.3-hr cl. Prereq: Sr standing. Satisfies 3 credits for the LSW license renewal.

691 Case Management and Social Work Practice UGRD 4
Social work competencies in the provision of services to address client problems and populations. Emphasis on client/family strengths and social networks.
Su, Sp Qtrs. 1.3-hr cl, 1 hr lab arr. Prereq: Sr standing. Satisfies 4 credits of LSW license renewal.

694 Group Studies UGRD 1-5
Selected topics.
Su, Au, Wi, Sp Qtrs. Arr.

695.08 Integrative Seminars: International Social UGRD 3 Work
Examines social issues through a multi-cultural lens in order to fully appreciate the role of culturally diverse and country-specific responses to social problems.
Sp Qtr. 1.25-hr cl. Prereq: Jr, sr or grad standing or permission of instructor.

695.09 Integrative Seminars: Addictions UGRD 3
Focus on developing practice goals, methods of intervention, implementation and evaluation of consequences.
Su, Au, Wi, Sp Qtrs. Prereq: Jr standing.

695.11 Integrative Seminars: Intensive, In-Home, UGRD 3 Family-Based Treatment
Holistic approach to home-based family services; includes advocacy, didactic instruction and resource networking.
Su, Au, Wi, Sp Qtrs. 1.3-hr cl. May fill social work elective credits.

695.12 Integrative Seminars: Child and Family UGRD 3 Services
Examines the various fields of social work practice; focuses on developing the ability to set practice goals, decide methods of intervention, implement, and evaluate consequences.
1 3-hr cl. May be taken to fulfill social work elective cr hrs.

695.13 Integrative Seminars: Corrections UGRD 3
Examines the various fields of social work practice; focuses on developing the ability to set practice goals, decide methods of intervention, implement, and evaluate consequences.
1 3-hr cl. May be taken to fulfill social work elective cr hrs.

695.14 Integrative Seminars: Aging UGRD 3
Examines the various fields of social work practice; focuses on developing the ability to set practice goals, decide methods of intervention, implement, and evaluate consequences.
1 3-hr cl. May be taken to fulfill social work elective cr hrs.

695.15 Integrative Seminars: Mental Retardation UGRD 3 and Developmental Disabilities
Examines the various fields of social work practice; focuses on developing the ability to set practice goals, decide methods of intervention, implement, and evaluate consequences.
1 3-hr cl. May be taken to fulfill social work elective cr hrs.

695.16 Integrative Seminars: Physical Health Care UGRD 3
Examines the various fields of social work practice; focuses on developing the ability to set practice goals, decide methods of intervention, implement, and evaluate consequences.
1 3-hr cl. May be taken to fulfill social work elective cr hrs.

695.17 Integrative Seminars: AIDS: Facts and UGRD 3 Issues
Examines the various fields of social work practice; focuses on developing the ability to set practice goals, decide methods of intervention, implement, and evaluate consequences.
Au Qtr. 1 3-hr cl. Certificate upon completion of 695.17, 695.18, 695.19.

695.18 Integrative Seminars: AIDS: Psychosocial UGRD 3 Aspects
Examines the various fields of social work practice; focuses on developing the ability to set practice goals, decide methods of intervention, implement, and evaluate consequences.
Wi Qtr. 1 3-hr cl. Prereq: 695.17. Certificate upon completion of 695.17, 695.18, 695.19.

695.19 Integrative Seminars: AIDS: Community UGRD 3 Response
Examines the various fields of social work practice; focuses on developing the ability to set practice goals, decide methods of intervention, implement, and evaluate consequences.
Sp Qtr. 1 3-hr cl. Prereq: 695.18. Certificate upon completion of 695.17, 695.18, 695.19.

695.20 Integrative Seminars: Sexualities, Diversity, UGRD 3 and Social Work
Ecological and social systems perspectives on sexual diversity for social workers and human services professionals. Content consistent with social work ethics and values, especially advocacy for the marginalized and oppressed.
Su, Au, Wi, Sp Qtrs. 1.3-hr cl. Prereq: Sr standing or permission of instructor.

695.21 Integrative Seminars: Child Welfare I UGRD 3
Protecting Children by Strengthening, Supporting and Empowering Families. Provide knowledge, concepts and tools needed for beginning practice in public and private child welfare including family issues and social policies.
Au Qtr. 1 3-hr cl.
695.22 Integrative Seminars: Child Welfare II UGRD 3
Addressing Children's Developmental and Permanency Needs. Addresses developmental needs of children in child welfare system including effects of maltreatment, separation, placement issues, and adoption.
Wi Qtr. 1 3-hr cl. Prereq: 695.21.

695.23 Integrative Seminars: Social Work and the Law UGRD 3
How legal concepts and principles shape policy and practice; how social research is used by the legal system and how social activism influences the legal system.
Su, Au, Wi, Sp Qtrs. 1 3-hr cl. Prereq: Sr standing. May be taken to fulfill social work electives.

695.24 Integrative Seminars: Caregiving Across the Life Span UGRD 3
Contemporary Issues, Programs and Policies. Needs of individuals providing care for a chronically ill or disabled family member or friend are addressed including issues faced by diverse and oppressed populations.
1 3-hr cl. Prereq: Sr ranking. May be taken to fulfill Undergraduate and Graduate Interdisciplinary Specializations in Aging electives.

695.25 Integrative Seminars: Women and Aging: International Perspectives UGRD 3
Introduction to the diversity of aging experiences for women throughout the world; explore current and historical, social, economic, and health realities of older women.
Wi Qtr. 1 3-hr cl. Fulfills elective credit in Undergraduate and Graduate Interdisciplinary Specializations in Aging.

696H Thesis Seminar UGRD 3
Direction will be provided to facilitate honors students and MSW students at designing a thesis proposal.
Au Qtr. 1 2.5-hr cl. Prereq: 576 or MSW major. Not open to students with credit for H964. Open only to soc work majors.

697.01 Study at a Foreign Institution: India UGRD 5
Social Work in the Context of Social Development: Comparative Policy and Practice in India. An opportunity for students to study at a foreign institution and receive Ohio State credit for that work. Emphasizes comparative social work practice and policy within a social development framework; addresses a variety of fields of practice: health, child welfare, and others.
Su Qtr. Arr. Prereq: Written permission of dept chairperson. Prereq: Permission of instructor; concurrent enrollment required in International Studies 697 (Indian History Society, and Culture). This course is Progress ("P") graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs. Course taught on location in South India (mostly Madras) as part of an International Education offering.

697.02 Study at a Foreign Institution: Eastern Europe UGRD 9
Social Welfare in Eastern Europe: The Polish Experience. An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

699H Honors Research UGRD 3-14
Research for Honors Thesis purpose only.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 4th yr standing with a grade of A in at least half of the soc work courses and an average of B in the remainder; permission of instructor under whose supervision the work is to be completed and the Social Work Honors committee. Repeatable to a maximum of 14 hrs. This course is graded S/U.

700.01 Seminar on Interprofessional Care GRAD 3
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Treatment of the whole person through the analysis of the interrelated problems of actual patients/clients.
Wi, Sp Qtrs. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology.

700.03 Interprofessional Education: Ethical Issues GRAD 3
Focus on ethical issues, changing professional/consumer rights, and interprofessional cooperation. Ethical issues of concern to the professions and arising out of the advanced technology: euthanasia, mind control, malpractice, and social responsibility of the professions.
Au Qtr. Repeatable to a maximum of 9 cr hrs. Limited to students in allied medical professions, education, law, medicine, nursing, social work, and theology.

709 Poverty in Social Work Practice: An Immersion Approach GRAD 3
A conceptual framework for effective social work practice with oppressed, impoverished, and disenfranchised populations.
Au Qtr. 1 2.5-hr cl. Prereq: Admission to Master's of Social Work.

710 Women's Issues in Social Work GRAD 3
Examination of relevant issues in the professional practice of social work.
Su, Au, Wi Qtrs. 1 2.5-hr cl. Prereq: Grad standing.

711 Race and Ethnicity in Social Work Practice GRAD 3
An analytical approach to problems, needs, and intervention for effective social work practice with the oppressed target populations of Appalachians and Blacks.

712 Social Welfare and the Jewish Community GRAD 3
A study of the historical, cultural, and religious antecedents for the development of the current organization of Jewish Communal Services in the United States.
Sp Qtr. 1 2.5-hr cl. Prereq: Grad standing.

713 Social Work Practice in the Schools GRAD 3
Examination of major issues in American schools, theoretical framework for social work services, delivery of services, models of school social work intervention, and intervention strategies.
Sp Qtr. 1 2.5-hr cl. Prereq: 746 or 747.

714 Loss and Grief: A Social Work Practice Perspective GRAD 3
Examines theoretical, cultural, social, and personal aspects of loss and grief and how they affect the clients' lives from a social work practice perspective.
Prereq: Grad standing.

717.01 Family Systems: An Interdisciplinary Approach to Families of Handicapped Children GRAD 3
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Qualitative and quantitative approaches for resource and problem identification with families of handicapped children, effective parenting skills, strategies to follow at-risk families, and family intervention models.
Wi Qtr. 1 3-hr cl. Prereq: Permission of instructor. Not open to students with credit in 717.01 in any cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science, Human Nutrition, Nursing, Psychology, and Speech and Hearing Science.

717.01 Interdisciplinary Perspectives on Autism Spectrum Disorders GRAD 3
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Critical examination of the latest information on biomedical, psycho-social, educational, communication and language, family and sensory issues of autism spectrum disorders.
Su Qtr. 1 3-hr cl. Prereq: Permission of instructor. Not open to students with credit in 717.02 in any cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science, Human Nutrition, Nursing, Psychology, and Speech and Hearing Science.

717.02 Developmental Disabilities GRAD 3
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Focus on the most pertinent scientific and societal issues of developmental disabilities.
Au Qtr. 1 3-hr cl. Prereq: Permission of instructor. Not open to students with credit for 717.03 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science Human Nutrition, Nursing, Psychology, and Speech and Hearing Science.

720 Social Welfare Policies and Programs I GRAD 3
Historical and comparative analysis of social welfare systems; their relationship to change in the basic social institutions: family, church, government, and economic institutions.
Wi Qtr. 1 2.5-hr cl. Prereq: Soc work grad standing or permission of instructor.

721 Social Welfare Policies and Programs II GRAD 3
The development and application of a conceptual model for social welfare policy and program analysis.
Wi Qtr. 1 2.5-hr cl. Prereq: 720.

730.01 Seminars in Social Functioning: Institutional and Organizational Behavior GRAD 3
Critical examination of personality, interactional, small group, organizational and community concepts and approaches used in social work analysis of social dysfunction.
Prereq: Soc work grad standing.
739.02 Seminars in Social Functioning: Psychopathology and Deviance
Critical examination of personality, interactional, small group, organizational and community concepts and approaches used in social work analysis of social dysfunction.
Prereq: Soc work grad standing.
733 Human Behavior and the Social Environment I
Social work theories and concepts related to individuals and families as they develop over the life span; systems model provides a unifying framework.
Au Qtr. 1 2.5-hr cl. Prereq: Soc work grad standing or permission of instructor.
734 Human Behavior and the Social Environment II
Continues applying the social work systems and life span frameworks to extra-familial environments (i.e., groups, communities and cultures) that affect individual development and social functioning.
Wi Qtr. 1 2.5-hr cl. Prereq: 733.
741.02 Clinical Practice: Individuals
Examination of the methods of clinical social work practice with individuals.
Su, Au Qtris. 1 2.5-hr cl. Prereq: 745 and 746 or 747.
741.03 Clinical Practice: Couple and Family
Theory and methods of clinical social work practice with families.
Wi Qtr. 1 2.5-hr cl. Prereq: 745 and 746 or 747.
741.04 Clinical Practice: Crisis Intervention
Theory and methods of intervention of clinical social work practice with individuals, families, and groups.
Sp Qtr. 1 2.5-hr cl Prereq: 745 and 746 or 747.
741.05 Clinical Practice: Groups
Theory and methods of clinical social work practice with groups.
Au Qtr. 1 2.5-hr cl. Prereq: 745 and 746 or 747.
741.09 Administrative Aspects of Practice in Human Service Organizations: Special Topics
Examines generic functions and processes of administration in relation to a conceptua framework for the management of human services professionals, based in a social work value orientation; application to public and voluntary social welfare/human services organizations.
Su Qtr. Arr. Prereq: 746 or 747. Repeatable to a maximum of 20 cr hrs.
743.03 Social Planning Aspects of Practice: Advanced Community Practice
Concepts and strategies involved in the design, planning, implementation, monitoring and evaluation of social delivery.
Sp Qtr. 1 2.5-hr cl. Prereq: 745 and 746 or 747.
744 Social Work Practice Lab
Didactic and experiential learning of generalist practice skills.
Au Qtr. 1 3-hr cl. Open only to social work major only of grad standing. This course is graded S/U.
745 Practice and Profession I
Assessment, planning and contracting with various levels of client systems within the context of the profession's commitment to an ecosystem perspective.
Wi Qtr. 1 2.5-hr cl. Prereq: 744.
746 Practice and Profession II
Intervention, evaluation and termination with various sized client systems within the context of the profession's commitment to an ecosystem perspective.
Wi Qtr. 1 2.5-hr cl. Prereq: 744. Open only to SWK majors.
747 Graduate Integrative Practice Seminar
Integrates knowledge from undergraduate practice foundation into a more advanced generalist practice framework using micro and macro case-based practice applications with attention given to populations-at-risk.
Su Qtr. 2 2-hr cl. Prereq: ASAP standing. Not open to students with credit for 744, 745 or 746.
750.01 Social Welfare Policies and Programs: Child and Family Services
Understanding and application of the analytic model of social welfare policies and programs with special emphasis on the disadvantaged as applied to child and family social work practice.
Prereq: 721 and 746 or 747. Students may not register for more than a total of 9 cr hrs under this series.
750.02 Social Welfare Policies and Programs: Aging
Examination of social welfare policies affecting the elderly; identification of current and future issues and comparison of international, federal, state, and local programs.
Prereq: 721 and 746 or 747. Students may not register for more than a total of 9 cr hrs under this series.
750.03 Social Welfare Policies and Programs: Health
Analysis of social and economic policies and political forces which influence the delivery of health services and the role of social workers in health care.
Prereq: 721 and 746 or 747. Students may not register for more than a total of 9 cr hrs under this series.
750.04 Social Welfare Policies and Programs: Mental Health
Utilizing a social policy analytic framework; introduces social welfare policy issues and program organization.
Prereq: 721 and 746 or 747. Students may not register for more than a total of 9 cr hrs under this series.
751.01 Social Work Practice: Child and Family Services
Develops advanced skills in dealing with problems of children and their families to assure protection and permanency through direct and indirect social work intervention.
Prereq: 746 or 747. Students may not register for more than a total of 9 cr hrs under this series.
751.02 Social Work Practice: Aging
Theoretical perspectives relevant to the aging process are examined; review of special concerns and treatment modalities unique to adults in middle and later years.
Prereq: 746 or 747. Students may not register for more than a total of 9 cr hrs under this series.
751.03 Social Work Practice: Health
Knowledge and skills for specialized social work practice in health; clinical, planning and administrative roles in several subspecialities are addressed.
Prereq: 746 or 747. Students may not register for more than a total of 9 cr hrs under this series.
751.04 Social Work Practice: Mental Health GRAD 3 Provides knowledge and skills in clinical, and planning/administrative modes of practice in a range of mental health settings with selected target populations.
Prereq: 746 or 747. Students may not register for more than a total of 9 cr hrs under this series.

752 Advanced Social Policy Practice GRAD 3 Aims to strengthen knowledge base and skill sets required of professionals to inform policy formulation, advocacy and policy research.
Wi, Sp Qtrs. Prereq: 721.

770 Research Methods in Social Work GRAD 3 Basic research methodology; the role of research in social work.
Su, Au Qtr. 1.25-hr cl. Prereq: Soc work grad standing or permission of instructor.

771 Data Analysis Designs GRAD 3 Interpretation of social work data; quantitative techniques; designs of data analysis.
Su, Wi Qtrs. 1.25-hr cl. Prereq: Soc work grad standing or permission of instructor.

772 Evaluation of Social Work Practice GRAD 3 Utilization and selection of methodological techniques and applications for evaluating practice design and program effectiveness.
Su, Sp Qtrs. 1.25-hr cl. Prereq: 770 and 771. Not open to students with credit for 875.01 or 875.03.

789.01 Field Practicum I: Columbus GRAD 1-8 Integration of field practice with social work practice theory.
Prereq: 744. Open only to SW majors. Proof of liability insurance. Placement in assigned human service organization 2 days wkly. Normally scheduled Wi and Sp Qtrs. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

789.02 Field Practicum I: Lima GRAD 1-8 Integration of field practice with social work practice theory.
Prereq: 744. Open only to SW majors. Proof of liability insurance. Placement in assigned human service organization 2 days wkly. Normally scheduled Wi and Sp Qtrs. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

789.03 Field Practicum I: Mansfield GRAD 1-8 Integration of field practice with social work practice theory.
Prereq: 744. Open only to SW majors. Proof of liability insurance. Placement in assigned human service organization 2 days wkly. Normally scheduled Wi and Sp Qtrs. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

789.04 Field Practicum I: Newark GRAD 1-8 Integration of field practice with social work practice theory.
Prereq: 744. Open only to SW majors. Proof of liability insurance. Placement in assigned human service organization 2 days wkly. Normally scheduled Wi and Sp Qtrs. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

789.05 Field Practicum I: Wright State GRAD 1-8 Integration of field practice with social work practice theory.
Prereq: 744. Open only to SW majors. Proof of liability insurance. Placement in assigned human service organization 2 days wkly. Normally scheduled Wi and Sp Qtrs. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

789.06 Field Practicum I: Franklin County Children's Services GRAD 1-8 Integration of field practice with social work practice theory.
Prereq: 744. Open only to SW majors. Proof of liability insurance. Placement in assigned human service organization 2 days wkly. Normally scheduled Wi and Sp Qtrs. Repeatable to a maximum of 8 cr hrs. This course is graded S/U.

790 Introduction to Gerontology GRAD 3 Introduction to impact of physiological, psychological, and socio-economic condition associated with aging to provide foundation in gerontology.
Au Qtr. 3-hr cl. Open to sr level students with permission of instructor. Cross-listed in Allied Medicine. Core course required for Graduate Specialization in Aging.

793 Individual Studies GRAD 1-5 Directed readings and tutorials related to specific problems.
Su, Au, Wi, Sp Qtrs. Prereq: Soc work grad standing, permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

794 Group Studies GRAD 1-4 Group seminars in specialized areas of curriculum.
Su, Au, Wi, Sp Qtrs. Prereq: Soc work grad standing, permission of instructor. Repeatable to a maximum of 15 cr hrs.

797 Interdepartmental Seminars: Research Issues in Gerontology GRAD 5 Explores the interface between research and practice issues in gerontology and geriatrics.
Sp Qtr. 1.3-hr cl. Prereq: Grad standing; one course in research design or statistics is recommended. Not open to students with credit for Anthrop 820.18. Cross-listed with Anthrop 820.18.

889.01 Field Practicum II: Columbus GRAD 1-15 Designed to permit students to achieve greater autonomy and to maximize skill development in the integration of social work theory and practice.
Prereq: 789 or 747. Open only to SW majors. Proof of liability insurance. Placement 3 days wkly Au, Wi, Sp Qtrs. in human service organization in accordance with student's primary mode of intervention. Repeatable to a maximum of 21 cr hrs. This course is graded S/U.

889.02 Field Practicum II: Lima GRAD 1-15 Designed to permit students to achieve greater autonomy and to maximize skill development in the integration of social work theory and practice.
Prereq: 789 or 747. Open only to SW majors. Proof of liability insurance. Placement 3 days wkly Au, Wi, Sp Qtrs. in human service organization in accordance with student's primary mode of intervention. Repeatable to a maximum of 21 cr hrs. This course is graded S/U.

889.03 Field Practicum II: Mansfield GRAD 1-15 Designed to permit students to achieve greater autonomy and to maximize skill development in the integration of social work theory and practice.
Prereq: 789 or 747. Open only to SW majors. Proof of liability insurance. Placement 3 days wkly Au, Wi, Sp Qtrs. in human service organization in accordance with student's primary mode of intervention. Repeatable to a maximum of 21 cr hrs. This course is graded S/U.

889.04 Field Practicum II: Newark GRAD 1-15 Designed to permit students to achieve greater autonomy and to maximize skill development in the integration of social work theory and practice.
Prereq: 789 or 747. Open only to SW majors. Proof of liability insurance. Placement 3 days wkly Au, Wi, Sp Qtrs. in human service organization in accordance with student's primary mode of intervention. Repeatable to a maximum of 21 cr hrs. This course is graded S/U.

889.05 Field Practicum II: Wright State GRAD 1-15 Designed to permit students to achieve greater autonomy and to maximize skill development in the integration of social work theory and practice.
Prereq: 789 or 747. Open only to SW majors. Proof of liability insurance. Placement 3 days wkly Au, Wi, Sp Qtrs. in human service organization in accordance with student's primary mode of intervention. Repeatable to a maximum of 21 cr hrs. This course is graded S/U.

889.06 Field Practicum II: Franklin County Children's Services GRAD 1-15 Designed to permit students to achieve greater autonomy and to maximize skill development in the integration of social work theory and practice.
Prereq: 789 or 747. Open only to SW majors. Proof of liability insurance. Placement 3 days wkly Au, Wi, Sp Qtrs. in human service organization in accordance with student's primary mode of intervention. Repeatable to a maximum of 21 cr hrs. This course is graded S/U.

894.01 Group Studies: Social Work Practice GRAD 1-5 Prereq: MSW or equiv with written permission of instructor. Not more than 10 hours shall be repeated in any of the decimal areas. Repeatable to a maximum of 20 cr hrs.

894.02 Group Studies: Social Welfare Policy GRAD 1-5 Prereq: MSW or equiv with written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.03 Group Studies: Dynamics of Social Functioning GRAD 1-5 Prereq: MSW or equiv with written permission of instructor. Repeatable to a maximum of 20 cr hrs.

894.04 Group Studies: Other GRAD 1-5 Prereq: MSW or equiv with written permission of instructor. Not more than 10 hours shall be repeated in any of the decimal areas. Repeatable to a maximum of 20 cr hrs.

900.01 Theory Building: Knowledge-Building in Social Science and Social Work Theory GRAD 3 Theory construction, elements of theory, knowledge-building, and general epistemological issues related to social work and social science theory on micro and macro levels.
Au Qtr. 1.3-hr cl. Prereq: PhD standing.

900.02 Theory Building: Micro Theory: Theories of Individual Functioning GRAD 3 Theory construction, elements of theory, knowledge-building, and general epistemological issues related to social work and social science theory on micro and macro levels.
Wi Qtr. 1.3-hr cl. Prereq: 900.01.

900.03 Theory Building: Macro Theory: Social Theory and Social Welfare GRAD 3 Theory construction, elements of theory, knowledge-building, and general epistemological issues related to social work and social science theory on micro and macro levels.
Wi Qtr. 1.3-hr cl. Prereq: 900.01.
901.01 Quantitative Research Methods in Social Work

Quantitatively-oriented research methods, qualitatively-oriented research methods, computer literacy, and data processing skills.
Au Qtr. 1-3 hr cl. Prereq: PhD standing; completion of research proficiency requirements; and written permission of the Director of the PhD Program.

901.02 Qualitative Research in Social Work

Qualitatively-oriented research methods, qualitatively-oriented research methods, computer literacy, and data processing skills.
Au Qtr. 1-3 hr cl. Prereq: PhD standing; completion of research proficiency requirements; and written permission of the Director of the PhD Program.

901.03 Computer Literacy in Social Work

Qualitatively-oriented research methods, qualitatively-oriented research methods, computer literacy, and data processing skills.
Sp Qtr. 1-3 hr cl. Prereq: 901.01; grad level stat course; PhD standing; completion of research proficiency requirements; and written permission of the Director of the PhD Program.

902.01 Advanced Practice in Clinical Social Work

Advanced courses in social work practice such as clinical practice administration and policy courses on social change, international social welfare, and social work education.
Au, Sp Qtr. 1-5 hr cl. Prereq: PhD standing. Repeatable to a maximum of 25 cr hrs.

902.02 Advanced Practice in Social Work Policy and Administration

Advanced courses in social work practice such as clinical practice administration and policy courses on social change, international social welfare, and social work education.
Au, Sp Qtr. 1-5 hr cl. Prereq: PhD standing. Repeatable to a maximum of 25 cr hrs.

902.03 Current Issues in Social Work Education

Advanced courses in social work practice such as clinical practice administration and policy courses on social change, international social welfare, and social work education.
Sp Qtr. 1-5 hr cl. Prereq: PhD standing. Repeatable to a maximum of 25 cr hrs.

902.04 International Issues in Social Work Practice and Social Development

Advanced courses in social work practice such as clinical practice administration and policy courses on social change, international social welfare, and social work education.

903 Proposal Development

Designed to help develop the dissertation proposal; present ideas, receive feedback, and defend proposal to students and faculty in an open forum.
Wi Qtr. 1-3 hr cl. Prereq: 2nd yr PhD standing.

910 Introduction to Doctoral Studies

This course provides a foundation for successful doctoral study through interactions between students and faculty, defining standards for scholarly achievements, and fostering peer social support.
1-3 hr cl. Prereq: Doctoral standing. Enrollment limited to 1st yr PhD students in Social Work. This course is graded S/U.

993.01 Individual Studies: Social Work Practice

Directed readings and tutorials related to specific problems and issues in following decimal areas.
Prereq: MSW or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

993.02 Individual Studies: Social Welfare Policy

Directed readings and tutorials related to specific problems and issues in following decimal areas.
Prereq: MSW or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

993.03 Individual Studies: Dynamics of Social Functioning

Directed readings and tutorials related to specific problems and issues in following decimal areas.
Prereq: MSW or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

993.04 Individual Studies: Social Work Research

Directed readings and tutorials related to specific problems and issues in following decimal areas.
Prereq: MSW or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

993.05 Individual Studies: Social Work Education

Directed readings and tutorials related to specific problems and issues in following decimal areas.
Prereq: MSW or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

993.06 Individual Studies: Other

Directed readings and tutorials related to specific problems and issues in following decimal areas.
Prereq: MSW or permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

998 Research in Social Work: Thesis

Research for thesis purposes only.
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.

999 Research in Social Work: Dissertation

Research for dissertation purposes only.
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.

Sociology

101 Introductory Sociology

Fundamental concepts of sociology and introduction to the analysis of social problem and social interactions, (e.g. wealth, gender, race inequality, family, crime) using sociological theories.
Su, Au, Wi, Sp Qtr. 101H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for Rout Soc 105 or equiv. GEC soc sci organizations and polities, and social diversity course. SS Admis Cond course.

202 Social Problems

Analysis of contemporary social problems.
SS Adms Cond course.

209 Introduction to Criminal Justice

Examination of the development and administration of criminal law and agencies (police, prosecutors, courts); emphasis on criminal proceedings and their justification.

210 Sociological Aspects of Deviance

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.

250 Sociology of Death and Dying

Provides a sociological overview of death and dying, including the demographics of death, social epidemiology, social meanings of death and dying.

294 Group Studies

Topics vary each quarter offered.
Repeatable to a maximum of 10 cr hrs.

298.01 Study Tour: Domestic

Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

298.02 Study Tour: Foreign

Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

302 Technology and Global Society

Social aspects of technology, social change, and technological development; underdevelopment and the global economy.

306 Sociology of Poverty

A study of low-income peoples, especially concerning the effect of poverty on them, and their consequent social participation.
GEC social diversity course. SS Adms Cond course.

309 Introduction to Law and Society

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.

310 Sociology of Gangs

Broad range of topics related to gang activity with a focus on why individuals join gangs, societal consequences of gangs, and social policy.

315 Sociology of Terrorism

Provides a broad review of the definitions, histories, types, and theories of terrorism from a sociological perspective.

320 Sociology of Education

Current social trends as they affect education; backgrounds of school children, social status of teachers, role of power and bureaucracy.
SS Adms Cond course.

330 Marriage and Society

The impact of modern society and social policies on marriage forms emphasizing marital selection, cohabitation, marriage alternatives and interactional patterns within the family.

340 Sex and Love in Modern Society

How behavior and meanings relating to sex and love have changed in recent decades, what explains these changes, and consequences of these changes.
345 Contemporary American Society UGRD 5
An exposition of the structural patterns of American society, using sociological theories and data but integrating them into a general view. 345H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC soc sci organizations and polities course.

367.01H Politics and American Society UGRD 5
Sociological analysis of American politics and society, emphasizing political elites an interest groups, and the changing role of the state in the economy. Prereq: English 110 or 111 or equiv. GEC second writing course.

367.02 Cities and Urban Life UGRD 5
The place of the city in social organization; the emergence, nature, and problems of modern urbanism; projects based on census and field data. Prereq: English 110 or 111 or equiv. GEC second writing course.

367.03H Work and Family in the United States UGRD 5
Sociological examination of linkages between occupational and economic arrangements and marital and parental experiences in the United States. Prereq: English 110 or 111 or equiv. GEC second writing course.

370 Social Factors in Personality UGRD 5
Analysis of relationships between social structure and personality; language; its consequences for social behavior; socialization: learning of motives and social roles; personality: development, organization, and disorganization. GEC soc sci individuals and groups course.

380 Race in Society UGRD 5
Historical and contemporary study of race and ethnicity in the US with a focus on relationships within and between groups. GEC soc sci individuals and groups course. SS Admis Cond course.

382 Sociology of Asian American Life UGRD 5
Introduction to Asian American life with attention to this group's social history, present status, and racial-ethnic relations. * GEC social diversity course.

389 Career Exploration in Sociology and Criminology UGRD 3
Career Exploration in Sociology and Criminology
Designed for sociology and criminology majors to explore career paths of interest, facilitate vocational development and acquire career search skills. Credit does not apply to hours in the sociology or criminology majors. This course is graded S/U.

391 The Community UGRD 5
Development of the modern community; approaches to the study of communities; significance of processes and value systems for community organization and disorganization.

407 Social Change UGRD 5
Recent social changes, especially in Western civilization and the United States; types of societies in historical perspective; requirements of a good society. ^

410 Criminology UGRD 5
The nature and causes of crime and delinquency, criminal liability, criminal careers, and organized racketeering. 410H (honors) may be available to students enrolled in an honors program or by permission of department or instructor.

430 Sociology of the Family UGRD 5
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.

434 The Child and Society UGRD 5
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.

435 Sociology of Gender UGRD 5
Analyses multi-level processes that differentiate women and men in education, employment, and relationships. Examines variations in gendered experiences across racial-ethnic and social class groups.

450 Illness and Social Behavior UGRD 5
Study of cultural, social, psychological, and sociological factors in disease processes, distribution of disease, definition of illness, organization of health professions and facilities.

460 Environmental Sociology UGRD 5
Examines environmental issues from a sociological perspective, especially human causes of environmental change such as technology, population and consumption and social reactions. GEC soc sci human, natural, and economic resources course.

463 Social Stratification: Race, Class, and Gender UGRD 5
The study of social inequality with a focus on inequalities by class and status, race and ethnicity, and gender. 463H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq for 463H: Honors standing. GEC soc sci human, natural, and economic resources course.

464 Work, Employment, and Society UGRD 5
Analysis of work organization; control and authority relationships in the workplace; comparative studies of work and labor movements; industrial decline; automation.

467 Sociology of Religion UGRD 5
The social role of religious institutions and beliefs, with particular reference to the United States; the relationship between religion and other aspects of society. GEC social diversity course.

487 Types of Sociological Inquiry UGRD 5
Introduction to sociological research techniques, methodological approaches, and relevant quantitative procedures.

488 Introduction to Sociological Theory UGRD 5
Introductory statement of the nature of sociological theory, its basic problems, assumptions, major types and orientations, and principal contributions to the discipline.

489 Internship Program in Sociology and Criminology UGRD 0-15
An opportunity for work experience and on-the-job learning in sociology and criminology related employment.

505 Capital Punishment in the United States UGRD 5
Course examines the role of capital punishment in the contemporary United States. 2 2-hr cl. Prereq: 5 credit hours in sociology at the 200-400 level or grad standing.

507 The Criminal Justice System UGRD 5
The role and operation of the criminal justice system: police, the courts and the legal system.

508 Violence UGRD 5
This course examines societal definitions of violence, theories that are most common invoked to explain violence, and research designed to critically evaluate theories of violence.

509 Sociology of Law UGRD 5
The relationship between law and social order emphasizing the structure of law, sociocultural origins of law and law as a source of social change.

510 Women, Crime, and the Criminal Justice System UGRD 5
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.

511 Sociology of Youth and Crime UGRD 5
A sociological perspective on youth and crime; special attention to the magnitude of youth crime, theories, juvenile justice systems, and prevention and control efforts. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.

525 Global Criminology UGRD 5
This course provides students an introduction to global crime from a criminal justice perspective.

549 Quantitative Research Methods in Sociology UGRD 5
An introduction to the application and interpretation of quantitative analysis in sociological research; emphasis on the description of social variables and hypothesis testing.

421
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>589.01</td>
<td>Fieldwork in Sociology</td>
<td>UGRD 5</td>
<td>Practicum in the collection of sociological data through field work; identification of research problem; development of data collection methods; data processing and analysis. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>589.02</td>
<td>Fieldwork in Sociology: Criminology and Criminal Justice</td>
<td>UGRD 5</td>
<td>Practicum in criminology and/or the criminal justice system. Prereq: Criminology and Criminal Justice Studies or Sociology major, or permission of instructor. This course is graded S/U.</td>
</tr>
<tr>
<td>591</td>
<td>Building Community Capacity: A Service Learning Approach</td>
<td>UGRD 5</td>
<td>This service learning course will explore the basic concepts, methods, and approaches used when sociology is put into practice in urban, organizational settings. Wi Qtr. Prereq: 5 or 10 hrs in sociol at the 200-400 level, or grad standing. This is a service learning course that takes advantage of the urban location of OSU and the experience of Professor Price-Spraten to offer students a new opportunity.</td>
</tr>
<tr>
<td>597.01</td>
<td>Contemporary World Societies: Social Institutions and Social Change</td>
<td>UGRD 5</td>
<td>Sociological analysis of contemporary world societies-non-industrialized, industrializing, and industrialized-with special attention to major social institutions in patterns of social change. Prereq: Jr or sr standing. GEC issues of the contemp world course.</td>
</tr>
<tr>
<td>597.02</td>
<td>World Population Problems</td>
<td>UGRD 5</td>
<td>General introduction to population studies, emphasizing how population growth and structure have caused or aggravated social problems in various countries. Prereq: Jr or sr standing; 5 or 10 hrs of social science course work; GEC data analysis requirement. GEC issues of the contemp world.</td>
</tr>
<tr>
<td>599H</td>
<td>Research Seminar</td>
<td>UGRD 5</td>
<td>Advanced research skills for honors sociology majors and honors criminology majors. ^ Sp Qtr. 2-2-hr cl. Prereq: 487, 488, and 549.</td>
</tr>
<tr>
<td>601</td>
<td>Comparative Family Organization</td>
<td>UGRD 5</td>
<td>Analysis of family organizations in various societies, emphasizing the impact of changing world conditions on family and kinship structures. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>605</td>
<td>Sociology of Sexuality</td>
<td>UGRD 5</td>
<td>A social and institutional approach to the study of sexuality with a focus on sexual identities, practices, institutions, communities, and sexuality movements. Prereq: Jr standing or above.</td>
</tr>
<tr>
<td>606</td>
<td>Social Movements and Collective Behavior</td>
<td>UGRD 5</td>
<td>An examination of theories and research on non-traditional group efforts to change social systems and institutions; emphasis on contemporary societies and movements. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>608</td>
<td>Gender, Race, and Class in Mass Communications</td>
<td>UGRD 5</td>
<td>Sociological aspects of mass communications; emphasis on relationships among media, audience and social structure; examination of media culture and depiction of race, class, and gender. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>609</td>
<td>Neighborhoods and Crime</td>
<td>UGRD 5</td>
<td>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: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>610</td>
<td>Sociology of Deviant Behavior</td>
<td>UGRD 5</td>
<td>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: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>611</td>
<td>Penology</td>
<td>UGRD 5</td>
<td>The treatment of adult offenders in detention and incarcerations; short and long term institutions. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>615</td>
<td>Control and Prevention of Crime and Delinquency</td>
<td>UGRD 5</td>
<td>Analysis of the operational effectiveness of special measures and programs pointed toward the control and prevention of crime and delinquency. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>616</td>
<td>Challenges to Childhood: An International Perspective</td>
<td>UGRD 5</td>
<td>Course will explore children's forced participation in war and its consequences and child poverty, labor, health, abuse and victimization in international perspective. Cross-listed in International Studies.</td>
</tr>
<tr>
<td>618</td>
<td>Sociology of Police and Policing</td>
<td>UGRD 5</td>
<td>Sociological understanding of the origins of routine police conduct and misconduct; representative topics include police-citizen encounters and police abuse of discretion. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>623</td>
<td>Advanced Sociology of Education</td>
<td>UGRD 5</td>
<td>Comparisons of the structures and functions of educational systems, elementary through university; recruitment and allocation of personnel and resources, power, conflict, and boundary maintenance. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>629</td>
<td>Sociology of Health: Mental and Physical Dimensions</td>
<td>UGRD 5</td>
<td>Analysis of sociological and social psychological aspects of mental and physical disorders, and types of illness behavior associated with mental and physical illness. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>630</td>
<td>Medical Sociology</td>
<td>UGRD 5</td>
<td>Sociological analysis of the distribution of disease, and the nature of health care institutions, health professions and the delivery of health care services. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>635</td>
<td>Men in Society</td>
<td>UGRD 5</td>
<td>The social psychology of males, their relationships with females, other males, and society; emphasis on socialization, social roles, sexuality, etc. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>640</td>
<td>Sociology of Everyday Life</td>
<td>UGRD 5</td>
<td>A basic course in ethnology; a survey of the basic literature; study of the taken-for-granted, verbal and non-verbal features of social interaction; involves making observations and descriptions. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>648</td>
<td>Introduction to Quantitative Research</td>
<td>UGRD 5</td>
<td>An introduction to statistical methods in sociological research. Au Qtr.</td>
</tr>
<tr>
<td>649</td>
<td>Principles of Multiple Regression</td>
<td>UGRD 5</td>
<td>Assumptions, principles, and applications of the multiple regression model in sociological practice; basic model, dummy variables, and special functional forms. Wi Qtr. Prereq: 549 or 650 or equiv.</td>
</tr>
<tr>
<td>651</td>
<td>Approaches to Sociological Inquiry</td>
<td>UGRD 5</td>
<td>Theory and practice in essentials of the research process; comparison of alternative approaches and design models; questionnaire construction, interview techniques, and related problems. Sp Qtr. Prereq: 649 or equiv, or permission of instructor.</td>
</tr>
<tr>
<td>652</td>
<td>Sociological Survey Research Methods I</td>
<td>UGRD 5</td>
<td>Design of sociological survey research: question format, questionnaire design, alternative modes of administration, etc; hands-on practice in Computer Assisted Telephone Interviewing (CATI). Prereq: 10 or 15 hrs in sociol or grad standing.</td>
</tr>
<tr>
<td>653</td>
<td>Sociological Survey Research Methods II</td>
<td>UGRD 5</td>
<td>Administration and analysis of sociological surveys; emphasis on development, administration, and analysis of survey data. Prereq: 652 or written permission of instructor.</td>
</tr>
<tr>
<td>655</td>
<td>Sociology of Sport</td>
<td>UGRD 5</td>
<td>Sport from a sociological perspective: relationship of sport to social institutions; socialization into sport; stratification within sports; sport and small group analysis. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>666</td>
<td>Political Sociology</td>
<td>UGRD 5</td>
<td>Examination of structures, continuities, and processes of change; of models and building blocks; and of social contexts of power and dynamic forces altering political systems. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.</td>
</tr>
<tr>
<td>670</td>
<td>Topics in Sociology</td>
<td>UGRD 5</td>
<td>Examination of selected current topics of interest to sociologists; topics vary by section and instructor. 2-2-hr cl. Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs.</td>
</tr>
<tr>
<td>672</td>
<td>Population Studies II: Theory, Substance, and Techniques</td>
<td>UGRD 5</td>
<td>Continuation of survey of population studies covering models of population growth, population theories, migration, population estimations and projections, population problems, and policy decisions. Prereq: 671 and Math 152 or equiv recommended.</td>
</tr>
</tbody>
</table>
680 Marriage and Its Alternatives UGRD 5
Investigation of dramatic changes in family composition and labor force participation and how they have altered men's and women's family lives and shaped children's well-being.
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing.

693 Individual Studies UGRD 1-15
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: 20 cr hrs in sociol, or grad standing and permission of instructor. Repeatable. This course is graded S/U.

694.01 Group Studies: Sociological Theory UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.02 Group Studies: Social Organization UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.03 Group Studies: Medical Sociology UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.04 Group Studies: Criminology and Criminal Justice UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.05 Group Studies: Sociology of Education UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.06 Group Studies: Race/Ethnic/Minority Relations UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.07 Group Studies: Social Psychology UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.08 Group Studies: The Family UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.09 Group Studies: Research Methodology UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.10 Group Studies: Urban/Community/Ecology UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.11 Group Studies: Labor Markets/Economy and Society UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.12 Group Studies: Political Sociology UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.13 Group Studies: Population/Demography UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.14 Group Studies: Gender UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

694.15 Group Studies: Unclassified UGRD 3-5
Prereq: 5 credit hours in Sociology at the 200-400 level or grad standing. Repeatable to a maximum of 15 cr hrs. Topics vary each qtr offered. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (‘P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.
Prereq: Permission of instructor. Repeatable for different titled study tours only.

699 Undergraduate Research in Sociology UGRD 1-15
Undergraduate research or creative activities in variable topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

703 Advanced Single Equation Techniques GRAD 5
Techniques of analysis for examining nominally measured dependent variables, and treatment of error structures that are heteroskedastic or correlated across cases.
Prereq: 649, grad standing, or permission of instructor.

704 Qualitative Methods in Sociology GRAD 5
A survey of qualitative approaches to social research, including participant observation, intensive interviewing, and archival/documentary analysis.
Prereq: Grad standing.

705 Construction and Verification of Theory GRAD 5
The actual practice of theory construction and its underlying logic.
* Prereq: 487 or equiv, or grad standing, or permission of instructor. Repeatable to a maximum of 10 cr hrs.

707 Multi-Equation Quantitative Models GRAD 5
A survey of advanced problems in the multivariate analysis of sociological data.
Prereq: 649. Repeatable to a maximum of 10 cr hrs.

708 Problems in Qualitative Analysis GRAD 5
Problems and techniques of non-quantitative data analysis including case studies, participant observation, field diary, autobiography, and historical records.
Prereq: 648 or 704.

709 Historical Sociology GRAD 5
Assessment of major studies in historical sociology by focusing on their internal logic the supporting evidence, and the subsequent research.
Prereq: 648 or 704.

710 Design and Analysis of Quantitative Sociological Research GRAD 5
Problem formulation, hypothesis testing, argumentation from data, and writing for professional audiences; research practicum leading to a research project.
Sp Qtr. Prereq: 651.

711 Seminar on Sociology of Work GRAD 5
A survey of selected topics in sociology of workplace relations; control, administration, leadership, and occupations; theoretical approaches to the study of workplace relations.

712 Social Networks GRAD 5
The theory, substance, and methods for understanding patterns, causes, and consequences of relationships among populations of actors.
No prereq; however, 649 and 782 recommended.

718 Advanced Criminology GRAD 5
A critical study of the most important aspects of criminology.
Prereq: Grad standing or permission of instructor.

720 Family, Work, and Inequality GRAD 5
Examination of recent research and theory in sociology of the family, with emphasis on the linkages among family, work, and inequality.
Prereq: Grad standing or permission of instructor.

721 Macrosociological Perspectives and Research on Crime GRAD 5
Examination of macrosociological perspectives on the etiology of crime and delinquency providing a survey of the major theories and empirical research on the theories.
2-2 hr cl. Prereq: Grad standing or permission of instructor.

423
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>723</td>
<td>The Sociology of Crime and Punishment</td>
<td>5</td>
<td>Theoretical survey of reactions to crime including arrest, charge, and sentencing. Prereq: Grad standing.</td>
</tr>
<tr>
<td>735</td>
<td>Sociology of Gender</td>
<td>5</td>
<td>An examination of current theory and research on the sociology of gender through extensive readings. Prereq: Grad standing or permission of instructor.</td>
</tr>
<tr>
<td>747</td>
<td>Theories of Social Change</td>
<td>5</td>
<td>Analysis of theoretical traditions in the study of social change, and methods of constructing synthetic theories of change. Prereq: 682 or 782 or equiv.</td>
</tr>
<tr>
<td>748</td>
<td>Comparative Methods in Sociology</td>
<td>5</td>
<td>Basic review of methods of comparative analysis as used in the study of social change. Prereq: 651.</td>
</tr>
<tr>
<td>752</td>
<td>Principles and Techniques of Scale Construction</td>
<td>5</td>
<td>Approaches and techniques in the development and testing of social measurement instruments. Prereq: 549 or equiv or Soc Work 540.</td>
</tr>
<tr>
<td>754</td>
<td>Demographic Analysis</td>
<td>5</td>
<td>An exposition of census data and vital statistics, demographic rates, life tables, cohort analysis, and similar elementary techniques and data sources in demography. 5 cl. Prereq: 1 course in general statistics.</td>
</tr>
<tr>
<td>756</td>
<td>Migration and Social Mobility</td>
<td>5</td>
<td>Theories and models of population mobility; determinants and consequences of the migration process; policy implications of rural-urban migration.</td>
</tr>
<tr>
<td>757</td>
<td>Seminar on the Life Course</td>
<td>5</td>
<td>Introduction to the life course as a theoretical orientation, methodology, and field of study within sociology. Prereq: Grad standing or permission of instructor.</td>
</tr>
<tr>
<td>758</td>
<td>Population, Health, and Life Course</td>
<td>5</td>
<td>Social and demographic forces that affect well being, health, and survival. 2-2 hr. cl. Prereq: Grad standing or permission of instructor.</td>
</tr>
<tr>
<td>760</td>
<td>Sociology of Conflict and Violence</td>
<td>5</td>
<td>Comparative analysis of the sources and impact of conflict and violence. Prereq: 10 cr hrs in sociol or grad standing.</td>
</tr>
<tr>
<td>761</td>
<td>Social Stratification</td>
<td>5</td>
<td>A survey of major theories, issues, and empirical literature on societal stratification and inequality with particular focus on the United States.</td>
</tr>
<tr>
<td>762</td>
<td>Comparative Social Inequality</td>
<td>5</td>
<td>Using historical and cross-cultural approaches, two aspects of social inequality are examined: class relations and the distribution of goods.</td>
</tr>
<tr>
<td>770</td>
<td>Individual in Society</td>
<td>5</td>
<td>Analysis and synthesis of the major theories and findings of social psychology.</td>
</tr>
<tr>
<td>771</td>
<td>Symbolic Interaction</td>
<td>5</td>
<td>Analysis of the relationship between the individual and the social structure; particular reference paid to the symbolic interaction orientation.</td>
</tr>
<tr>
<td>780</td>
<td>Racial and Ethnic Differentiation</td>
<td>5</td>
<td>An analysis of the origin, persistence, adaptation and change of systems and racial and ethnic differentiation.</td>
</tr>
<tr>
<td>782</td>
<td>Earlier Developments in Sociological Theory</td>
<td>5</td>
<td>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.</td>
</tr>
<tr>
<td>783.01H</td>
<td>Honors Research: Sociology</td>
<td>1-5</td>
<td>A conference-thesis course; subject matter will vary depending upon the student's topic. Prereq: 4th yr standing with a grade of A in at least half of the sociol courses 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. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in H783. At least 2 qtrs are required of candidates for the degree BA with distinction in sociol. Failure to receive a mark of S in this course is a disqualification for special honors. This course is graded S/U.</td>
</tr>
<tr>
<td>783.02H</td>
<td>Honors Research: Criminology and Criminal Justice</td>
<td>1-5</td>
<td>A conference-thesis course; subject matter will vary depending upon the student's topic. Prereq: 4th yr standing with a grade of A in at least half of the crimino and/or social courses 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. Repeatable to a maximum of 10 cr hrs. including cr hrs earned in Criminal H783. At least 2 qtrs are required of candidates for the degree BA with distinction in criminal. Failure to receive a mark of S in this course is a disqualification for special honors. This course is graded S/U.</td>
</tr>
<tr>
<td>790</td>
<td>Social Organization of the Community</td>
<td>5</td>
<td>An examination of the nature, structures, processes, and trends of social organization of modern communities.</td>
</tr>
<tr>
<td>791</td>
<td>Sociological Methods of Community</td>
<td>5</td>
<td>Analysis of theory and research bearing upon the role of medicine in society and the health organizations on national, community, and institutional levels.</td>
</tr>
<tr>
<td>792</td>
<td>Structural Sociology</td>
<td>5</td>
<td>Key concepts, issues, recent trends in the study of social structure with special emphasis on formal social organizations, social stratification, comparative social systems, groups and research methods. 5 cl. Prereq: Grad standing in sociol.</td>
</tr>
<tr>
<td>800</td>
<td>Proseminar in Sociology</td>
<td>2</td>
<td>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. Repeatable to a maximum of 6 cr hrs. Open only to 1st year grad students in sociol. This course is graded S/U.</td>
</tr>
<tr>
<td>801</td>
<td>PhD Proseminar</td>
<td>2</td>
<td>Orientation for new PhD students in sociol. Prereq: PhD standing in sociol. This course is graded S/U.</td>
</tr>
<tr>
<td>802</td>
<td>Teaching Sociology</td>
<td>3</td>
<td>Designed to prepare sociology graduate students to teach independent sections of basic sociology classes. 1-3 hr cl. Prereq: Grad standing in sociol or permission of instructor. This course is graded S/U.</td>
</tr>
<tr>
<td>806</td>
<td>Social Movements</td>
<td>5</td>
<td>Explores how and why social movements arise and their impact on society. Prereq: Grad standing or permission of instructor.</td>
</tr>
<tr>
<td>820</td>
<td>Seminar in the Sociology of Education</td>
<td>5</td>
<td>Special problems will be considered in different quarters, including urban education, student movements, bureaucratic-professional problems, school-community relations, and innovation. Repeatable to a maximum of 10 cr hrs.</td>
</tr>
<tr>
<td>830</td>
<td>Seminar in Medical Sociology: Problems in the Sociology of Health Organization</td>
<td>5</td>
<td>Analysis of theory and research bearing upon the role of medicine in society and the health organizations on national, community, and institutional levels.</td>
</tr>
<tr>
<td>837</td>
<td>Seminar in Political Sociology</td>
<td>5</td>
<td>Selected topics in political sociology. Prereq: Grad standing or permission of instructor.</td>
</tr>
<tr>
<td>841</td>
<td>Topics in Urban Sub-Communities</td>
<td>5</td>
<td>Examination of society and culture of sub-communities such as ethnic and racial ghettos, suburbia; generalization about the patterns of integration with larger systems.</td>
</tr>
<tr>
<td>848</td>
<td>Seminar in the Sociology of Religion</td>
<td>5</td>
<td>An analysis of selected contemporary problems in the sociology of religion; religious organization and involvement.</td>
</tr>
<tr>
<td>850</td>
<td>Seminar in Sociological Research Methods</td>
<td>1-5</td>
<td>Special topic seminars in research methodology. Repeatable to a maximum of 30 cr hrs.</td>
</tr>
<tr>
<td>851</td>
<td>Hierarchical Linear Models</td>
<td>5</td>
<td>Introduction to hierarchical 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.</td>
</tr>
<tr>
<td>852</td>
<td>Event History Analysis of Social Data</td>
<td>5</td>
<td>This course provides an introduction to event history analysis of social data. Prereq: Grad standing or permission of instructor.</td>
</tr>
<tr>
<td>859</td>
<td>Practicum in Sociological Research</td>
<td>1-15</td>
<td>Supervised practical experience in the independent execution of sociological research the application of appropriate analytical techniques, and preparation of research reports. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.</td>
</tr>
</tbody>
</table>

424
862 Seminar in Complex Organizations  
Analysis of bureaucratization, structure, boundary problems, resource allocation, organizational change and conflict.  
*  
864 Seminar: Organizational Environments  
Theory and analysis of organization-environment relations, inter-organizational relations, and the structure of social environments.  
* Prereq: 663 or equiv.  
880 Issues in Contemporary Theory: Theories of Social Action  
A critical examination of contemporary theory in sociology with an emphasis on individual action in the social context.  
Prereq: 782 or 784 or permission of instructor.  
884.01 Seminar: Sociological Theory  
Repeatable to a maximum of 15 cr hrs.  
884.03 Seminar: Medical Sociology  
Repeatable to a maximum of 15 cr hrs.  
884.04 Seminar: Criminology and Criminal Justice  
Repeatable to a maximum of 15 cr hrs.  
884.06 Seminar: Race/Ethnic/Minority Relations  
Repeatable to a maximum of 15 cr hrs.  
884.08 Seminar: The Family  
Repeatable to a maximum of 15 cr hrs.  
884.09 Seminar: Research Methodology  
Repeatable to a maximum of 15 cr hrs.  
884.10 Seminar: Urban/Community  
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 15 cr hrs.  
884.11 Seminar: Labor Markets/Economy and Society  
Repeatable to a maximum of 15 cr hrs.  
884.12 Seminar: Political Sociology  
Repeatable to a maximum of 15 cr hrs.  
884.13 Seminar: Population/Demography  
Repeatable to a maximum of 15 cr hrs.  
884.14 Seminar: Gender  
Repeatable to a maximum of 15 cr hrs.  
888 Seminar in the American Family  
An examination of relevant issues, trends, and problems with emphasis on theoretical orientations and research findings.  
Repeatable to a maximum of 5 cr hrs.  
*  
998 Research in Sociology: Thesis  
Research for thesis purposes only.  
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.  
999.15 Research in Sociology: Dissertation: Unclassified  
Research for dissertation purposes only.  
This course is graded S/U. Repeatable.  

**Spanish**  
100 Spanish for Communication  
Designed for students who wish to refresh or recover oral Spanish skills, or for highly motivated students who have never studied Spanish and wish to develop basic survival Spanish skills.  
Su, Au, Wi, Sp Qtr. 2 72-min cl. Not open to Spanish majors and minors or students with credit for Spanish 101 or above, except for Spanish 150 and 151.  
101.01 Elementary Spanish I  
Introduction to Spanish; development of listening, reading, speaking, and writing skills. Students must register for and complete 5 or 6 cr hrs during the qtr. 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 dept. GEC for lang course. FL Admis Cond course. This course is available for EM credit.  
102.01 Elementary Spanish I  
Continued study of Spanish; development of listening, reading, speaking and writing skills.  
Prereq: 101.01. Students must register for and complete 5 or 6 cr hrs during the qtr. Not open to native speakers of this language through regular course enrollment or EM credit. Not open to native speakers of Spanish through regular course enrollment or EM credit, or to students with credit for 101.01 or 102.01. GEC for lang course. FL Admis Cond course. This course is available for EM credit.  
102.66 Elementary Spanish I: Intensive Spanish for Review I  
Continued study of Spanish; development of listening, reading, speaking and writing skills. Intensive review of basic vocabulary, structures, and skills needed for entry into 103.01.  
Prereq: 2 or more years of high school Spanish and placement at 101 level. Not open to native speakers of this language through regular course enrollment or EM credit. Not open to native speakers of Spanish through regular course enrollment or EM credit, or to students with credit for 101.01 or 102.01. GEC for lang course. FL Admis Cond course.  
103.01 Intermediate Spanish II  
Continued study of Spanish; development of listening, reading, speaking, and writing skills; readings based on Spanish culture and literature.  
Prereq: 102.01. Students must register for and complete 5 or 6 cr hrs during the qtr. This course is available for EM credit. Not open to native speakers of this language through regular course enrollment or EM credit, or to students with credit for 102.01, 102.66, or 103.01. GEC for lang course.  
103.66 Intermediate Spanish II: Intensive Spanish for Review II  
Continued study of Spanish; development of listening, reading, speaking, and writing skills; readings based on Spanish culture and literature.  
Prereq: 101.01 or 5 cr hrs of 101.51, or 3 or more yrs of high school Spanish and placement into 102 by placement exam. Not open to native speakers of this language through regular course enrollment or EM credit. Not open to native speakers of Spanish through regular course enrollment or EM credit, or to students with credit for 102.01, 102.66, or 103.01. GEC for lang course.  
104 Intermediate Spanish II  
Reading of Spanish short stories, plays, and media with attention to literary appreciation; development of basic language skills.  
Su, Au, Wi, Sp Qtr. 5 cl. Prereq: 103.01 or 103.66 or equiv. Not open to native speakers of this language through regular course enrollment or EM credit; or to students with credit for 104. This course is available for EM credit. GEC for lang courses.  
104H Honors Intermediate Spanish II  
Intensive, intermediate Spanish for potential Spanish majors, minors, and highly motivated students in other areas of study; emphasis on development of proficiency in speaking and writing Spanish and knowledge of Hispanic cultures.  
Su, Au, Wi, Sp Qtr. 5 cl. Prereq: 103.01 or 103.66 or equiv, and GPA 3.4 or higher Not open to native speakers of this language through regular course enrollment or to students with credit for 104. Upon successful completion of H104 and SLRPE, students may enroll in 401. GEC for lang course.  

**Somali**  
101 Elementary Somali I  
Development of oral proficiency through basic listening, speaking and reading skills using a competency-based curriculum.  
Au Qtr. 5 1-hr cl. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. This course is available for EM credit.  
102 Elementary Somali II  
Continuation of 101; further work on developing oral proficiency through basic listening, speaking and reading skills using a competency-based curriculum.  
Wi Qtr. 5 1-hr cl. Prereq: 101. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. This course is available for EM credit.  
103 Intermediate Somali I  
Further development of listening, reading, speaking and writing skills; readings based on Somali culture and literature.  
Sp Qtr. 5 1-hr cl. Prereq: 102. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit.  
104 Intermediate Somali II  
Balanced use of basic language skills; emphasis on speaking and aural comprehension further exposure to Somali culture through community interaction and current reading.  
Sp Qtr. 5 1-hr cl. Prereq: 103. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. This course is available for EM credit.
111 Intensive Intermediate Spanish UGRD 5-10
An intensive course that combines the content of 103 and 104; continuing study of Spanish grammar vocabulary, listening, speaking, reading, and writing. Su, Au, Wi, Sp Qtrs. 5-2 hr cl. Prereq: 102.01 or 102.66, or equiv with written permission of instructor. A "C" average in previous Spanish course work strongly recommended. Not open to students with credit for 104 or 104 decimal subdivisions; or to native speakers of Spanish through regular course enrollment or EM credit.

150 Culture and Literature of Spain UGRD 5
Introduction to the principal developments of the culture of Spain through literature, art, music, film, and folklore. 2 2-hr cl, 1-1 hr rec. Taught in English. GEC arts and hums cultures and ideas course.

151 Introduction to Latin American Culture UGRD 5
and Literature
Introduction to the culture of Spanish America and Brazil through literature, art, music, film, and folklore. 2 2-hr cl, 1-1 hr rec. Taught in English. GEC arts and hums cultures and ideas course.

240.01 Comprehension: A Listening Course in UGRD 4
Spanish
Listening strategies and practice for development of literal, evaluative, and critical listening skills in Spanish; a variety of comprehension strategies and their application to authentic audio and video texts. 4 cl or 2 1.5 hr cl. Prereq: 104, 111, or equiv.

240.51 Comprehension: A Listening Course in UGRD 4
Spanish: Individualized Track
Listening strategies and practice for development of literal, evaluative, and critical listening skills in Spanish; various comprehension strategies and their application to authentic audio/video texts. Prereq: 104, 111, or equiv. Recommended for students who did not pass the listening portion of the SLRPE.

250 Fact and Fiction: A Reading Course in UGRD 4
Spanish
Reading strategies and reading practice based on authentic Spanish texts, both journalistic and literary. 2 2-hr cl. Prereq: 104 or 111. Upon successful completion of the SLRPE, students may register for 400-level courses.

293 Individual Studies UGRD 1-15
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept. Repeatable to a maximum of 99 cr hrs. This course is graded S/U.

294 Group Studies UGRD 1-15
Group Studies.
Prereq: Written permission of dept. Repeatable to a maximum of 30 cr hrs.

320 Don Quixote in Translation UGRD 5
Introductory critical reading of Don Quixote in English. 2 2-hr cl. Credit does not count toward a major or minor in Spanish. Taught in English. GEC arts and hums lit course.

321 The Spanish Don Juan Theme in the UGRD 5
Theatre
Introduction to the Don Juan theme from its origins in Renaissance Spain, through different versions, to the 20th century. 2 2-hr cl. Credit does not count toward a major or minor in Spanish. Taught in English. GEC arts and hums lit course.

322 Spanish Society and the Arts UGRD 5
Introduction to Spanish art and its relationship to society, from Goya to Toral: a visual approach to culture. 2 2-hr cl. Credit does not count toward a major or minor in Spanish. Taught in English. GEC arts and hums VPA course.

330 Reinventing America UGRD 5
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. 2 2-hr cl. Credit does not count toward a major in Spanish. Taught in English. GEC arts and hums VPA course.

331 Caribbean Cultures UGRD 5
The analysis of Caribbean societies and cultures; analysis of texts to unravel the cultural processes of creolization, neotribalism, and culturalism. 2 2-hr cl. Credit does not count toward a major or minor in Spanish. Taught in English. GEC arts and Hum cultures and Ideas course.

367 The U.S. Experience: Hispanics, Language, UGRD 5
and Literacy
A GEC second writing (social diversity) course focusing on generating ideas, drafting revising writing projects set within context of literacy and related issues among U.S. Hispanics. Prereq: 250; English 110, 110.01, 110.02 or 110.03. Taught in Spanish. GEC 2nd writing course. Service learning course.

380 Introduction to Latin American Film UGRD 5
Introduction to Latin American film traditions; analysis of genres, filmmakers, and alternate aesthetics; focus on relation of film to social, political, and economic issues. 3 2-hr cl. Prereq: English 110 or 2nd yr standing. Credit does not apply toward a major or minor in Spanish. Taught in English. GEC arts and hums VPA course.

395 Topics in Foreign Study UGRD 1-15
Credit from study abroad for courses not offered by department. Arr. Used only to convert 697 credit to more appropriate content level. Repeatable to a maximum of 99 cr hrs. Not applicable to Spanish major or minor. Arranged only with permission of departmental study abroad advisor. Class may be taught in Spanish or English.

401 Advanced Grammar UGRD 4
In-depth examination of difficult points of Spanish grammar; emphasis on comprehension of key grammatical concepts in the language. Su (1st term), Au, Wi, Sp Qtrs. 2 2-hr cl. 401H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: H104 or 250. H401 gpa 3.4 or higher. Not open to students with credit for Spanish 603 or to native speakers of Spanish through regular course enrollment or EM credit. May be taken concurrently with 401.

404 Spanish Pronunciation UGRD 3
Practice with corrective exercises; some attention to problems of teaching pronunciation. 2 2-hr cl. Prereq: H104 or 250. Not open to students with credit for Spanish 604.

406 Intermediate Business Spanish UGRD 5
An introduction to business Spanish with emphasis on business terminology, commercial transactions, and international procedures. 2 2-hr cl. Prereq: 403. Taught in Spanish.

430 Introduction to Spanish Linguistics UGRD 5
Introduction to the analysis of Spanish from the perspective of modern linguistic theory. 2 2-hr cl. Prereq: 401 and 404.

450 Introduction to the Study of Literature and UGRD 4
Culture in Spanish: Reading Texts
Introduction to literary and cultural texts from Spain and Spanish America. 2 2-hr cl. 450H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 401 and 403. H450 gpa 3.4 or higher. H450 required of Spanish honors majors and minors.

506 Latin American Culture in a Business UGRD 5
Context
Examination of cultural differences and similarities between the U.S. and Latin America and repercussions of conducting business with competent understanding. 2 2-hr cl. Credit does not apply to a major or traditional minor in Spanish. May be applied to a Spanish Minor for Business. Taught in English.

510 Mexican Studies UGRD 3
An interdisciplinary study of different issues and processes in Mexican culture, history, and society. 1 2-hr cl. Priority given to students enrolled in the scholars program. Taught in English. Credit does not count toward the Spanish major or minor.

520 Latin American Literature (in Translation): UGRD 5
Fictions and Realities
Critical examination of modern Latin American literature (in English translation) paying close attention to its own literary and cultural traditions. 2 2-hr cl. Credit does not apply toward a major or minor in Spanish. GEC arts and hums lit course.

530H Honors Introduction to Spanish Linguistics UGRD 5
Introduces concepts and techniques for the analysis of sentence structure (syntax), sounds (phonology and phonetics) and word formation (morphology) in Spanish. 2 2-hr cl. Prereq: 401 and 404. Not open to students with credit for 430.

536 Language Change in Spanish UGRD 5
Historical development of the Spanish language, including details of phonological, morphosyntactic, and semantic changes; external history; and changes currently in progress. 2 2-hr cl. Prereq: 430.

537 Spanish Psycholinguistics UGRD 5
Overview of child language acquisition, second language acquisition and child and adult language disorders in Spanish-speaking populations. 2 2-hr cl. Prereq: 430.
538 Language Variation in Spanish UGRD 5
Survey of linguistic variation across the Spanish-speaking world, including geographical and social factors.
2-2 hr cl. Prereq: 430.

551 Spanish Golden Age Literature UGRD 5
Introductory critical study of major literary works from the 16th and 17th centuries in Spain.
2-2 hr cl. Prereq: 450. E551 may be available for honors embedded experience.

552 Modern Spanish Literature UGRD 5
Introductory critical study of major literary works from the 19th and 20th centuries in Spain.
2-2 hr cl. 552H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 450, H552 gpa 3.4 or higher.

555 Indigenous and Colonial Literatures of Spanish America UGRD 5
Introductory critical study of issues and processes in the formation of indigenous and colonial expression through 19th century regional discourses.
2-2 hr cl. Prereq: 450. E555 may be available for honors embedded experience.

556 Modern Spanish American Literature UGRD 5
Introductory critical study of issues and processes in Spanish American writing from Modernism through the 20th century.
2-2 hr cl. Prereq: 450.

557 Survey of Latino/a Literature in the U.S. UGRD 5
Introductory critical study of authors, topics, and movements in Latino/a literature from the late 19th century to the present.
2-2 hr cl. Prereq: 450.

560 Introduction to Spanish American Culture UGRD 5
Major elements in the culture of the peoples of Spanish America.
2-2 hr cl. 560H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 450. H560 gpa 3.4 or higher. H560 required of Spanish honors majors.

561 Introduction to the Culture of Spain UGRD 5
Major developments in the culture of Spain.
2-2 hr cl. 561H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: 450. H561 gpa 3.4 or higher. H561 required of Spanish honors majors.

565H Latin American Indigenous Literatures and Cultures UGRD 5
Introduction to continuities and transformations that link Latin American colonial indigenous texts with contemporary cultural expression.
2-2 hr cl. Prereq: H450. Limited to Spanish and honors majors with 3.3 gpa and above.

567 Spanish Mosaic: Catalonia, Basque Country, Galicia and Andalusia UGRD 5
Explores the fragmentation and renegotiation of Spanish cultural and political identity in tension with its peripheral "nations" : Catalonia, Basque Country, Galicia, Andalusia.
2-2 hr cl. Prereq: 450 or H450. Taught in Spanish.

580 Latin American Film UGRD 5
Study of Latin American film; special attention is paid to the relationship between film and the society in which it is produced.
3 2-hr cl. Prereq: 450.

581 Spanish Film UGRD 5
Study of Spanish film; special attention is paid to the relationship between film and the society in which it is produced.
2-2 hr cl. Prereq: 450.

589 Latino Ohio: A Culture Course in English for Educators and Other Professionals UGRD 5
A close-up look at Hispanic life in Ohio with attention to cultural, linguistic, and professional issues especially important to those working with Spanish-speaking populations.
Sp Qtr. 6-8 hr cl. Not open to students with credit for 689. Not available for credit in Spanish major or minor. Taught in English. Students will pay travel costs, if required.

590H Interdisciplinary Protocols: Identity and National Formation in Latin America: Perspectives from Lit UGRD 5
Examines the intersections between history and literature, and exposes students to core discussions in contemporary historical and cultural scholarship.
Prereq: 450/H450. Open only to Spanish and Honors majors with 3.4 GPA and above. Cross-listed with History 598.02 (specific topics only). Taught in English.

595 Special Topics in Foreign Study UGRD 1-15
Credit from study abroad for courses not offered by department but eligible for Spanish major core.
Arr. Used only to convert 697 credit to more appropriate content level. Repeatable to a maximum of 99 cr hrs. Arranged only with permission of departmental study abroad adviser.

601 Modern Spanish Syntax UGRD 5
Study of modern Spanish grammar; modern tendencies in syntactic analysis.
2-2 hr cl. Prereq: 430.

603 Advanced Spanish Composition UGRD 5
Analysis of different prose styles and practice in writing fluent Spanish compositions.
2-2 hr cl. Prereq: 450 and jr or sr standing. GEC third writing course.

604 Spanish Phonetics UGRD 5
Analysis of the phonological structure of Spanish and a comparison with English; practical problems of teaching pronunciation.
2-2 hr cl. Prereq: 430. E604 may be available for honors embedded experience.

604H Spanish Phonetics UGRD 5
Analysis of the phonological structure of Spanish and a comparison with English; practical problems of teaching pronunciation.
Prereq: 430 or 530H.

606 Advanced Business Spanish UGRD 5
An in-depth study of the Hispanic economic, social, and cultural environment as it relates to business.
2-2 hr cl. Prereq: 403 or permission of instructor.

610 Contrastive Structures of Spanish and English UGRD 5
Phonetics, phonemics, morphology, and syntax of Spanish contrasted with English.
2-2 hr cl. Prereq: 430.

613 Advanced Spanish Composition for Native Speakers UGRD 5
Development of the ability to organize and express ideas in written Spanish; cultural component.
2-2 hr cl. Prereq: Several courses in Spanish grammar in the U.S. or in a Spanish-speaking country. Not open to students studying Spanish as a second ("foreign") language. Designed for students of Hispanic culture or heritage who have no serious problems with spoken Spanish but who need further practice writing.

630 Senior Seminar in Spanish Linguistics UGRD 5
Intensive study of a major topic in Hispanic linguistics; topic varies, for example: the Spanish pronominal system, American Spanish dialectology, Spanish orthography.
2-2 hr cl. Prereq: Any two of 536, 538, 601, 604, 610. Repeatable to a maximum of 15 cr hrs.

640 Globalization and Latin America: Multi-Disciplinary Approaches UGRD 5
Explores current debates on globalization in Latin America and recent and interrelated transformations in the economies, politics, and cultures of the region.
2-2 hr cl. Prereq: Jr standing or higher. Not open to students with credit for Int Stds 640. Taught in English. Cross-listed in International Studies.

650 Senior Seminar in Spanish Peninsular Literatures and Cultures UGRD 5
Intensive study of a major theme, author, literary or cultural problem related to Spain.
2-2 hr cl. Prereq: 561 plus one of 551, 552, 567, 581. Repeatable to a maximum of 15 cr hrs. Required for Spanish majors in the Peninsular track.

660 Senior Seminar in Latin American Literatures and Cultures UGRD 5
Intensive study of a major theme, author, literary or cultural problem related to Latin America.

660H Honors Seminar UGRD 5
Intensive study of major topics in Hispanic literature, culture or linguistics, with emphasis on developing research skills; topic varies.
2-2 hr cl. Prereq: One of 551, 552, 555, 556, 557; one of 560, 561; and 603; honors major in Spanish. Repeatable to a maximum of 15 cr hrs. Required for Honors majors in Spanish.

689 Spanish in Ohio: An Experiential Course UGRD 5
for Selected Majors
Interaction with Hispanic communities in Ohio; intensive and extensive practice with Spanish as spoken by native speakers from the U.S. and abroad.
This course requires 100 field contact hours outside class. Prereq: 560 or 561 and permission of instructor. Not open to native Spanish speakers unless their secondary education was completed in the United States. Students will pay travel costs, if required.
693 Individual Studies  UGRD  1-30
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 99 cr hrs. This course is graded S/U.

694 Group Studies  UGRD  1-15
Group Studies.
Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs.

697 Study at a Foreign Institution  UGRD  1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (‘P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

702 Introduction to Literary Analysis  GRAD  5
Literary criticism and methods of discourse analysis; emphasis on application of critical concepts.
Au Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor. Intended for beginning grad students; may be taken by advanced undergraduates with permission of instructor.

732 Spanish Syntax and Semantics  GRAD  5
Introduction to structural and semantic characteristics of Spanish in the light of recent theoretical frameworks in linguistics.
Prereq: Grad standing or permission of instructor.

734 Spanish Phonology and Morphology  GRAD  5
Introduction to phonological and morphological characteristics of Spanish in the light of recent theoretical frameworks in linguistics.
Prereq: Grad standing or permission of instructor.

736 History of the Spanish Language  GRAD  5
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.

738 Spanish Sociolinguistics  GRAD  5
Introduction to the analysis of linguistic and social factors which contribute to variation in modern Spanish.
Prereq: Grad standing or permission of instructor.

739 Introduction to Medieval Spanish  GRAD  2
Introduction to Medieval Spanish sounds, forms, constructions, and vocabulary, based on reading and linguistic comment of representative texts.
Prereq: Grad standing or permission of instructor.

751 Studies in Medieval Spanish Literature  GRAD  5
In-depth study of a major topic or problem in Medieval Spanish literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

752 Studies in Spanish Golden Age Literature  GRAD  5
In-depth study of a major topic or problem in Spanish Golden Age literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

753 Studies in Spanish Literature of the 18th and 19th Centuries  GRAD  5
In-depth study of a major topic or problem in 18th or 19th century Spanish literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

754 Studies in 20th Century Spanish Literature  GRAD  5
In-depth study of a major topic or problem in 20th century Spanish literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

755 Studies in Indigenous and Colonial Spanish American Literature  GRAD  5
In-depth study of a major topic or problem in indigenous and colonial Spanish American literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

756 Studies in Independence and 19th Century Spanish American Literature  GRAD  5
In-depth study of a major topic or problem in Spanish American literature of the independence period and the 19th century.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

757 Studies in Modern Spanish American Literature  GRAD  5
In-depth study of a major topic or problem in Spanish American literature of the modern period from approximately 1880 to 1950.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

758 Studies in Contemporary Spanish American Literature  GRAD  5
In-depth study of a major topic or problem in contemporary Spanish American literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

759 Comparative Topics in Iberian and Latin American Literature  GRAD  5
In-depth study of a major topic comparing Spanish, Spanish American and/or Luso-Brazilian literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

760 Topics in Spanish American Culture and Civilization  GRAD  5
Analysis of Spanish American culture through the study of selected topics in literature, film, and the arts; topics vary.
2 2-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

761 Topics in Spanish Culture and Civilization  GRAD  5
Analysis of Spanish culture through the study of selected topics in literature, film, and the arts; topic varies.
2 2-hr cl. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

780 Latin American Film  GRAD  5
Overview of Latin American film focusing on historical periods, dominant genres, distinguished directors, and relation of film to larger social, cultural and political dynamics. Taught in Spanish.
Prereq: Grad standing or permission of instructor.

783H Honors Research  UGRD  3-15
This course offers undergraduates with special aptitudes a greater opportunity to do independent study than is possible in ordinary courses.
Su, Au, Wi, Sp Qtrs. Conference, library or phonetics laboratory arr. Prereq: 4th yr standing with a record of A in at least half of the Spanish courses 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. Repeatable to a maximum of 99 credit hours. This course is graded S/U.

790 Foundations of Contemporary Critical Theory  GRAD  5
Interdisciplinary survey of the theoretical bases of the major contemporary approaches to the study of literature; readings in Marx, Freud, Derrida, Cixous, and others.
Wi Qtr. 2 2-hr or 5 cl. Prereq: Grad standing or permission of instructor.

792 Interdepartmental Studies in the Humanities  GRAD  3-5
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 15 cr hrs.

801 Teaching Spanish at the College Level  GRAD  5
Methods and techniques for teaching Spanish language at the college level.
Au Qtr. Three-wk intensive workshop previous to beginning of qtr followed by a 2-hr seminar every second week during qtr. Prereq: Teaching associate in the Dept of Spanish and Portuguese or permission of instructor. Not open to students with credit for Educ-T&L 801.03. For students enrolled in this course, the minimum number of cr hrs required for graduation is increased by 5 hrs.

803 Research Methods and Design  GRAD  5
Introduction to research methods and design in Hispanic literatures and cultures.
Sp Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor. Not open to students with credit for 703. Required course for Hispanic Literature PhD programs.

830 Hispanic Linguistics Colloquium  GRAD  2
Forum for presentation of research in Hispanic linguistics; introduction to professiona issues in workshop format.
Au, Wi, Sp Qtrs. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

832 Studies in Synchronic Spanish Syntax, Semantics, and Pragmatics  GRAD  5
Investigation of theoretical concepts in syntax, semantics, and pragmatics and how they have been applied to the analysis of the Spanish language.
2 2-hr cl. Prereq: 732 or permission of instructor. Repeatable to a maximum of 20 cr hrs.
833 Studies in Spanish Synchronic Linguistics GRAD 5
Investigation of selected topics in synchronic Spanish linguistics (formal problems in Spanish phonology, morphology, syntax, semantics, and lexicology).
Prereq: 732 or 734 (depending on topic) or permission of instructor. Repeatable to a maximum of 20 cr hrs. Individual topics not repeatable.

834 Studies in Synchronic Spanish Phonetics, Phonology, and Morphology
Investigation of theoretical concepts in phonetics, phonology, and morphology and how they have been applied to the analysis of the Spanish language.
2 2-hr cl. Prereq: 734 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

836 Studies in Spanish Historical Linguistics GRAD 5
Study of selected problems of Old Spanish linguistic description and diachronic evolution of Spanish.
Prereq: 736 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

837 Studies in Spanish Psycholinguistics GRAD 5
Studies in child language acquisition, second language acquisition and child and adult language disorders in Spanish-speaking populations.
3p Qtr. 2 2-hr cl. Prereq: 737 or permission of instructor. Repeatable to a maximum of 20 cr hrs.

853 Seminar in Spanish Literature of the 18th Centuries and 19th Centuries
Detailed exploration of advanced issues in Spanish Golden Age literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.

854 Seminar in 20th Century Spanish Literature GRAD 5
Detailed exploration of advanced issues in 20th century Spanish literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.

855 Seminar in Indigenous and Colonial Spanish American Literature
Detailed exploration of advanced issues in indigenous and colonial Spanish American literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.

858 Seminar in Contemporary Spanish American Literature
Detailed exploration of advanced issues in contemporary Spanish American literature.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.

859 Seminar in Comparative Iberian and Latin American Literature
Detailed exploration of advanced issues comparing Spanish, Spanish American and/or Luso-Brazilian literatures.
Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.

865 Seminar in Latin American Cultures GRAD 5
Intensive exploration of a cultural period, topic, or problem; topic varies.
Prereq: 760 and grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

866 Seminar in Spanish Culture GRAD 5
Intensive exploration of a cultural period, topic or problem; topic varies.
Prereq: 761 and grad standing or permission of instructor. Repeatable to a maximum of 20 cr hrs.

881 Literary Theory since Formalism GRAD 5
Survey of the various historical sources of modern literary theory, from Aristotle to 20th century literary theory with special attention to questions relevant to Hispanic literatures.
Prereq: Grad standing or permission of instructor.

882 Seminar in Literary Theory GRAD 5
Survey of the various historical sources of modern literary theory, from Aristotle to 20th century literary theory with special attention to questions relevant to Hispanic literatures.
Prereq: Grad standing or permission of instructor.

999 Research in Spanish Language or Literature GRAD 1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 99 cr hrs. This course is graded S/U.

Speech and Hearing Science

100 Speech Patterns and Pronunciation: Practical Introduction to Standard American English
This course informs students about the sound system of a so-called "standard" version of American English and provides them with opportunities to practice pronunciation patterns.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl.

103 American Sign Language III UGRD 5
Developing language and communication skills necessary for competent interaction in various professional settings related to education, health care, law, social services.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: English 102 or equiv. Not open to students with credit for Edu T&L 113 or English 103. GEC for lang course.

104 American Sign Language IV UGRD 5
Expand students' ability to produce and comprehend ASL in educational, medical, legal and social services; introduction to a variety of sign language systems in various professional settings.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 103 or Edu T&L 113 or English 103. Not open to students with credit for Edu T&L 114 or English 104. GEC for lang course.
230 Introduction to Communication and Its Disorders UGRD 5
Survey of the topics, methodologies, and applications of speech and hearing science; normal and aberrant communication; lectures and readings.

250 Brain and Language UGRD 5
Exploration of the neurological basis of language in humans and other species; examination of language deficits caused by brain damage. Wi Qtr.

286 Analyzing the Sounds of Language UGRD 5
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. Au Qtr. 2-2 hr cl. 286H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Math Placement level R or Math 075 or equiv; H286 requires Math 148 or 150. Not open to students with credit for Linguist 286. Cross-listed in Linguistics. GEC data analysis course.

294 Group Studies UGRD 1-5
Designed to give groups of students an opportunity to pursue special studies not otherwise offered. Repeatable to a maximum of 10 cr hrs.

310 Improving Intercultural Speech-Language Skills UGRD 5
Examination of cultural variation in speech-language use found in the United States; exploration of how individuals can improve their intercultural speech-language skills. Au, Sp Qtrrs. GEC social diversity course.

320 Principles of Phonetics UGRD 5
Provides articulatory and acoustical descriptions of speech sounds and a comparative study of phonetic transcription systems. 4 cr, 1 rec.

330 Language Acquisition UGRD 5
Introduction to language acquisition in normal children. 2 2-hr cl. 330Hon (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Not open to students with credit for 430 or H330. GEC social science, individuals and groups course.

340 Bio-acoustics for Speech and Hearing Science UGRD 5
Basic principles of bio-acoustics; generation, transmission and reception of sound; neuroanatomy and neurophysiology as applied to speech production and perception. Prereq: Math 148 or higher. Designed for students with little previous experience in biological or physical science.

350 Speech-Language Communication across the Life Span: Issues and Problems in Our Communities UGRD 5
Exploration of the development of communication skills throughout the life span and the consequences of communication disorders for individuals, their families, and their communities. Au, Sp Qtrs. GEC soc sci individuals and groups course.

360 Observation in Speech-Language Pathology and Audiology UGRD 5
Observation in appraisal and treatment of communication disorders. Prereq: 230. This course is graded S/U.

420 Introduction to Speech Science UGRD 5
Anatomy and physiology of the structures involved in speech production and the acoustic characteristics of speech sounds. Prereq: 320, or equiv; and 340, or equiv, and one course from Biology 101, 102, 113, 114, H115, or H116.

440 Introduction to Hearing Science UGRD 5
The anatomical properties and physiological processes of the system of hearing and balance in man and the stimulus processing capabilities of the normal auditory system Prereq: 340, or equiv; and one course from Biology 101, 102, 113, 114, H115, or H116; or Anatomy 199 or 200; or permission of instructor.

510 Disability Studies in Context UGRD 5
The history, nature, meaning, and consequences of disability from the differing viewpoints of a range of academic disciplines and professions. Sp Qtr.

520 Introduction to Speech-Language Pathology UGRD 5
Etiology, appraisal, and management of disorders of speech and language in children and adults. Prereq: 320 or equiv, 360 or equiv; 420 or equiv, and 330 or 430, or permission of instructor.

540 Introduction to Audiology UGRD 5
The nature, causes, identification, and rehabilitative treatment of persons with hearing disorders. Prereq: 360 or equiv, and 440 or equiv.

605 Multicultural Aspects of Communication and its Disorders UGRD 5
Examination of normal communicative behavior, including development, and the assessment and management of speech-language-hearing disorders of culturally and linguistically diverse populations. Prereq: Grad standing or one of the following: 230 or 330 or 430, or Linguist 201, 202, 261, or 4265; or equiv.

643.01 Professional Issues in Audiology: Scope of Practice and Professional Organizations GRAD 3
Professional issues and “hot topics” in audiology are discussed, including future care options/opportunities. Students also observe in local audiology clinics. Consideration is given to the audiology scope of practice, health privacy issues and the role of professional organizations. Au Qtr. Prereq: Requires acceptance in AuD program. First year AuD students only. This course is graded S/U.

643.02 Professional Issues in Audiology: Ethical Practice and Licensure GRAD 3
Professional issues and “hot topics” in audiology are discussed, including future care options/opportunities. Students also observe in local audiology clinics. Discussion centers on ethical practices and licensure issues in audiology. Wi Qtr. Prereq: Requires acceptance in AuD program. First year AuD students only. This course is graded S/U.

643.03 Professional Issues in Audiology: Certification and Legislative Involvement GRAD 3
Professional issues and “hot topics” in audiology are discussed, including future care options/opportunities. Students also observe in local audiology clinics. Issues related to counseling, voluntary credentials and professional advocacy are considered. Sp Qtr. Prereq: Requires acceptance in AuD program. First year AuD students only. This course is graded S/U.

670 Speech, Hearing, and Language Problems in the School UGRD 3
First course in the certification curriculum for school speech pathology; emphasis on program administration, interdisciplinary evaluation, and intervention. Prereq: Sr or grad standing in sph/hrng.

692 Workshops UGRD 1-8
Intensive study of a clinical area newly expanded within the field; geared for practicing clinicians to update information and increase skill levels. Prereq: Written permission of workshop director. Repeatable to a maximum of 12 cr hrs.

693 Individual Studies GRAD 1-5
Conference, library, and laboratory work. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

698.01 Study Tour: Domestic UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.

698.02 Study Tour: Foreign UGRD 1-15
Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.

705 Audiologic Assessment I GRAD 5
Detailed treatment of the theoretical and practical aspects of standard audiological assessment. 2 2-hr cl, 1-hr lab. Prereq: 540.

706 Audiologic Assessment II GRAD 5
Detailed treatment of the theoretical and practical aspects of the physiologic evaluation of the auditory system using immittance and otoacoustic emissions. 2-2 hr cl, 1-hr lab. Prereq: 705 or equiv.

707 Audiologic Assessment III GRAD 5
Detailed treatment of the theoretical and practical aspects of electrophysiologic measures, including electrocochleography, auditory brainstem responses, middle latency responses, and cognitive potentials. 2-2 hr cl, 1-hr lab. Prereq: 706.

710 Phonological Processes and Disorders GRAD 5
Approaches to understanding the nature and clinical management of phonological disability in children and youth. Prereq: 430 and 520, or equivs, grad standing in speech and hearing science, or permission of instructor.

714 Introduction to Sign Language Systems UGRD 5
Introductory course in manual sign language systems.

716 Intermediate Sign Language Systems UGRD 5
Continuation course in manual sign language with an emphasis on increasing vocabulary and fluency. Prereq: 714. Repeatable.
717.01 Family Systems: An Interdisciplinary Approach to Families of Handicapped Children
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Qualitative and quantitative approaches for resource and problem identification with families of handicapped children, effective parenting skills, strategies to follow at-risk families, and family intervention models.
Prereq: Permission of instructor. Not open to students with credit for 717.01 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science, Human Nutrition, Nursing, Psychology, and Social Work.
717.02 Interdisciplinary Perspectives on Autism Spectrum Disorders
Focus on interdisciplinary topics in mental retardation and developmental disabilities. Critical examination of the latest information on biomedical, psycho-social, educational, communication and language, family and sensory issues of autism spectrum disorders.
1 3-hr cl. Prereq: Permission of instructor. Not open to students with credit for 717.02 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science, Human Nutrition, Nursing, Psychology, and Social Work.
717.03 Developmental Disabilities UGRD 3 Focus on interdisciplinary topics in mental retardation and developmental disabilities. Focus on the most pertinent scientific and societal issues of developmental disabilities 1 3-hr cl. Prereq: Permission of instructor. Not open to students with credit for 717.03 in any of the cross-listed areas. Cross-listed in Allied Medicine, Education: Physical Activity and Educational Services, Human Development and Family Science, Human Nutrition, Nursing, Psychology, and Social Work.
718 Advanced Sign Language Systems UGRD 5 Advanced course in manual sign language with an emphasis on achieving fluency in conversation.
2 2-hr cl, 1 1-hr lab. Prereq: 714 and 716. Repeatable to a maximum of 10 cr hrs.
719 Early Intervention Interdisciplinary Team Dynamics GRAD 3 Interdisciplinary team-taught course with a focus on early intervention/early childhood education services for children, birth to three, and their families. Au Qtr. 2.5-hr cl. Prereq: Permission of instructor. Not open to students with credit for Alli Med 719, Edu PAES 719, HDFS 719, or Nursing 719. Cross-listed in Education: Physical Activity and Educational Services, Human Development and Family Science and Nursing.
725 Language Acquisition GRAD 5 Development of language in children with an emphasis on the interaction between the development of language and cognition.
Prereq: Grad standing or permission of instructor.
726 Child Language Disorders: Assessment GRAD 5 Assessment of language disorders in preschool and elementary school-aged children; both norm-referenced and criterion-referenced.
Prereq: 725 and grad standing or permission of instructor.
727 Child Language Disorders: Remediation GRAD 5 Remediation of language disorders in preschool and elementary school-aged children; the relationship of language skills to reading disabilities is also covered.
Prereq: 726 and grad standing, or permission of instructor.
732 Audiologic Rehabilitation in Children GRAD 3 The impact of hearing loss on a child's speech and language development is considered. Educational models and treatment options for children with hearing loss are discussed.
Su Qtr. 2 2-hr cl.
733 Audiologic Rehabilitation in Adults GRAD 5 The impact of hearing loss on social, vocational and psychological well-being is considered. Treatment options and measures of treatment outcome are evaluated.
Wt Qtr. 2 2-hr cl.
734 Introduction to Aural Rehabilitation I UGRD 5 Assessment and management of communication disorders associated with hearing loss.
Prereq: 540 or permission of instructor.
735 Hearing Aids I GRAD 5 The physical and electroacoustic characteristics of hearing aids, including electroacoustic analysis, acoustics of amplification systems, signal processing strategies, and devices used in specialized fittings.
2 2-hr cl, 1 1-hr lab. Prereq: 705, 766.
737 Proseminar in Cognitive Science GRAD 2 An in-depth examination of the interdisciplinary field of cognitive science; emphasize fundamental issues of each discipline, provides illustrations of representative research being conducted at OSU.
Prereq: Cptr/Inf 612, Linguist 612; Psych 612, or Philos 612; or permission of instructor. Repeatable to a maximum of 4 cr hrs. Cross-listed in Computer and Information Science, Industrial and Systems Engineering, Linguistics, Philosophy, and Psychology.
740 Fluency: Theory and Treatment GRAD 5 Theories, principles, and procedures for the appraisal and treatment of persons with dysfluencies in speech.
Prereq: Grad standing in speech and hearing science or permission of instructor.
741 Voice Disorders GRAD 5 The role of the speech-language pathologist in the evaluation and interdisciplinary management of voice disorders and related pathologies.
Prereq: Grad standing in speech and hearing science or permission of instructor.
742 Low Incidence Voice and Resonance Disorders GRAD 5 Etiology, evaluation, and treatment of low incidence speech and voice disorders of the larynx and neck.
Prereq: 765 or equiv, and grad standing in speech and hearing science or permission of instructor.
743.00 Clinical Seminar in Hearing Disorders: Contemporary Issues GRAD 1 Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders.
Prereq: Grad Standing in speech and hearing science or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
743.01 Clinical Seminar in Hearing Disorders: Screening in Speech-Language-Hearing GRAD 1 Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders.
Prereq: Grad Standing in speech and hearing science or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
743.02 Clinical Seminar in Hearing Disorders: Counseling and Report Writing GRAD 1 Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders. Each subdivision repeatable to maximum of 3 credit hours.
Prereq: Grad Standing in speech and hearing science or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
743.03 Clinical Seminar in Hearing Disorders: Hearing Aid Applications GRAD 1 Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders.
Prereq: Grad Standing in speech and hearing science or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
743.04 Clinical Seminar in Hearing Disorders: Ethics GRAD 1 Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders. Each subdivision repeatable to maximum of 3 credit hours.
Prereq: Grad Standing in speech and hearing science or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
743.05 Clinical Seminar in Hearing Disorders: Evidence-Based Practice GRAD 1 Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders.
Prereq: Grad Standing in speech and hearing science or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
743.06 Clinical Seminar in Hearing Disorders: Resumes and Interviewing GRAD 1 Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders. Each subdivision repeatable to maximum of 3 credit hours.
Prereq: Grad Standing in speech and hearing science or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
743.07 Clinical Seminar in Hearing Disorders: Clinical Grand Rounds GRAD 1 Readings and discussion of topics pertinent to the assessment and treatment of hearing disorders.
Prereq: Grad Standing in speech and hearing science or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
744.00 Clinical Seminar: Contemporary Issues GRAD 1 Readings and discussion of topics pertinent to the assessment and treatment of speech and language disorders.
Prereq: Grad Standing in speech and hearing science or permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.
744.01 Clinical Seminar: Introduction to SLP Clinic
Readings and discussion of topics pertinent to the assessment and treatment of speech and language disorders.
Prereq: Grad standing in speech and hearing science or permission of instructor.
Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

744.02 Clinical Seminar: Articulation and Phonology: Assessment and Intervention
Readings and discussion of topics pertinent to the assessment and treatment of speech and language disorders.
Prereq: Grad standing in speech and hearing science or permission of instructor.
Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

744.03 Clinical Seminar: Language: Assessment and Intervention
Readings and discussion of topics pertinent to the assessment and treatment of speech and language disorders.
Prereq: Grad standing in speech and hearing science or permission of instructor.
Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

744.04 Clinical Seminar: Neurogenics: Assessment and Intervention
Readings and discussion of topics pertinent to the assessment and treatment of speech and language disorders.
Prereq: Grad standing in speech and hearing science or permission of instructor.
Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

744.05 Clinical Seminar: Special Issues
Readings and discussion of topics pertinent to the assessment and treatment of speech and language disorders.
Prereq: Grad standing in speech and hearing science or permission of instructor.
Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

744.06 Clinical Seminar: Professional Issues
Readings and discussion of topics pertinent to the assessment and treatment of speech and language disorders.
Prereq: Grad standing in speech and hearing science or permission of instructor.
Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

750 Assessment of Vestibular Function
Study of the techniques involved in the administration and interpretation of electronystagmography, rotation, and posturography assessments.

760 Aphasia and Related Adult Language Disorders
Language disorders resulting from brain injury in adults.
Prereq: 765 or equiv, and grad standing; or permission of instructor. Must have grade of B- or higher in 765.

761 Neurologic Motor Speech Disorder
The nature, treatment and assessment of neurologically based motor speech disorders in an interdisciplinary context.
Prereq: 765 or equiv, and grad standing; or permission of instructor.

762 Traumatic Brain Injury in Children and Adults
The mechanism of traumatic brain injury, its impact on communication, and the methods of assessment and intervention.
Prereq: 765 or equiv, and grad standing; or permission of instructor.

763 Evaluation and Treatment of Dysphagia in Adults and Children
The role of the speech-language pathologist in assessment and treatment of swallowing disorders in children and adults.
Prereq: 765 and grad standing or permission of instructor.

765 Neurology of the Speech and Hearing Mechanism
Structure and function of the central and peripheral nervous systems as they relate to speech and hearing.
Prereq: Grad standing in speech and hearing science or permission of instructor.

766 Acoustics and Instrumentation
Principles underlying the use of electro-acoustic instrumentation in the speech and hearing sciences.
Prereq: College-level algebra.

770 Clinical and Educational Methods in the Schools
Models, strategies, methodologies, and curriculum involved in planning, implementing, and evaluating team-based instruction for students with communication language, and learning disabilities.
Prereq or concur: 670, or permission of instructor.

775 Anatomy and Physiology of the Auditory System
The structure and function of the ear and the stimulus processing capacities of the ear as they relate to performance on tests of auditory function in normal and impaired listeners.
2-2 hr cl. Prereq or concur: 765.

776 Advanced Speech Science
Graduate introduction to speech instrumentation and speech acoustics; topics in spectrographic analysis and speech synthesis.
Prereq: 420 or equiv.

783H Honors Research
UGRD 3-15
A program of independent study for the student with special aptitudes; individual conferences and reports.
Prereq: 4th yr standing with a grade of A in at least half of the sph/hrng courses and an average of B in the remainder; permission of the instructor under whose supervision the work is to be completed and the Arts and Sciences Honors Committee. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

785 Research Methods I
GRAD 5
Introduction to research design and data analysis for the hearing and speech sciences.
Prereq: Grad standing.

786 Research Methods II
GRAD 5
Introduction to descriptive and inferential statistics as they are utilized in speech and hearing science.
Prereq: 785 or permission of instructor.

794 Group Studies
UGRD 3
Prereq: Permission of instructor.
Repeatable to a maximum of 20 cr hrs.

805 Pediatric Audiology I
GRAD 5
Etiology and assessment of hearing loss in children.
Su, Su Term 1, Su Term 2 Qtrs. 2-2 hr cl. Prereq: 707.

806 Adult Hearing Disorders
GRAD 5
The nature, diagnosis, and treatment recommendations of adult hearing disorders.
Prereq: 705, 706, and 707; or equivs.

807 Pediatric Audiology II
GRAD 5
Wi Qtr. 2-2 hr cl. Prereq: 735, 805, 835.

815 Seminar for Singing Health Specialist
GRAD 3
Required seminar for candidates in the Singing Health Specialization to enable coordination of skills, concepts and practices necessary for successful SHS certification.
Su, Wi Qtrs. 3 cl, 1 lab hr. Prereq: Admission to Singing Health Specialization; completion of Otolaryn 803, 804, 809. Not open to students with credit for Music 815. Open only to Singing Health Specialization candidates. Cross-listed in Music. Some sessions in OSU Clinic, Hospital, Speech and Hearing Lab.

820 Acoustic Phonetics
GRAD 5
An introduction to the acoustic characteristics of human speech sounds, the acoustic theory of speech production, and spectrographic analysis.
Prereq: 320 and Linguist 601, or equivs. Not open to students with credit for this topic under 940 or 950.

832 Experimental Phonetics
GRAD 5
Experimental investigations of acoustic, physiological, and psychological aspects of speech.

835 Hearing Aids II
GRAD 5
The selection and fitting of amplification devices and the verification of patient outcomes.
2-2 hr cl. Prereq: 735.

843 Practicum in Audiology
GRAD 1-5
Students are placed in local audiology clinics to put into practice skills learned in the classroom.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Successful completion of AuD qualifying examination. Repeatable to a maximum of 60 cr hrs. This course is graded S/U.

844 Practicum in Communication Disorders
GRAD 1-5
Practicum with children and adults having speech, language, or hearing problems.
Prereq: Permission of instructor. Repeatable. This course is graded S/U.

845 Clinical Internship: Speech, Language, and Hearing
Grad
Full-time experience in approved clinical setting to partially fulfill requirements for Plan B nonthesis option.
Prereq: Completion of 45 grad cr hrs and 40 hrs of clinical practicum. Prior approval of grad committee required. This course is graded S/U.
846 Field Experience in the Schools GRAD 6-12
Major practicum experience for students pursuing certification to practice speech/language pathology in schools.
Prereq: 670 or equiv, grad standing in sph/hrng, and permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

858 Psychoacoustics GRAD 5
Theoretical concepts and psychophysical data relative to hearing and related laboratory experiments.

870 School Internship Seminar GRAD 3
Special topics, management concerns, and other planned experiences relative to the school internship in speech-language pathology.
Prereq: 670 and 770, or permission of instructor. Repeatable to a maximum of 6 cr hrs

893 Directed Doctoral Studies GRAD 3-10
Directed, individualized areas of study for doctoral students in either the laboratory or clinical research track; conference, library, clinic and/or laboratory involvement.
Prereq: Doctoral standing in sph/hrng or permission of instructor. Repeatable to a maximum of 45 cr hrs. This course is graded S/U.

900 Doctoral Proseminar in Speech and Hearing Science GRAD 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: Doctoral standing in sph/hrng or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

930.01 Advanced Topics: Cochlear Implants GRAD 3
Cochlear implant components and functions are explored. Students gain knowledge related to patient candidacy, implant programming and rehabilitation procedures.
Wi Qtr. 1-3 hr cl.

930.02 Advanced Topics: Audiology Practice Management GRAD 3
Students will gain knowledge of the many decisions and issues involved in the management of an audiology department or practice.
Su Qtr. 1-4 hr cl.

930.03 Advanced Topics: Tinnitus and Hyperacusis GRAD 3
Students explore the potential physiologic causes of tinnitus and hyperacusis and consider options for assessment and treatment of the disorders.
Sp Qtr. 1-3 hr cl.

930.04 Advanced Topics: Intraoperative Monitoring GRAD 5
Students examine the sensory and motor electrophysiologic measures used to perform intraoperative neurophysiologic monitoring during common otolaryngology-head and neck surgeries.
Sp Qtr. 1-4 hr cl.

930.05 Advanced Topics: Community and Industrial Audiology GRAD 3
The effect of noise on hearing, physiological and psychological function, productivity and communication; federal and state regulations reviewed and effects on community discussed.
Not open to students with credit for 720.

940 Advanced Studies in Speech and Hearing Science GRAD 3
Advanced Studies in Speech and Hearing Science.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

943 Externship in Audiology GRAD 1-15
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.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 707. Repeatable to a maximum of 45 cr hrs. This course is graded S/U.

950.01 Seminar: Advanced Topics in Speech Production GRAD 3
Advanced Topics in Speech Production.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.02 Seminar: Advanced Topics in Speech Perception GRAD 3
Advanced Topics in Speech Perception.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.03 Seminar: Advanced Topics in Acoustic Phonetics GRAD 3
Advanced Topics in Acoustic Phonetics.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.04 Seminar: Language Development and Disorders GRAD 3
Language Development and Disorders.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.05 Seminar: Second Language Acquisition GRAD 3
Second Language Acquisition.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.06 Seminar: Medical Speech-Language Pathology GRAD 3
Medical Speech-Language Pathology.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.07 Seminar: Voice Disorders GRAD 3
Voice Disorders.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.08 Seminar: Advanced Clinical Research Designs GRAD 3
Advanced Clinical Research Designs.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.09 Seminar: Multidimensional Scaling GRAD 3
Multidimensional Scaling.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.10 Seminar: Phonological Acquisition and Disorders GRAD 3
Phonological Acquisition and Disorders.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.11 Seminar: Signal Detection Theory GRAD 3
Signal Detection Theory.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.12 Seminar: Advanced Topics in Psychoacoustics GRAD 3
Advanced Topics in Psychoacoustics.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.13 Seminar: Development of the Auditory System GRAD 3
Development of the Auditory System.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.14 Seminar: The Effects of Aging on the Auditory System GRAD 3
The Effects of Aging on the Auditory System.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.15 Seminar: Psychoacoustics and Hearing Impairment GRAD 3
Psychoacoustics and Hearing Impairment.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.16 Seminar: Signal Processing in Hearing Science and Audiology GRAD 3
Signal Processing in Hearing Science and Audiology.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.17 Seminar: Molecular Biology of Hearing GRAD 3
Molecular Biology of Hearing.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.18 Seminar: Advanced Topics in Audiology Rehabilitation GRAD 3
Advanced Topics in Audiologic Rehabilitation.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.19 Seminar: Research to Practice in Audiology GRAD 3
Research to Practice in Audiology.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

950.20 Seminar: Special Topics GRAD 3
Special Topics.
Prereq: Permission of instructor. Repeatable to a maximum of 45 cr hrs.

977 Aud Capstone Project GRAD 1-15
Students complete clinical or research centered project depending on their career interests.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: 707. Repeatable to a maximum of 45 cr hrs. This course is graded S/U.

998 Research in Speech and Hearing Science: Thesis GRAD 1-18
Research for thesis purposes only.
Repeatable. This course is graded S/U.

999 Research in Speech and Hearing Science: Dissertation GRAD 1-18
Research for dissertation purposes only.
Repeatable. This course is graded S/U.
Statistics

133 Statistics for the Business Sciences UGRD 5
Introduction to basic concepts of descriptive statistics and probability, including graphical and numerical data summaries, properties of discrete and continuous probability distributions, and sampling distributions.
Su, Au, Wi, Sp Qtrs. 3 hr lecture; 2 1-hr recitations. Night version 3 hr lecture (1.5-hr twice/week) + 1 1.2-hr recitation. 133H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: Math 132 and CS&E 200.

135 Elementary Statistics UGRD 5
Introduction to probability and statistics, experiments, and sampling, data analysis and interpretation.
Su, Au, Wi, Sp Qtrs. 3 1-hr cl, 2 labs. Prereq: Math 050 or Mathematics Placement Level S. Not open to students with credit for any of the following: 125, 145, 245, Econ 442, Ed T&P 786, Mol Gen 650, Politi Sc 685, Psych 220 or 510, or Soc Work 570 or 571. GEC data analysis course.

145 Introduction to the Practice of Statistics UGRD 5
Topics include probability, descriptive statistics, correlation, regression, design of experiments, sampling, estimation, and testing; emphasis on applications, statistical reasoning, and data analysis using statistical software.
Su, Au, Wi, Sp Qtrs. 3 1-hr cl, 2 labs. Prereq: Math placement level L or M, Math 116 or 131 or 148 or 150 or 151 or equiv. GEC data analysis course.

201.01 Statistics in the Sports World UGRD 3
Ask and answer questions, debate issues and analyze data from your favorite sports using statistics. Statistical techniques include contingency tables, regression, estimation, confidence levels, testing.
Au Qtr. 2 1.5-hr labs. Prereq: One GEC in statistics or equiv or permission of instructor. 201 decimals cannot be used to replace a Data Analysis GEC. Cannot repeat decimals.

218 Statistics for the Life Sciences UGRD 5
Calculus-based introduction to the statistical analysis of biological data, including probability, common discrete and continuous distributions, experimental design, and hypothesis testing.
Sp Qtr. 3 cl, 2 1-hr recitations. Prereq: Math 152 or equiv. Not open to students with credit for 245.

245 Introduction to Statistical Analysis UGRD 5
Calculus-based introduction to data analysis, experimental design, sampling, probability, and inference.
Au Qtr. 3 cl, 2 1-hr labs. Prereq: Math 152 or equiv. GEC data analysis course.

246H Intermediate Data Analysis UGRD 4
Intermediate data analysis including multiple regression, analysis of variance, nonparametric methods, and time series. Emphasis on statistical reasoning and using statistical software.
Wi Qtr. 4 1-hr cl. Prereq: 245 (or credit for 245 based on AP Statistics exam score). Student must have honors or scholars standing.

420 Introduction to Mathematical Statistics I UGRD 5
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: Math 254 or permission of instructor. Not open to students with credit for 520, 610, or 620.

421 Introduction to Mathematical Statistics II UGRD 5
Calculation and evaluation of point estimators, interval estimation, Neyman-Pearson lemma, uniformly most powerful tests, likelihood ratio tests, chi-square, F, and nonparametric tests.
Wi, Sp Qtrs. Prereq: 420 or Math 530 or Math 531H. Not open to students with credit for 521 or 621.

427 Introduction to Probability and Statistics UGRD 3 for Engineering and the Sciences I
Introduction to probability, discrete and continuous random variables, expected value, and sampling distributions.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: Math 153 or 254 or permission of instructor. This course is not intended to stand alone as an introduction to probability and statistics. It should be followed by 428. GEC data analysis course.

428 Introduction to Probability and Statistics UGRD 3 for Engineering and the Sciences II
Continuation of 427: point and interval estimation; hypotheses tests for proportions, means, variances, and goodness-of-ﬁt; least squares regression.
Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: 427. Not open to students with credit for 426.

494 Group Studies UGRD 3-5
Designed to give groups of students an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

504 The Role of Statistical Concepts and Methods in Guiding and Enhancing Academic Research UGRD 4
Introduction to statistical concepts, theory and methods in research of scientific methods.
Su, Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: 135 or equiv or permission of instructor.

520 Mathematical Statistics I UGRD 5
Probability, random variables, discrete and continuous distributions; binomial, Poisson, normal, gamma (chi-square), t, F, distributions; change of variable and moment-generating function techniques; order statistics; limit theorems.
Au Qtr. 5 cl. Prereq: Math 254 or written permission of instructor. Not open to students with credit for 610 or 620. GEC data analysis course.

521 Mathematical Statistics II UGRD 5
Confidence intervals; minimum variance unbiased estimation, maximum likelihood estimation; Neyman-Pearson theorem, uniformly most powerful tests, likelihood ratio tests, chi-square and F tests, nonparametric tests.
Wi Qtr. 5 cl. Prereq: 520. Not open to students with credit for 621.

528 Data Analysis I UGRD 3
Non-calculus treatment of descriptive statistics, statistical inference, goodness of fit, use of X2 in one sample situation.
Su, Au, Wi Qtrs. 3 cl, lab hrs arr. Prereq: 528 or equiv.

530 Data Analysis III UGRD 4
Multiple regression models; diagnostics, inferences, and variable selection; ANOVA with several factors, mixed models, nesting.
Sp Qtr. 3 cl. Prereq: 529 or permission of instructor.

551 Statistical Foundations of Survey Research GRAD 5
Study objectives; survey and sampling design, implementation, ethics. Statistical analysis of survey data including confidence intervals, hypothesis tests and model building. Interpretation, communication of results.
Au Qtr. 3 80-min sessions. Prereq: One introductory course in data analysis (such as Stat 135), and college algebra (Math 104 or equiv). Not open to students with credit for 651.

574 Introduction to SAS Software UGRD 3
Inputting data, data manipulation and calculations, data presentation and reports, graphical displays, data and character data, formatting, macro programming, basic statistical procedures.
Sp Qtr. 3 cl. Prereq: 529 or equiv or permission of instructor.

600 Statistical Consulting I UGRD 2
Role of statistical consultant; enhancement of problem solving and communication skills; development of a personal philosophy of consulting.
Au, Sp Qtrs. Prereq: 645 and permission of instructor. This course is graded S/U.

601 Statistical Consulting II UGRD 2
Experience is given the student in working with real data through association with projects in the Statistics Consulting Service.
Su, Wi Qtrs. 1 1.5-hr cl. Prereq: 600 and permission of instructor. This course is graded S/U.

602 Early Start in Statistics GRAD 5
Selected mathematical topics, including geometric series, binomial expansion, integration by parts, Taylor series; transformation of variables, linear algebra, basic concepts of probability.
Su Qtr. 5 cl. Prereq: Grad standing in stat.

603 Teaching of Statistics GRAD 5
Introduction to the teaching of statistics; teaching strategies; communicating with students; review of topics taught in Stat 133, 135, and 145, and the computing lab.
Su Qtr. 2.5-hr cl. Prereq: Grad standing in stat. This course is graded S/U.

604 Mentored Teaching Experience in Statistics GRAD 3
The application of best pedagogical practices in selected statistics teaching experiences. A supervised teaching component is included.
Su, Au, Wi Qtrs. 3 cl. Prereq: Math 548 or permission of instructor. Not open to students with credit for Math 530.

620 Statistical Theory I UGRD 4
Introduction to probability, conditional probability, independence, random variables, distribution functions, transformations, moment generating function, common probability distributions; marginal and conditional distributions, sampling distributions; convergence concepts.
Au Qtr. 4 cl. Prereq: Math 548. Not open to students with credit for 610.
621 Statistical Theory II UGRD 4
Sufficiency, maximum likelihood estimation, minimum variance, unbiased estimation, Bayes estimation, decision theory.
Wi Qtr. 4 cl. Prereq: 620 or written permission of instructor.

622 Statistical Theory III UGRD 4
Likelihood ratio tests, Neyman Pearson theorem and uniformly most powerful tests, confidence intervals, applications to linear models.
Sp Qtr. 4 cl. Prereq: 621.

623 Theory of Statistical Analysis UGRD 5
Estimation, hypothesis tests, best tests, likelihood ratio tests, confidence sets, sufficiency, efficient estimators; intended primarily for students in the MAS degree program.
Wi, Sp Qtrs. 3 cl. Prereq: 610 or 620 or permission of instructor. Not open to students with credit for 621 or 622.

625 Applied Bayesian Analysis UGRD 4
Introduces various aspects of Bayesian modeling (including conditionally specified models and models for non-normal data) and simulation-based model-fitting strategies.
Wi Qtr. 2 2-hr cl. Prereq: Statistical Theory (Stat 520/521, or Stat 610/623, or Stat 621/622) and Applied Regression Analysis (Stat 645) or permission of instructor.

628 Statistical Practice I UGRD 4
Computing environment; statistical computing; scientific method; overview of statistical problem formulation and inference; foundations of stochastic modeling; exploratory data analysis; descriptive statistics.
Su Qtr. 4 cl. Prereq or concur: 620.

632 Applied Stochastic Processes I UGRD 3
Conditioning, discrete time Markov chains, Poisson processes, branching process.
Wi Qtr. 3 cl. Prereq: 623 or permission of instructor.

635 Statistical Analysis of Time Series UGRD 3
Time series models; estimation of the spectral density function; transformations of time series; prediction theory applications.
Au Qtr. Prereq: 521 or 525 or 623 or permission of instructor.

641 Design and Analysis of Experiments UGRD 5
The linear model for experimental designs; analysis of variance; factorial experiments and block designs.
Wi, Sp Qtrs. 3 cl. Prereq: 521, 645, and knowledge of elementary linear algebra; or permission of instructor.

645 Applied Regression Analysis UGRD 5
Simple and multiple linear regression, diagnostics, model selection, models with categorical variables.
Au, Wi, Sp Qtrs. 3 cl. Prereq: 521 or equiv.

651 Survey Sampling Methods UGRD 4
Sampling from finite populations, simple random, stratified, systematic, and cluster sampling designs, ratio and regression estimates; non-sampling errors.
Wi Qtr. 2 2-hr cl. Prereq: 521 or permission of instructor. Not open to students with credit for PubH-Bio 651. Cross-listed in Public Health: Biometrics.

652 Applied Statistical Analysis with Missing Data UGRD 4
Models and methods for the dataset with missing values, including imputation and likelihood and Bayesian-based models.

656 Applied Multivariate Analysis UGRD 5
Matrix computation of summary statistics, geometry of sample data; multivariate normal distribution; MANOVA; principal components; discriminant analysis; topics may include factor analysis, cluster analysis, canonical correlation.
Wi, Sp Qtrs. 3 cl. Prereq: 645 or equiv and knowledge of linear algebra. Some experience with computers is expected.

661 Applied Nonparametric Statistics UGRD 5
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.
Su, Sp Qtrs. 5 cl. Prereq: 521 or 529 or equiv.

662 Environmental Statistics UGRD 3
Survey of statistical methods for environmental data, with a focus on applications. Topics include sampling, regression, censoring, risk analysis, bioassay, time series, and spatial statistics.
Sp Qtr. 2 1.5-hr cl. Prereq: Grad standing in statistics or Stat 529 or Geog 683 or Geog 883.01 or equiv.

663 Statistical Methods in Reliability UGRD 5
Statistical failure models, graphical and analytic parametric estimation for censored samples, non-parametric survival function estimation, reliability of composite and repairable systems, Bayesian estimation and prediction.
* Sp Qtr. 3 1.5-hr cl. Prereq: 521 or 623 or equiv.

664 Principles of Statistical Quality Control UGRD 5
Pareto diagrams; process control; Shewhart, CUSUM, empirical Bayes, multivariate and other control charts; economic design, process capability, Taguchi's method for off-line control; acceptance sampling.
Au Qtr. 3 cl. Prereq: 521 or 623 or equiv.

665 Discrete Data Analysis UGRD 4
Two-by-two tables; cross-sectional, prospective, and retrospective studies; log linear model analysis of cross-classified data; logistic regression analysis; analysis of stratified tables.
Sp Qtr. 2 cl. Prereq: 529 or 645 or permission of instructor.

673 Introduction to Computational Statistics UGRD 3
Topics include manipulating and visualizing data, random number generation, designing and performing Monte Carlo experiments, and using resampling methods such as the bootstrap.
Au Qtr. 3 cl. Prereq: 610 and 623 or equivalent; 641 and 645, or permission of instructor.

674 Data Management and Presentation I UGRD 2
Inputting data, data manipulation and calculations, handling missing data, merging data, transporting data sets, dates and formatting, relational databases and structured query language; emphasizes use of statistical software SAS.
Au, Wi, Qtrs. 1 2-hr cl. This course is graded S/U.

675 Data Management and Presentation II UGRD 2
Handling character data, custom reports, macro programming, graphics and multiple plots, output delivery system, transforming output to Web pages and other formats; emphasizes use of statistical software SAS.
Wi, Sp Qtrs. 2 1-hr cl. Prereq: 674 or permission of instructor. This course is graded S/U.

693 Individual Studies UGRD 1-5
Individual conferences, assigned readings, and reports on minor investigations.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

694 Group Studies UGRD 2-5
Designed to give groups of students an opportunity to pursue special studies not otherwise offered.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 20 cr hrs.

722 Theory of Probability I UGRD 4
Measure and integration; random variables; independence; convergence in probability almost everywhere, and in the mean; conditional probability and expectation.
Au Qtr. 4 cl. Prereq: Math 653. Not open to students with credit for Math 722. Cross-listed in Mathematics.

723 Theory of Probability II UGRD 4
Weak convergence; characteristic functions; central limit theorems; random walks; introduction to martingales.
Wi Qtr. 4 cl. Prereq: 722 or Math 722. Not open to students with credit for Math 723. Cross-listed in Mathematics.

726 Models for Continuous and Discrete Longitudinal Data UGRD 4
Classical and modern statistical approaches to analyze continuous and discrete longitudinal data.
Sp Qtr. Prereq: Grad standing in Statistics or Biostatistics; Stat 622 and Stat 645, or permission of instructor. Not open to students with credit for PubH-Bio 726. Cross-listed in PubH-Bio.

742 Theory of Linear and Mixed Models UGRD 4
Theory of the general linear model; least square estimates and properties, especially in non-full rank models; analysis of variance technique; multi-factor models; random effects and mixed models.
Au Qtr. 2 2-hr cl. Prereq: 621 or 623, and 656 or Math 568, or permission of instructor.

743 Generalized Linear Models UGRD 3
Introduces the statistical theory and methodology to extend regression and analysis of variance to non-normal data.
Wi Qtr. 3 cl. Prereq: 645 and 742.

745 Multiple Comparisons Procedures UGRD 3
Types and levels of multiple comparison inference, abuses, sample size computation, graphical representation.
* Sp Qtr. 3 cl. Prereq: 742 or permission of instructor.

746 Design and Analysis of Experiments UGRD 3
A continuation of 742; various experimental designs; analysis of covariance, mixed and random models.
Wi Qtr. 2 cl. Prereq: 742.

755 Multivariate Analysis I UGRD 3
Geometrical representations of data; random vectors, normal distribution for random vector and random data matrices, Wishart distribution, inferences based on normal theory.
* Wi Qtr. 2 cl. Prereq: 521 or 623, and Math 471 or 601.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>756</td>
<td>Multivariate Analysis II</td>
<td>3</td>
<td>Provides students with exposure to theoretical and practical aspects of techniques in transplant research. Su, Au, Wi, Sp Qtrs. 1.5-hr cl. This course is graded S/U.</td>
</tr>
<tr>
<td>760</td>
<td>Elements of Statistical Learning</td>
<td>3</td>
<td>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. Wi Qtr. 2.1-5 hr cl. Prereq: 610/623 or higher, or ECE 804/806; Familiarity with Matrix Algebra and Linear Regression Analysis. Final project report and class presentation is a key component of this course.</td>
</tr>
<tr>
<td>761</td>
<td>Nonparametric Statistics I</td>
<td>3</td>
<td>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. Wi Qtr. 2.1-5 hr cl. Prereq: 610/623 or higher, or ECE 804/806; Familiarity with Matrix Algebra and Linear Regression Analysis. Final project report and class presentation is a key component of this course.</td>
</tr>
<tr>
<td>762</td>
<td>Nonparametric Function Estimation</td>
<td>3</td>
<td>Nonparametric function estimation with emphasis on smoothing splines, flexible model building based on noisy multivariate data, kernel methods, additional topics in smoothing.</td>
</tr>
<tr>
<td>764</td>
<td>Order Statistics</td>
<td>UGRD 4</td>
<td>Distribution theory in continuous and discrete cases, moments, order statistics in statistical inference, asymptotic theory.</td>
</tr>
<tr>
<td>801</td>
<td>Seminar on Research Topics in Statistics</td>
<td>2</td>
<td>Lectures on current research by each graduate faculty member in statistics. Au Qtr. 1.2-hr cl. Prereq: 2nd yr standing in stat PhD program or permission of instructor. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>820</td>
<td>Statistical Inference I</td>
<td>3</td>
<td>Statistical decision theory, foundations of statistics, Bayesian analysis, sequential analysis, sequential probability ratio test. Au Qtr. 3 cl. Prereq: 622.</td>
</tr>
<tr>
<td>821</td>
<td>Statistical Inference II</td>
<td>3</td>
<td>Sufficiently general unbiased and equivariant estimators, Neyman-Pearson, UMP, UMPU and invariate tests. Wi Qtr. 3 cl. Prereq: 722, or Math 722 and 820.</td>
</tr>
<tr>
<td>822</td>
<td>Statistical Inference III</td>
<td>3</td>
<td>Asymptotic theory for estimators and tests, resampling methods and other topics in modern inference. Sp Qtr. 3 cl. Prereq: 723 or Math 723, and 821.</td>
</tr>
<tr>
<td>825</td>
<td>Advanced Bayesian Analysis</td>
<td>3</td>
<td>Bayesian computation, nonparametric Bayes methods, semiparametric Bayes methods robust Bayesian analysis, complex Bayesian models. Wi Qtr. 3 cl. Prereq: 821.</td>
</tr>
<tr>
<td>829</td>
<td>Spatial Statistics</td>
<td>3</td>
<td>Spatial statistics at an advanced level; topics include geostatistics, lattice models with emphasis on Markov random fields, and spatial point processes. Wi Qtr. 2.1-5 hr cl, 3 labs arr/qtr. Prereq: 622 and 645.</td>
</tr>
<tr>
<td>832</td>
<td>Applied Probability Models</td>
<td>3</td>
<td>Birth and death processes, Queueing Theory, Branching processes and other applied probability models. Wi Qtr. 3 cl. Prereq: Math 722.</td>
</tr>
<tr>
<td>833</td>
<td>Statistical Methods for Analyzing Genetic Data</td>
<td>3</td>
<td>Basic principles of population genetics, linkage analysis, association study, genetic epidemiology, and analysis of gene expression data. Au Qtr. 2.2-3 hr cl. Prereq: 622 or equiv or permission of instructor.</td>
</tr>
<tr>
<td>847</td>
<td>Advanced Design of Experiments</td>
<td>3</td>
<td>Partially balanced designs, factorial experiments, confounding and fractional replications, response surface designs. Sp Qtr. Prereq: 746.</td>
</tr>
<tr>
<td>881</td>
<td>Advanced Topics in Mathematical Statistics I</td>
<td>3</td>
<td>Topics to be taken from the following: multivariate analysis, stochastic processes, analysis of variance, components of variance models, advanced test design. Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: Grad standing in stat. Repeatable to a maximum of 9 cr hrs.</td>
</tr>
<tr>
<td>882</td>
<td>Advanced Topics in Mathematical Statistics II</td>
<td>3</td>
<td>Continuation of 881. Su, Au, Wi, Sp Qtrs. 3 cl. Prereq: Grad standing in stat. Repeatable to a maximum of 9 cr hrs.</td>
</tr>
<tr>
<td>888</td>
<td>Large Sample Theory</td>
<td>3</td>
<td>Mann-Wald theory of stochastic order relationships; asymptotic distribution of maximum likelihood estimates and likelihood ratio statistic, large deviation theory, asymptotic theory of well-known statistics. Sp Qtr. 3 cl. Prereq: 822.</td>
</tr>
<tr>
<td>891.01</td>
<td>Interdisciplinary Seminar on Biomedical</td>
<td>1-2</td>
<td>Graduate seminar for Graduate Interdisciplinary Specialization in Comprehensive Engineering and Science of Medical Images. Su, Au, Wi, Sp Qtrs. 1 cl. Prereq: Grad standing. Cross-listed in Biomedical Engineering, Biomedical Informatics, Biophysics, Computer Science and Engineering, Electrical and Computer Engineering, Integrated Biomedical Science, Pathology, Radiology, and Vision Science. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>893</td>
<td>Advanced Individual Studies</td>
<td>1-5</td>
<td>Individual conferences, assigned readings, and reports on investigations. Su, Au, Wi, Sp Qtrs. Prereq. Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>894</td>
<td>Advanced Group Studies</td>
<td>1-5</td>
<td>Designed to give groups of advanced students an opportunity to pursue special studies not otherwise offered. Su, Au, Wi, Sp Qtrs. Prereq. Permission of instructor. Repeatable to a maximum of 20 cr hrs.</td>
</tr>
<tr>
<td>895</td>
<td>Statistics Seminar</td>
<td>1</td>
<td>Topics range over the current research interests of statisticians from around the world. Some lectures are of an expository nature. Su, Au, Wi, Sp Qtrs. 1 cl. Prereq: Permission of dept. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>999</td>
<td>Research</td>
<td>1-18</td>
<td>Research for thesis or dissertation purposes only. Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.</td>
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</tbody>
</table>

**Surgery**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>610</td>
<td>Techniques in Transplantation Research</td>
<td>UGRD 3</td>
<td>Provides surgery residents basic information on business principles related to the practice of medicine and surgery. Preq: Medical Degree; One year of surgical residency. This course is graded S/U.</td>
</tr>
<tr>
<td>611</td>
<td>Transplantation Research</td>
<td>UGRD 3</td>
<td>Provides surgery residents basic information on business principles related to the practice of medicine and surgery. Preq: Medical Degree; One year of surgical residency. This course is graded S/U.</td>
</tr>
<tr>
<td>750.01</td>
<td>Seminars in Practice Management for Surgeons I</td>
<td>1</td>
<td>Provides surgery residents basic information on business principles related to the practice of medicine and surgery. Preq: Medical Degree; One year of surgical residency. This course is graded S/U.</td>
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<tr>
<td>750.02</td>
<td>Seminars in Practice Management for Surgeons II</td>
<td>1</td>
<td>Provides surgery residents basic information on business principles related to the practice of medicine and surgery. Preq: Medical Degree; One year of surgical residency. This course is graded S/U.</td>
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<tr>
<td>750.03</td>
<td>Seminars in Practice Management for Surgeons III</td>
<td>1</td>
<td>Provides surgery residents basic information on business principles related to the practice of medicine and surgery. Preq: Medical Degree; One year of surgical residency. This course is graded S/U.</td>
</tr>
<tr>
<td>750.04</td>
<td>Seminars in Practice Management for Surgeons IV</td>
<td>1</td>
<td>Provides surgery residents basic information on business principles related to the practice of medicine and surgery. Preq: Medical Degree; One year of surgical residency. This course is graded S/U.</td>
</tr>
<tr>
<td>Course Code</td>
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<td>750.05</td>
<td>Seminars in Practice Management for Surgeons V</td>
<td>1</td>
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<td>750.06</td>
<td>Seminars in Practice Management for Surgeons VI</td>
<td>1</td>
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<tr>
<td>750.07</td>
<td>Seminars in Practice Management for Surgeons VII</td>
<td>1</td>
<td>MED</td>
</tr>
<tr>
<td>750.08</td>
<td>Seminars in Practice Management for Surgeons VIII</td>
<td>1</td>
<td>MED</td>
</tr>
<tr>
<td>790.02</td>
<td>Research Studies in Surgery: General Surgery</td>
<td>1-18</td>
<td>MED</td>
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<tr>
<td>790.03</td>
<td>Research Studies in Surgery: Neuro Surgery</td>
<td>1-18</td>
<td>MED</td>
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<tr>
<td>790.04</td>
<td>Research Studies in Surgery: Orthopaedics</td>
<td>1-18</td>
<td>MED</td>
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<tr>
<td>790.05</td>
<td>Research Studies in Surgery: Pediatric Surgery</td>
<td>1-18</td>
<td>MED</td>
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<tr>
<td>790.06</td>
<td>Research Studies in Surgery: Urology</td>
<td>1-18</td>
<td>MED</td>
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<td>790.07</td>
<td>Research Studies in Surgery: Plastic Surgery</td>
<td>1-18</td>
<td>MED</td>
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<tr>
<td>790.08</td>
<td>Research Studies in Surgery: Cardiothoracic Surgery</td>
<td>1-18</td>
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<tr>
<td>790.10</td>
<td>Research Studies in Surgery: Peripheral Vascular Surgery</td>
<td>1-18</td>
<td>MED</td>
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<td>791.02</td>
<td>Clinical Studies: Emergency Room</td>
<td>6</td>
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<td>791.03</td>
<td>Clinical Studies: Neurological</td>
<td>6-18</td>
<td>MED</td>
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<tr>
<td>791.04</td>
<td>Clinical Studies: Orthopedic</td>
<td>6-18</td>
<td>MED</td>
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<tr>
<td>791.05</td>
<td>Clinical Studies: Pediatric</td>
<td>6</td>
<td>MED</td>
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<tr>
<td>791.06</td>
<td>Clinical Studies: Urology</td>
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<tr>
<td>791.07</td>
<td>Clinical Studies: General Surgery</td>
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<td>Clinical Studies: Plastic</td>
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<td>793.01</td>
<td>Individual Studies: General Surgery</td>
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<tr>
<td>793.02</td>
<td>Individual Studies: Pediatric Surgery</td>
<td>MED</td>
<td>MED</td>
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<tr>
<td>793.03</td>
<td>Individual Studies: Surgical Infectious Diseases</td>
<td>MED</td>
<td>MED</td>
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<tr>
<td>814</td>
<td>Responsible Conduct of Research: Human Participants and the Use of Animals in Biomedical Research</td>
<td>2</td>
<td>GRAD</td>
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<tr>
<td>815.01</td>
<td>Training in Clinical Research I</td>
<td>1</td>
<td>GRAD</td>
</tr>
<tr>
<td>815.02</td>
<td>Training in Clinical Research II</td>
<td>1</td>
<td>GRAD</td>
</tr>
<tr>
<td>815.03</td>
<td>Training in Clinical Research III</td>
<td>1</td>
<td>GRAD</td>
</tr>
</tbody>
</table>
845 History of Immunology GRAD 3
Understand immunology & pertinent research, students must understand its history so to appreciate where the field of immunology started, the progress and discoveries made.
Sp Qtr. Prereq: 701 recommended. Not open to students with credit for MVIMG 845. Cross listed with MVIMG 845.

850 Seminar GRAD 3-5
Discussion of pertinent literature and research projects in various subspecialiy areas with emphasis on basic science concepts.
Repeatable. This course is graded S/U.

999 Research in Surgery GRAD 1-18
Research for thesis purposes only.
Su, Au, Wi, Sp Qtr. Repeatable. This course is graded S/U.

Swahili

101.01 Elementary Swahili I UGRD 5
Development of basic listening, speaking, and reading skills using a competency-based curriculum.
Not open to students with credit for 101, 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. GEC for lang course. FL Admis Cond course. Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

102.01 Elementary Swahili II UGRD 5
Continuation of 101; further work on basic listening, speaking, and reading skills using a competency-based curriculum.
Prereq: 101 or 101.01 or 5 cr hrs of 101.51.
Not open to students with credit for 102, or to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis cond course. Students must register for and complete 5 cr hrs during the qtr. This course is available for EM credit.

103 Intermediate Swahili I UGRD 5
Further development of listening, reading, speaking, and writing skills; readings based on Swahili culture and literature.
5 cl. Prereq: 102 or 102.01 or 102.51. Not open to students with credit for AFAm&ASl 203; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

104 Intermediate Swahili II UGRD 5
Balanced use of basic language skills; emphasis on speaking and aural comprehension further exposure to Swahili culture through reading of current newspapers, short stories, plays, and novels.
5 cl. Prereq: 103 or equiv. Not open to students with credit for AFAm&ASl 204; or to native speakers of this language through regular course enrollment or EM credit. GEC for lang course.

401 Advanced Swahili Grammar UGRD 5
Review of fundamental principles of grammar and syntax; exercises in Swahili.
Prereq: 104 or permission of instructor.

402 Advanced Swahili, Grammar and Composition UGRD 3
Introduction to advanced Swahili composition and grammar.
Prereq: 401 or permission of instructor.

Swedish

101.01 Elementary Swedish I UGRD 5
Development of aural comprehension, speaking, reading, and writing skills.
Au Qtr. 5 cl. Not open 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. GEC for lang course. No audit.

102.01 Elementary Swedish II UGRD 5
Continuation of development of aural comprehension, speaking, reading, and writing skills.
Wi Qtr. 5 cl. Prereq: 101.01 or equiv or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. No audit.

103.01 Intermediate Swedish I UGRD 5
Balanced use of basic language skills; review of aural comprehension basics, speaking, reading, and writing.
Sp Qtr. 5 cl. Prereq: 102.01 or equiv or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. No audit.

104.01 Intermediate Swedish II UGRD 5
Conclusion of intermediate Swedish; extensive practice in spoken and written Swedish
Au Qtr. 5 cl. Prereq: 103.01 or equiv; or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. No audit.

201 Swedish Conversation and Composition UGRD 5
Practice in basic written and spoken Swedish, emphasis on study of word forms and sentence structure, themes and oral presentations on topics of everyday life.
Wi Qtr. 5 cl. Prereq: 104 or equiv or permission of instructor. No audit.

293 Individual Studies UGRD 2-5
Independent study of advanced Swedish language texts not covered in other course offerings.
Au, Wi, Sp Qtr. Prereq: 104 or equiv or permission of instructor. Repeatable to a maximum of 10 cr hrs. Taught in Swedish. This course is graded S/U.

294 Group Studies UGRD 2-5
Special topics to be announced in the quarter previous to the one in which the course is offered.
Wi, Sp Qtr. 2 cl. Prereq: 104 or equiv or permission of instructor. Repeatable to a maximum of 15 cr hrs. Taught in Swedish.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (P) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

The Arts, College of

100.01 Pre-Arts Survey UGRD 1
Academic requirements; University procedures, grading system and resources; student rights and responsibilities; overview of Arts' academic areas of study and services.
Prereq: Direct enrollment into the College of the Arts. Not open to students with credit for Arts&Sci 100 or Univ Col 100.

100.02 Arts Survey UGRD 1
Academic requirements; University procedures, grading system and resources; student rights and responsibilities; overview of Arts' academic areas of study and services.
Prereq: Direct enrollment into the College of the Arts. Not open to students with credit for Arts&Sci 100 or Univ Col 100.

101 Arts Scholars Seminar UGRD 1
First year Arts Scholars exploration of arts interests, interdisciplinary opportunities, campus and local community arts connections, and cultural, aesthetic, and personal topics in the arts.
Au Qtr. 1 cl. Prereq: Must be accepted to Arts Scholars program. Permission of instructor. Course should be taken concurrently with an Arts College or Arts & Sciences 100 course. This course is graded S/U.

294 Group Studies UGRD 1-5
Interdepartmental course involving studies in two or more areas of the visual and performing arts. Repeatable to a maximum of 18 cr hrs.

350 The History of Animation UGRD 5
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.

489 Internship in Computer Art Design UGRD 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 10 cr hrs. This course is graded S/U.

494 Group Studies UGRD 1-5
Group studies in selected interdisciplinary areas in the arts.
Arr. Prereq: Jr standing or above, and permission of instructor. Repeatable to a maximum of 15 cr hrs.

650 The History of Animation GRAD 5
Overview of the history and theory of animation including the origin of animation forms, Hollywood Studio animation, with a sample of World and contemporary animations.
Prereq: Grad standing.

683 Motion Studies through Hand-Drawn Animation UGRD 5
The principles of motion through hand-drawn animation. 2 2.5-hr cl.

693 Individual Studies GRAD 2-5
Advanced studies for students engaged in interdisciplinary investigations within the College of the Arts.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

694 Group Studies GRAD 1-5
Interdepartmental course involving studies in two or more areas of the visual and performing arts.
Prereq: Permission of dean. Repeatable to a maximum of 18 cr hrs.
699 Undergraduate Scholarship: Research and Creative Activity in Computer Technology in the Arts UGRD 1-15
Undergraduate research or creative activities in varying topics. Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

699H Honors Undergraduate Scholarship: Research and Creative Activity in Computer Technology in the Arts UGRD 1-15
Undergraduate research or creative activities in varying topics. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Honors program and permission of instructor. Repeatable to a maximum of 15 cr hrs.

730 Concept Development for Sequential Imaging GRAD 3
Strategies for moving image; composition, frame editing, and sound elements; creation of sketches, storyboards, and animatics as method for time-based media. 2 2-hr cl.

732 A Critical History of Computer Graphics GRAD 3
An historical overview of the development of the discipline of computer-generated imagery, including CAD, computer animation, computer art, and scientific visualization. 2 2.5-hr cl. Prereq: Grad standing or permission of instructor.

733 Video Game Prototyping GRAD 5
Introduction to theories and strategies for creating video games. Students will explore game theory, design and learn what makes video games "fun" to play. Wi Qtr. Prereq: Graduate standing or permission of the instructor. Students will prototype novel game ideas and explore game mechanics by creating their own computer video game using software packages such as "Flash". Development tools and code libraries will be provided so students can focus on creating new game ideas.

734 Video Game Production GRAD 5
Introduction to video game creation. Teams will progress from concept to prototype to playable game by the end of the course. Sp Qtr. Prereq: Grad standing or permission of instructor. Creative multi-disciplinary teams will collaborate to produce a video game using software and computer equipment (including sound). Students will contribute to, document and critique the game. A final game will be playable on the course arcade machine.

740 Interactive Arts Media I GRAD 5
The theory and practice of the design of interactive media for the web. 2 2.5-hr cl. Prereq: Prior experience with Adobe Photoshop recommended.

741 Interactive Arts Media II GRAD 5
Advanced study in the application of interactive media for the web; production of websites for selected audiences. 2 2.5-hr cl. Prereq: 740.

742 Interactive Arts Media III GRAD 5
Advanced authoring environments for multimedia production. 2 2.5-hr cl. Prereq: 741.

749 3D Computer Animation: Form, Light and Motion GRAD 5
Overview of production methods for form, lighting and motion used in 3D computer animation. Graduate students will apply interdisciplinary concepts to their area of research. Prereq: Grad standing or permission of instructor.

750 Expressive Motion GRAD 5
Introduction to basic principles of timing and motion via production of 3D computer generated animation; meaning, expression, timing, and gesture. 2 2.5-hr cl. Prereq: Grad standing or permission of instructor.

751 Form Visualization GRAD 5
Computer-generated 3D modeling concepts and techniques for visualization by artists and designers. 2 2.5-hr cl. Prereq: Grad standing or permission of instructor.

752 Digital Cinematography GRAD 5
Exploration of elements that enhance storytelling such as digital lighting, surface, design and camera composition as meaning. 2 2.5-hr cl. Prereq: Grad standing or permission of instructor.

753 Animation Production GRAD 5
Studio course in which students address interdisciplinary production issues in computer animation. 2 2.5-hr cl. Prereq: Grad standing and 730, 750 or 751 or 752, or permission of instructor. Repeatable to a maximum of 15 cr hrs.

754 Digital and Physical Lighting GRAD 5
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.

755 Advanced Digital Cinematography GRAD 5
Study of advanced issues in digital lights and surfaces in computer graphics. 2 2.5-hr cl. Prereq: Grad standing or permission of instructor.

756 Programming Concepts and Applications for Artists and Designers GRAD 3
Designed to teach artists and designers programming concepts both necessary and useful for advanced algorithmic manipulation of computer graphics data and software.

758 Visual Performance and Installation Technologies GRAD 5
In this project-based class, students are exposed to making computer mediated performance and installation systems, focusing on real-time video processing, 3D graphics, and environment sensing. Prereq: Grad standing; 750 or 751, or 752 or equiv; undergrads with permission of instructor.

759 Experimental Scripting for Animation in Maya GRAD 5
Introduction to Maya embedded language for animators to control complex operations and explore ideas for the generation of motion graphics through mathematical procedures. Prereq: Experience with Maya 3D software. Grad standing or permission of instructor.

760 Motion Capture Production GRAD 5
Studio based overview of the motion capture pipeline. Students learn setup, capture, how to create data-driven animation and are encouraged to experiment with the process. Prereq: Grad standing or undergraduates by permission of instructor only. Survey of issues surrounding the capture and processing of motion data. Students will learn each process by hands-on experimentation, supplemented by reading, analyzing and discussing motion capture related topics. Examples will be presented in lectures and demonstrations.

761 Digital Media Production GRAD 3
A study of digital post-production processes; investigation of tools and algorithms for digital audio, digital video, digital image manipulation. 2 1.5-hr cl.

762 Building 3D Virtual Environments GRAD 5
Creation and implications of single and multiple participant 3D virtual environments. 2 2.5-hr cl. Prereq: Grad standing or permission of instructor.

763 Procedural Animation GRAD 5
Students create computer animation using procedural methods for modeling, rendering and animating 3D computer generated objects, environments, or characters. The use of techniques such as parametric modeling, particle systems, data-driven design, dynamic simulation, and behavioral animation will be studied. Su Qtr. Prereq: 750 or 751 or 752 or permission of instructor.

790 Interdisciplinary Research Seminar in Computer Technology in the Arts GRAD 5
Interdisciplinary investigations in artmaking and industrial and instructional design through the use of computer technology. Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

100 Introduction to Theatre UGRD 5
A study of the theatre with emphasis upon its cultural and social influences in our society. Su, Au, Wi, Sp Qtrs. 100H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. GEC social diversity and arts and humanities VPA course. VPA Admis Cond course. E100 may be available for honors embedded experience at the regional campuses.

100E Introduction to Theatre UGRD 5
A study of the theatre with emphasis upon its cultural and social influences in our society. GEC social diversity and arts and humanities VPA course. VPA Admis Cond course. E100 may be available for honors embedded experience at the regional campuses.
101H Introduction to Theatre: Making History UGRD 5
Exploration of the cultural and aesthetic dynamics of performance through examining primary source materials documenting artistic creation. Sp Qtr. 2 2-hr cl. Prereq: May be available to students enrolled in an honors program or by permission of dept or instructor. Not open to students with credit for 100 or H100. Taught in English. GEC arts and hums VPA course. VPA Admis Cond course.

161 Dance and Theatre, 1945 to the Present UGRD 5
Survey of contemporary practices in western dance and theatre from 1945 to the present, with emphasis on major stylistic trends, multicultural influences, and principal artists and their works. Su, Au, Wi, Sp Qtrs. 2 2-hr cl, 1 1-hr rec. Not open to students with credit for Arts Col 161 or Dance 161. Cross-listed in Dance. GEC arts and hums VPA course. VPA Admis Cond course.

205 Technical Production Practicum UGRD 1
Provides experience in technical production activities. Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 6 cr hrs. VPA Admis Cond course.

210 Fundamentals of Script Analysis UGRD 3
Fundamental principles for intensive study of the playscript as the basis of production Au, Wi, Sp Qtrs. Prereq: 100. VPA Admis Cond course.

220 Technical Production Fundamentals I UGRD 5
Basic aspects of scenery design construction; theory, process, equipment, materials, and skills. Su, Au, Wi Qtrs. 2 cl, 2 lab hrs; plus 20 practicum hours. VPA Admis Cond course.

221 Technical Production Fundamentals II UGRD 5
Basic aspects of lighting design and technology, theory, process, equipment, materials and skills. Su, Wi, Sp Qtrs. 2 cl, 2 lab hrs; plus 20 practicum hours. VPA Admis Cond course.

222 Technical Production Fundamentals III UGRD 5
Basic aspects of costume design and construction; equipment, theory, process, materials, and skills. Au, Sp Qtrs. 2 cl, 2 lab hrs; plus 20 practicum hours. VPA Admis Cond course.

230H Moving Image Art UGRD 5
Exploration of creative moving image art through the use of video and with participation in Wexner Center film/video program. Wi Qtr. 1 2-hr cl, 1 3-hr cl. Prereq: Enrollment in an honors program or permission of instructor, and soph standing. GEC arts and hums VPA course.

271 Great Ages of the Theatre UGRD 5
Concepts and characteristics of the great periods of the theatre of the western world. Au, Wi, Sp Qtrs. Offered only on regional campuses. 271H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110 or 111 or equiv. GEC arts and hums VPA course. VPA Admis Cond course.

280 Craft of Acting UGRD 5
Basic acting techniques; imagination, concentration, human psychology as applied to creation of character and development of stage presence. Su, Au, Wi, Sp Qtrs. 2 2-hr cl. VPA Admis Cond course. GEC arts and hums VPA course.

300 Fundamentals of Television Broadcasting UGRD 5
Provides students with the fundamentals of television broadcasting through lectures, labs and practicum involvement with Buckeye TV. Au, Wi, Sp Qtrs. 1 2-hr cl, 1 2-hr lab. Prereq: Permission of instructor.

305 Production Run Crew Practicum UGRD 2
Hands-on involvement in the production of live theatre; participation leading to a mor thorough understanding of theatre and in particular theatre design and technology. Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 8 cr hrs.

310 Stage Directing UGRD 5
Techniques of play analysis, interpretation, composition, movement, rhythm and tempo; their integration in stage direction. Au, Wi, Sp Qtrs. 3 2-hr cl. Prereq: 210, 280, and jr standing.

341 Introduction to Stage Design UGRD 3
Introduction to basic design elements of stage design including research, sketching, color theory, and model building. * Wi Qtr. 2 1.5-hr cl. Prereq: 220.

353 Stage Makeup UGRD 3
Practical application of the theories and techniques of theatrical makeup and presentational theatre styles. Wi Qtr. 2 3-hr labs.

367.01 Self Images: America on Stage, 1830 to the Present UGRD 5
Study of theatre history at an intermediate level with emphasis on writing skills. Exploration of the images of Americans presented on popular stages through written analysis of theatrical and critical texts. Au, Wi, Sp Qtrs. 367.01H (honors) may be available to students enrolled in an honors program or by permission of department or instructor. Prereq: English 110 or 111 or equiv, and soph standing or above. Not open to students with credit for 367. GEC second writing and social diversity courses.

367.02 African American Theatre History UGRD 5
Study of theatre history at an intermediate level with emphasis on writing skills. Examination of the aesthetic and sociological evolution in America of African American theatre and its literature. Au, Sp Qtrs. Prereq: English 110 or 111 or equiv, and soph standing or above. Not open to students with credit for Art Educ 367.02. GEC second writing and social diversity course. Cross-listed in African-American and African Studies.

367.03 Criticizing Television UGRD 5
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. Au, Wi, Sp Qtrs. 2 2.5-hr cl. Prereq: English 110. Not open to students with credit for Art Educ 367.03. GEC second writing and social diversity course. This course will alternate be taught by Art Education and Theatre. Cross-listed in Art Education.

380 Acting Studio IA UGRD 3
Studio in acting focusing on the principles of Stanislavsky in rehearsed scenes. Au Qtr. 3 2-hr cl. Prereq: 280, and either 383 or 386.

381 Acting Studio IB UGRD 3
Studio in acting focusing on contemporary scene study. Wi Qtr. 3 2-hr cl. Prereq: 380.

382 Acting Studio IC UGRD 3
Studio in acting focusing on the special challenges of acting in Shakespeare's plays. Sp Qtr. 3 2-hr cl. Prereq: 380.

383 Speech and Voice Studio I UGRD 3
Basic study and training in voice production, phonetic transcription, and vocal expressiveness. Au, Wi, Sp Qtrs. Prereq: 280.

384 Speech and Voice Studio II UGRD 3
Continuation of 383; developing vocal range and resonance, breath control, articulation and expanded dialect choices through work on a variety of performed text. Wi Qtr. 4 cl. Prereq: 383.

385 Speech and Voice Studio III UGRD 2

386 Stage Movement Studio I UGRD 3
Fundamentals of movement training; particular attention on physical awareness, body alignment, and physical principles of acting. Au, Wi, Sp Qtrs. 4 cl. Prereq: 280.

387 Stage Movement Studio II UGRD 2
Introduction to mask work: continuation of 386. Wi Qtr. 4 cl. Prereq: 386.

405.01 Theater Practicum II: Stage Direction/Management UGRD 1-3
Provides experience in theatrical performance and production activities at an intermediate level. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

405.02 Theater Practicum II: Technical Production UGRD 1-3
Provides experience in theatrical performance and production activities at an intermediate level. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

405.04 Theater Practicum II: Stage Design UGRD 1-3
Provides experience in theatrical performance and production activities at an intermediate level. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

405.05 Theater Practicum II: Costuming/Makeup UGRD 1-3
Provides experience in theatrical performance and production activities at an intermediate level. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

405.08 Theater Practicum II: Acting UGRD 1-3
Provides experience in theatrical performance and production activities at an intermediate level. Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.
405.09  Theater Practicum II: Theatre Management UGRD 1-3
Provides experience in theatrical performance and production activities at an intermediate level.
Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

405.10  Theater Practicum II: General UGRD 1-3
Provides experience in theatrical performance and production activities at an intermediate level.
Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

405.12  Theater Practicum II: Lighting UGRD 1-3
Provides experience in theatrical performance and production activities at an intermediate level.
Prereq: Permission of instructor. Repeatable to a maximum of 18 cr hrs.

489  Internship in Theatre UGRD 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 10 cr hrs. This course is graded S/U.

494  Group Studies UGRD 1-3
Group Studies.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.

531  Theatre Repertory I UGRD 5
Survey of representative world drama and theatre from classical Greece to the 17th century.
Au Qtr. 2 2-hr cl. Prereq: 100.

532  Theatre Repertory II UGRD 5
Survey of representative western drama and theatre from the 17th century through the rise of realism.
Wi Qtr. 2 2-hr cl. Prereq: 100.

533  Theatre Repertory III UGRD 5
Survey of representative drama and theatre since the rise of realism.
Sp Qtr. 2 2-hr cl. Prereq: 100.

534  American Musical Theatre UGRD 5
An examination and exploration in the art form of Musical Theatre with an emphasis on the American Rock Musical.
Sp Qtr. 2 2-hr cl. Prereq: 100.

580  Radio and TV Production UGRD 5
Broadcasting techniques, skills and styles.
Au Qtr. 2 2-hr cl. Elective in undergraduate interdisciplinary minor, Media Production and Analysis.

597  Issues of the Contemporary World: Censorship and Performance UGRD 5
Survey of representative world drama and theatre from classical Greece to the 17th century.
Wi, Sp Qtr. 2 2-hr cl. Prereq: Sr standing. GEC contemporary world course.

600  Professional Aspects of Theatre UGRD 3
Study of the professional theatre as a business; contracts, unions, the theatre marketplace; preparation of resumes, portfolios, audition pieces, interview.
Au Qtr. 3 cl. Prereq: Grad standing or Rank 4 theatre major.

601  Theatre Management UGRD 3
Principles, practices, and techniques of theatre management and a survey of modern management techniques.
Prereq: 220 and 221; or permission of instructor.

543  Lighting Production Technology UGRD 3
A study of light as a design element for theatrical performance; analysis and preparation of designs for theatre applications.
Au Qtr. 2 2-hr cl. Prereq: 220 and 221; or permission of instructor.

625  Lighting Design I UGRD 3
A study of light as a design element for theatrical performance; analysis and preparation of designs for theatre applications.

626  Sound in Theatre UGRD 5
An introduction to the craft of sound engineering for theatre.

628  Lighting Production Technology UGRD 3
An introduction to the craft of theatre technology, with an emphasis on technical projects as associated with the responsibilities of a production electrician.
Au Qtr. 2 2-hr labs. Prereq: 221.

633  Editorial Process UGRD 5
Introduces theoretical and procedural basis for montage, controlling cinematic time, and understanding relationship of sound to image, including digital audio post-production. 2 2-hr cl.

634  Video Production I UGRD 5
An introduction to creative single camera video production--emphasis on performance staging, and editing short video productions.
Au, Wi Qtrs. 2 2-hr cl. Prereq: Permission of instructor.

635  Video Production II UGRD 5
Continued exploration of creative single camera video production; topics may include documentary, drama, and experimental.
Sp Qtr. 2 2-hr cl. Prereq: 634 or permission of instructor. Repeatable to a maximum of 10 cr hrs.

636  Screenwriting UGRD 5
Exploration of creative script-writing for video/cinema; development of short or feature length scripts.
2 2-hr cl. Prereq: Permission of instructor.

641  Stage Design Media UGRD 3
Techniques of rendering for stage design in various media.
Au Qtr. Prereq: Theatre grad standing or permission of instructor.

642  Scene Painting and Watercolor UGRD 3
Techniques used in scene painting and watercolor; mixing and matching colors, rendering texture and form, enlarging painter's elevations; types of paints used in scen painting.
Sp Qtr. Prereq: 220 or 641, and grad standing in theatre; or permission of instructor. Repeatable to a maximum of 6 cr hrs.

643  Stage Design I UGRD 3
Investigation of 20th-century design and rendering techniques and their application to the stage; experience in researching and designing projects.
Au Qtr. 2 cl, 3 lab hrs, and indiv conferences. Prereq: 341 or theatre grad standing or permission of instructor.

644  Intermediate Stage Design II UGRD 3
Presentation of the design concept in three-dimensional media; emphasis on designing for nonproscenium productions.
Wi Qtr. 1 2-hr cl, 3 lab hrs. Prereq: 643 or permission of instructor.

645  Modern Stage Design Styles UGRD 3
Study of the application of major stylistic trends in scenic design to modern theatrical productions through lecture-discussion and specific design projects.
Sp Qtr. Arr. Prereq: 644 or permission of instructor.

646  Stage Properties UGRD 3
Techniques in construction and design of stage properties, including production operation.

623  Advanced Technical Production UGRD 3
Consideration of methods and materials for stage rigging, mechanics, and non-traditional scenic materials.
Sp Qtr. 2 2-hr cl. Prereq: 220 or permission of instructor.

624  Technical Direction UGRD 3
Study of technical direction and production management; budget, personnel, schedule other logistic problems in technical production.

* Sp Qtr. 2 2-hr cl. Prereq: 220, 221, and 222; or permission of instructor.

625  Lighting Design I UGRD 3
A study of light as a design element for theatrical performance; analysis and preparation of designs for theatre applications.

626  Sound in Theatre UGRD 5
An introduction of the art of sound design as well as an exploration of the craft of sound engineering for theatre.

* Prereq: 221 or permission of instructor.

628  Lighting Production Technology UGRD 3
An introduction to the craft of theatre technology, with an emphasis on technical projects as associated with the responsibilities of a production electrician.
Au Qtr. 2 2-hr labs. Prereq: 221.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>651</td>
<td>Intermediate Stage Costume Construction UGRD 3</td>
<td></td>
<td>Methods of pattern development and construction techniques for creating historical stage costumes.</td>
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<td>Sp Qtr. 2 cl hrs. 2 lab hrs. Prereq: 222 or permission of instructor.</td>
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<tr>
<td>656</td>
<td>Costume Design for the Stage UGRD 3</td>
<td></td>
<td>The study of the theories, principles, and process by which costumes are designed for a theatrical production.</td>
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<td>Sp Qtr. 2 cl. Prereq: 100 and 222 or permission of instructor.</td>
</tr>
<tr>
<td>660</td>
<td>Playwriting UGRD 5</td>
<td></td>
<td>Laboratory course in playwriting; student plays developed from original idea through scenario into final production script with limited production of selected works.</td>
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<td>Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.</td>
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<tr>
<td>671</td>
<td>Theatre Topics I UGRD 5</td>
<td></td>
<td>Topical studies in theatre and drama from classical Greece to the 17th century.</td>
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<td>Au Qtr. 2 2-hr cl. Prereq: 100 and jr or sr or grad standing. GEC third writing course.</td>
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<tr>
<td>672</td>
<td>Theatre Topics II UGRD 5</td>
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<td>Topical studies in theatre and drama from the 17th century through the rise of realism.</td>
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<td>Wi Qtr. 2 2-hr cl. Prereq: 100 and jr or sr or grad standing. GEC third writing course.</td>
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<tr>
<td>673</td>
<td>Theatre Topics III UGRD 5</td>
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<td>Topical studies in theatre and drama since the rise of realism.</td>
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<td>Sp Qtr. 2 2-hr cl. Prereq: 100 and jr or sr or grad standing. GEC third writing course.</td>
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<tr>
<td>674</td>
<td>Contemporary Theatre History UGRD 5</td>
<td></td>
<td>Contemporary continental, English, and American theatre, post World War II to the present.</td>
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<td>2 2-hr cl. Prereq: 100 and jr or sr or grad standing. GEC third writing course.</td>
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<tr>
<td>675.01</td>
<td>Theater and Aging: Cranes, Curbemuges, and Living Treasures UGRD 5</td>
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<td>The history, theory, and literature of the Senior Theatre Movement, from its beginnings to the present from both theatrical and gerontological perspectives.</td>
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<td>Su Qtr. 1 4-hr cl. Also part of the graduate interdisciplinary certificate in aging.</td>
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<tr>
<td>675.02</td>
<td>Theater and Aging: The Practice of Theatre and Aging UGRD 5</td>
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<td>Practical exploration and creation of new work for Senior Theatre.</td>
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<td>Su Qtr. 1 4-hr cl. Also part of the graduate interdisciplinary certificate in aging.</td>
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<tr>
<td>680</td>
<td>Cinema/Video Scene Workshop I UGRD 3</td>
<td></td>
<td>Exploration of directing talent and acting for single-camera style video/film production 3 2-hr cl. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>680.01</td>
<td>Outreach Theater: Creation of Outreach UGRD 5</td>
<td></td>
<td>The creation, development and performance of interactive and instructional theatre for social awareness.</td>
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<td>Au, Wi, Sp Qtrs. 2 2-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. Performance of work may occur outside listed class meeting time.</td>
</tr>
<tr>
<td>680.02</td>
<td>Outreach Theater: Performance Studies in Outreach Theatre UGRD 5</td>
<td></td>
<td>Use of improvisational acting techniques to develop the performance of an outreach touring theatre production.</td>
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<td>Au, Wi, Sp Qtrs. 2 3-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.</td>
</tr>
<tr>
<td>685</td>
<td>Mime UGRD 2</td>
<td></td>
<td>Study of techniques, styles, and presentation of the art of mime. 2 2-hr cl. Repeatable to a maximum of 4 cr hrs.</td>
</tr>
<tr>
<td>686</td>
<td>Period Dance/Movement for Actors UGRD 2</td>
<td></td>
<td>An introduction to and instruction in Western European dance movement since the 16th century.</td>
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<td>Au Qtr. 3 2-hr cl. Prereq: Permission of instructor.</td>
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<tr>
<td>687</td>
<td>Stage Combat UGRD 2</td>
<td></td>
<td>An introduction to and instruction in techniques of stage combat. Sp Qtr. 3 2-hr cl. Prereq: Permission of instructor.</td>
</tr>
<tr>
<td>688</td>
<td>Undergraduate New Works Lab UGRD 3</td>
<td></td>
<td>Designed to be taught with 987 and will serve undergraduate students who are ready to participate with graduate students in the creation of new works for the stage.</td>
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<td>Wi Qtr. 2 2-hr cl. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs.</td>
</tr>
<tr>
<td>689</td>
<td>Field Work in Theatre, Cinema, or Video UGRD 3-15</td>
<td></td>
<td>Planned production or management experience in an off-campus professional, educational, community theatre, film or video facility, or other agency under supervision.</td>
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<td>Su, Au, Wi, Sp Qtrs. Prereq: Advanced undergrad or grad standing or permission of adviser. Repeatable to a maximum of 15 cr hrs.</td>
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<tr>
<td>692</td>
<td>Workshops UGRD 1-15</td>
<td></td>
<td>Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.</td>
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<td>Prereq: Upper-division or grad standing and prior study and training in the theatre arts or written permission of workshop director. Repeatable to a maximum of 18 cr hrs.</td>
</tr>
<tr>
<td>693</td>
<td>Individual Studies UGRD 1-5</td>
<td></td>
<td>Conference, library, and laboratory work.</td>
</tr>
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<td>Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.</td>
</tr>
<tr>
<td>694</td>
<td>Group Studies UGRD 1-5</td>
<td></td>
<td>Group Studies.</td>
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<td>Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs.</td>
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<tr>
<td>698.01</td>
<td>Study Tour: Domestic UGRD 1-15</td>
<td></td>
<td>Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.</td>
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<td>Prereq: Permission of instructor. Repeatable for different titled study tours only.</td>
</tr>
<tr>
<td>698.02</td>
<td>Study Tour: Foreign UGRD 1-15</td>
<td></td>
<td>Specific content, location, quarter(s) of offering, and prerequisites vary; contact department office for details.</td>
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<td>Prereq: Permission of instructor. Repeatable for different titled study tours only.</td>
</tr>
<tr>
<td>699</td>
<td>Undergraduate Scholarship: Research and Creative Activity in Theatre UGRD 1-15</td>
<td></td>
<td>Undergraduate research or creative activities in varying topics.</td>
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<td>Su, Au, Wi, Sp Qtrs. Arr. 699H (honors) may be available to students enrolled in an honors program or by permission of department or instructor.</td>
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<td>Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. H699 is letter graded. This course is graded S/U.</td>
</tr>
<tr>
<td>710</td>
<td>Advanced Script Analysis for the Actor GRAD 3</td>
<td></td>
<td>To learn to weave multiple methodologies into an integrated approach to script analysis and acting the role.</td>
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<td>Wi Qtr. 2 2-hr cl. Prereq: Grad standing in theatre or permission of instructor.</td>
</tr>
<tr>
<td>725</td>
<td>Advanced Stage Lighting Design GRAD 3</td>
<td></td>
<td>Study and analysis of lighting design styles in relation to different forms of theatre arts; emphasis on practical problems.</td>
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<td>Wi Qtr. 2 2-hr cl, 3 lab hrs. Prereq: 625.</td>
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<tr>
<td>727</td>
<td>Advanced Lighting Technology GRAD 3</td>
<td></td>
<td>Study of current and future lighting technology in the area of control systems and stage lighting equipment as it applies to advanced lighting design.</td>
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<td>Sp Qtr. 2 2-hr cl. Prereq: 625.</td>
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<tr>
<td>754</td>
<td>Digital and Physical Lighting GRAD 5</td>
<td></td>
<td>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.</td>
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<td>* Prereq: 625 or Arts Col 752 or grad standing or permission of instructor. Not open to students with credit for Arts Col 754. Cross-listed in Arts, College of the. Jointly taught by Theatre and The Advanced Computing Center for Art and Design. Offered every other year.</td>
</tr>
<tr>
<td>762</td>
<td>Theatre/Cinema Styles GRAD 5</td>
<td></td>
<td>Study and analysis of significant styles of production in the live theatre, cinema, and video.</td>
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<td>Sp Qtr. 2 2-hr cl. Prereq: Permission of instructor required of undergraduates.</td>
</tr>
<tr>
<td>771</td>
<td>Advanced Stage Movement Studio I GRAD 2</td>
<td></td>
<td>Fundamentals of movement, introduction to principles of movement for the actor.</td>
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<td>Au Qtr. 4 cl. Prereq: Permission of instructor.</td>
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<tr>
<td>772</td>
<td>Advanced Stage Movement Studio II GRAD 2</td>
<td></td>
<td>Special problems in movement for the actor; beginning study of stylized techniques.</td>
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<td>Wi Qtr. 4 cl. Prereq: 771 or permission of instructor.</td>
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<tr>
<td>773</td>
<td>Advanced Stage Movement Studio III GRAD 2</td>
<td></td>
<td>Special problems in movement for the actor; intermediate study of stylized techniques.</td>
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<td>Sp Qtr. 4 cl. Prereq: 772 or permission of instructor.</td>
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<tr>
<td>775</td>
<td>Concepts and History of the Repertory/Ensemble GRAD 3</td>
<td></td>
<td>Theory and practice of the repertory/ensemble model in the theatre, cinema, and video of the twentieth century.</td>
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<td>2 2-hr cl. Prereq: Grad standing in theatre or permission of instructor.</td>
</tr>
<tr>
<td>777</td>
<td>Studies in the Documentary UGRD 3</td>
<td></td>
<td>Conceptual, aesthetic, critical, social, ethical, practical issues in the practice of documentary and docudrama production of cinema and video works.</td>
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<td>2 2-hr cl, 1 lab. Prereq: Permission of instructor.</td>
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<tr>
<td>780</td>
<td>Advanced Acting Studio I GRAD 3</td>
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<td>Introduction to acting techniques, focusing on believability, impulse, and partnering.</td>
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<td>Au Qtr. 3 2-hr cl. Prereq: Permission of instructor.</td>
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</tbody>
</table>
781 Advanced Acting Studio II GRAD 3
Development of techniques for acting in realistic plays.
Wi Qtr. 3-2 hr. Prereq: 780 or permission of instructor.

782 Advanced Acting Studio III GRAD 3
Development of expanded techniques for acting in stylized plays.
Sp Qtr. 3-2 hr. Prereq: 781 or permission of instructor.

783H Honors Research UGRD 3-5
An individual program of study, with conferences, reports, and honors thesis.
Su, Au, Wi, Sp Qtr. Prereq: 4th yr standing; a grade of A in at least half of the theatre 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 Honors Committee whichever is relevant to the student's program. Repeatable to a maximum of 15 cr hrs. Failure to receive a mark of S in this course is a disqualification for special honors. This course is graded S/U.

786 Advanced Speech and Voice Studio I GRAD 2
Vocal technique for the actor focusing on breathing techniques.
Au Qtr. 4 cl. Prereq: Permission of instructor.

787 Advanced Speech and Voice Studio II GRAD 2
Vocal technique for the actor focusing on aspects of vocal production.
Wi Qtr. 4 cl. Prereq: 786 or permission of instructor.

788 Advanced Speech and Voice Studio III GRAD 2
Vocal technique for the actor focusing on articulation of speech.
Sp Qtr. 4 cl. Prereq: 787 or permission of instructor.

800.01 Advanced Studies: Stage Direction/Management GRAD 3-5
Stage Direction/Management. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

800.02 Advanced Studies: Technical Production/Lighting GRAD 3-5
Technical Production/Lighting. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

800.03 Advanced Studies: Dramatic Literature GRAD 3-5
Dramatic Literature. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

800.04 Advanced Studies: Stage Design GRAD 3-5
Stage Design. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

800.05 Advanced Studies: Costuming/Makeup GRAD 3-5
Costuming/Makeup. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

800.06 Advanced Studies: Criticism, Theory, Playwriting GRAD 3-5
Criticism, Theory, Playwriting. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

800.07 Advanced Studies: History GRAD 3-5
History. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

800.08 Advanced Studies: Acting GRAD 3-5
Acting. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

800.09 Advanced Studies: Theatre Management GRAD 3-5
Theatre Management. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

801 Research Methods GRAD 5
Introduction to graduate study: methods and tools of research in all areas of theatre and cinema/video.
Au Qtr. 2-2 hr. cl. Prereq: Grad standing or permission of instructor.

802.03 Seminar: Dramatic Literature GRAD 2-5
Dramatic Literature. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 40 cr hrs in any combination of decimal subdivisions.

805.01 Graduate Theater Practicum: Stage Management GRAD 1-5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

805.02 Graduate Theater Practicum: Technical Production GRAD 1-5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

805.03 Graduate Theater Practicum: Dramaturgy GRAD 1-5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

805.04 Graduate Theater Practicum: Stage Design GRAD 1-5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

805.05 Graduate Theater Practicum: Costuming/Makeup GRAD 1-5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

805.07 Graduate Theater Practicum: Stage Direction GRAD 1-5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

805.08 Graduate Theater Practicum: Acting GRAD 1-5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

805.09 Graduate Theater Practicum: Theater Management GRAD 1-5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

805.12 Graduate Theater Practicum: Lighting GRAD 1-5
Individual theatrical performance and production activities at an advanced level under faculty supervision. Prereq: Permission of instructor. Repeatable to a maximum of 40 cr hrs.

813 Cinema/Video Sketchbook I GRAD 3
Exploration of sketchbook approach to research and development of creative cinema/video projects. 2-2 hr. cl. Prereq: Permission of instructor.

814 Cinema/Video Sketchbook II GRAD 3
Continued examination of creative approach to cinema/video idea development with introduction of actors to the process. 2-2 hr. cl. Prereq: 813 or permission of instructor.

825 Advanced Stage Lighting Design II GRAD 3
Advanced study of lighting design and its creative application to modern theatre practice. Su, Au, Wi, Sp Qtr. Prereq: 645 and grad standing in theatre. Repeatable to a maximum of 9 cr hrs.

833 Modern Drama GRAD 5
Studies in drama from the late 19th century to the present.

834 Contemporary Drama GRAD 5
Consideration of the most significant dramatists since 1975.

845 Advanced Scene Design GRAD 3
Study of historic and modern scene design and application to modern theatrical stage practice; experience in executing creative and interpretive project designs. Su, Au, Wi, Sp Qtrs. Prereq: 645 and grad standing in theatre. Repeatable to a maximum of 9 cr hrs.

855 Advanced Stage Costume Design GRAD 3
Theory, methods, and materials of costume design with emphasis on design problems for the stage.

864 Theatre Criticism I GRAD 5
Critical theory of the theatre: classical to neoclassical.

865 Theatre Criticism II GRAD 5
Critical theory of the theatre: 17th, 18th, and 19th centuries.

866 Theatre Criticism III GRAD 5

443
871 Greek, Roman, and Medieval Theatre GRAD 5
Advanced study and directed research in Greek, Roman, and Medieval theatre and drama.
* Au Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor. Not open to students with credit for 870.

872 European Renaissance Theatre and Baroque Theatre GRAD 5
Advanced study and directed research in European Renaissance theatre and Baroque theatre and drama.
Wi Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor.

873 18th- and 19th-Century Theatre GRAD 5
Advanced study and directed research in European and American theatre and drama through the beginning of the twentieth century.
* Sp Qtr. 2 2-hr cl. Prereq: Grad standing or permission of instructor.

880 Advanced Acting Studio IV GRAD 3
Laboratory in visual and verbal effects.
Au Qtr. 3 2-hr cl. Prereq: 772 or permission of instructor.

881 Advanced Acting Studio V GRAD 3
Laboratory in rehearsal methods.
Wi Qtr. 3 2-hr cl. Prereq: 880 or permission of instructor.

882 Advanced Acting Studio VI GRAD 3
Applied styles: exploration of acting techniques and conventions of comedy, tragedy, farce, melodrama, and tragicomedy.
Sp Qtr. 3 2-hr cl. Prereq: 881 or permission of instructor.

883 Advanced Speech and Voice Studio IV GRAD 2
Vocal technique for the actor focusing on Standard Stage Speech.
Au Qtr. 4 cl. Prereq: 788 or permission of instructor.

884 Advanced Speech and Voice Studio V GRAD 2
Vocal technique for the actor focusing on work with texts.
Wi Qtr. 4 cl. Prereq: 883 or permission of instructor.

885 Advanced Speech and Voice Studio VI GRAD 2
Vocal techniques for Restoration and Greek drama: development of the techniques for the vocal performance of characters from the plays of the Restoration and Classical Greek periods.
Sp Qtr. 4 cl. Prereq: 884 or permission of instructor.

886 Advanced Stage Movement Studio IV GRAD 2
Special problems in movement for the actor; advanced study of stylized techniques.
Au Qtr. 4 cl. Prereq: 773 or permission of instructor.

887 Advanced Stage Movement Studio V GRAD 2
Development of special movement skills.
Wi Qtr. 4 cl. Prereq: 886 or permission of instructor.

888 Advanced Stage Movement Studio VI GRAD 2
Graphing movement principles: review of specific movement principles, graphing them for the acting process.
Sp Qtr. 4 cl. Prereq: 887 or permission of instructor.

890 Directed Teaching Experience in Theatre GRAD 1-5
Designed to aid the prospective teacher of theatre in the development of essential teaching skills in a variety of settings.
Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor.

893 Individual Studies GRAD 3-5
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

980 Advanced Acting Studio VII GRAD 3
Rehearsal techniques: special emphasis on the style, research, and characterization proper to the plays in the concurrent repertory season.
Au Qtr. 3 2-hr cl. Prereq: 882 or permission of instructor.

981 Advanced Acting Studio VIII GRAD 3
Rehearsal techniques: special emphasis on concurrent plays in repertory company season.
Wi Qtr. 3 2-hr cl. Prereq: 980 or permission of instructor.

982 Advanced Acting Studio IX GRAD 3
Rehearsal techniques: special emphasis on concurrent plays in repertory company season.
Sp Qtr. 3 2-hr cl. Prereq: 981 or permission of instructor.

983 Advanced Speech and Voice Studio VII GRAD 2
Applied phonetics: advanced study of phonetic transcription and structural awareness.
Au Qtr. 4 cl. Prereq: 885 or permission of instructor.

984 Advanced Speech and Voice Studio VIII GRAD 2
Stage dialects: process and practical application of phonetic and structural variations in performing dialects.
Wi Qtr. 4 cl. Prereq: 983 or permission of instructor.

985 Advanced Speech and Voice Studio IX GRAD 2
Character voices: process and practical application of phonetic and structural variations in performing character voices.
Sp Qtr. 4 cl. Prereq: 984 or permission of instructor.

986 Projects in Acting GRAD 5
Special projects in rehearsal and performance tied to departmental productions.
Au, Wi, Sp Qtrs. 3 2-hr cl and 6 4-hr rehearsals. Prereq: Permission of instructor.
Repeatable to a maximum of 20 cr hrs.

987.01 New Works Lab: Devising: Techniques for Creating New Work
Laboratory in performer-created works. Creation of solo and group work from multiple sources, giving equal value to text, action, and design: lighting, scenery, costume, and sound.
Prereq: Grad standing in theatre or permission of instructor.

987.02 New Works Lab: Outreach and Engagement GRAD 3
Laboratory in performer-created works. Exploration of the collaborative outreach and engagement process in the development of an original ensemble creation which will emphasize community themes in a service-learning capacity.
Prereq: Grad standing in theatre or permission of instructor. Repeatable to a maximum of 6 cr hrs.

987.03 New Works Lab: Site-Specific Solo Projects GRAD 3
Laboratory in performer-created works. Examination of the history of site-specific performance, selection of sites and creation of a performance work that is informed by the site.
Prereq: Grad standing in theatre or permission of instructor.

995 Proseminar GRAD 1
Reading, directed study, and/or projects in theatre history, criticism, literature, acting, directing, and/or design.
Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 18 cr hrs. This course is graded S/U.

998 Research in Theatre: Thesis GRAD 1-6
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

999 Research in Theatre: Dissertation GRAD 1-18
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Tibetan

101 Introductory Colloquial/Modern Tibetan I UGRD 5
Instruction in how to speak, read and write modern colloquial Tibetan based on Standard (Central) Tibetan pronunciation.
Au Qtr.

102 Introductory Colloquial/Modern Tibetan II UGRD 5
Instruction on how to speak, read and write modern colloquial Tibetan based on Standard (Central) Tibetan pronunciation.
Wi Qtr. Prereq: 101.

103 Introductory Colloquial/Modern Tibetan III UGRD 5
Instruction on how to speak, read and write modern colloquial Tibetan based on Standard (Central) Tibetan pronunciation.
Sp Qtr. Prereq: 101 and 102.

104 Advanced Colloquial/Modern Tibetan I UGRD 5
Builds on the foundations of knowledge of colloquial Tibetan, teaching students to speak, read and write modern colloquial Tibetan with Standard Tibetan pronunciation.
Au Qtr. Prereq: 101, 102 and 103.

205 Advanced Colloquial/Modern Tibetan II UGRD 5
Builds on the foundations of knowledge of colloquial Tibetan, teaching students to speak, read and write modern colloquial Tibetan with Standard Tibetan pronunciation.
Wi Qtr. Prereq: 204.

206 Advanced Colloquial/Modern Tibetan III UGRD 5
Builds on the foundations of knowledge of colloquial Tibetan, teaching students to speak, read and write modern colloquial Tibetan based on Standard Tibetan pronunciation.
Sp Qtr. Prereq: 101, 102, 103, 104, 205.

601 Introductory Literary/Classical Tibetan I GRAD 5
Introduces the basics of the classical Tibetan language, including the Tibetan script, pronunciation and grammar.
Au Qtr.

602 Intro Literary/Classical Tibetan II GRAD 5
Introduces the basics of the classical Tibetan language, including important aspects of grammar and the conventions of commentatorial literature.
Wi Qtr. Prereq: 601.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>603</td>
<td>Introductory Literary/Classical Tibetan III</td>
<td>5</td>
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<tr>
<td>604</td>
<td>Advanced Literary/Classical Tibetan I</td>
<td>5</td>
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<tr>
<td>605</td>
<td>Advanced Literary/Classical Tibetan II</td>
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<tr>
<td>606</td>
<td>Advanced Literary/Classical Tibetan III</td>
<td>5</td>
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<tr>
<td>101</td>
<td>Elementary Turkish I</td>
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<td>102</td>
<td>Elementary Turkish II</td>
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<tr>
<td>202</td>
<td>Intermediate Turkish III</td>
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<tr>
<td>241</td>
<td>Turkish Culture</td>
<td>5</td>
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<tr>
<td>293</td>
<td>Individual Studies</td>
<td>1-5</td>
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<tr>
<td>294</td>
<td>Group Studies</td>
<td>1-5</td>
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<tr>
<td>371</td>
<td>Turkish Sufism</td>
<td>5</td>
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<tr>
<td>372</td>
<td>Turkish Literature in Translation</td>
<td>5</td>
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<tr>
<td>610</td>
<td>Ottoman Orthography, Conventions, and Style</td>
<td>5</td>
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<tr>
<td>641</td>
<td>Travels in Turkey</td>
<td>5</td>
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<tr>
<td>651</td>
<td>Modern Turkish Poetry and Prose</td>
<td>5</td>
</tr>
<tr>
<td>693</td>
<td>Individual Studies</td>
<td>1-5</td>
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<tr>
<td>694</td>
<td>Group Studies</td>
<td>1-5</td>
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<tr>
<td>721</td>
<td>Studies in Turkish and Ottoman Literature and Criticism</td>
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<td>783H</td>
<td>Honors Research</td>
<td>3-5</td>
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<td>811</td>
<td>Seminar in Turkish and Ottoman Studies</td>
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<td>998</td>
<td>Research in Turkish</td>
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<td>Elementary Twi I</td>
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<td>Travels in Turkey</td>
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<td>Modern Turkish Poetry and Prose</td>
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<tr>
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<td>102</td>
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<tr>
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<td>Intermediate Twi II</td>
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</table>

**Turkish**

- **101 Elementary Turkish I:** Introduction to Turkish; development of listening, reading, speaking, and writing skills. 
- **102 Elementary Turkish II:** Further development of listening, reading, speaking, and writing skills. 
- **103 Elementary Turkish III:** Development of listening, reading, speaking, and writing skills; reading of simplified literary texts about Turkish culture. 
- **104 Intermediate Turkish I:** Reading of Turkish short stories and poems with attention to literary and cultural appreciation; development of basic language skills. 
- **201 Intermediate Turkish II:** Extensive reading from literary texts, with practice in conversation and composition. 
- **202 Intermediate Turkish III:** The study of nineteenth- and twentieth-century literary texts, with further practice in composition and translation. 
- **241 Turkish Culture:** An introduction to Turkish culture through reading of literature and criticism, and listening and viewing of films, slides, and performances arranged for the class. 
- **293 Individual Studies:** Individual Studies. 
- **294 Group Studies:** Special topics announced in the quarter previous to the one in which the course is offered. 
- **371 Turkish Sufism:** An introduction to the literature, forms of thought, and institutions of Turkish Sufism. 
- **372 Turkish Literature in Translation:** A study of Turkish literature and the history of its discourses, genres, and styles. 
- **610 Ottoman Orthography, Conventions, and Style:** Usage and syntax in the old Turkish script, 14th through 20th centuries. 

**Ukrainian**

- **445**
101.51 Elementary Ukrainian I: Individualized UGRD 1-5
Track
Development of oral and written language skills.
^ Not open to native speakers of this language through regular course enrollment or EM credit. FL Admins Cond course. GEC for lang course. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 102.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement.

102.51 Elementary Ukrainian II: Individualized UGRD 1-5
Track
Development of oral and written language skills.
^ Prereq: 101 or 101.01 or 5 cr hrs of 101.51 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. FL Admins Cond course. GEC for lang course. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Students who complete 5 cr hrs before the end of the qtr may proceed to 103.51. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 101.51 and 102.51 concurrently with permission of instructor.

103.51 Intermediate Ukrainian I: Individualized UGRD 1-5
Track
Development of all four skills: listening comprehension, speaking, reading, and writing.
^ Prereq: 102.51 or 5 cr hrs of 102.51 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 101.51 and 102.51 concurrently with permission of instructor.

104.51 Intermediate Ukrainian II: Individualized UGRD 1-5
Track
Continuation of 103.51; development of the four skills.
^ Prereq: 5 cr hrs of 103.51 or permission of instructor. Not open to native speakers of this language through regular course enrollment or EM credit. Repeatable to a maximum of 5 cr hrs. Students register for and complete from 1 to 5 cr hrs during the qtr. Progress is sequential from one cr hr to the next, with proficiency at the level of 80% required for advancement. Students may register for 103.51 and 104.51 concurrently with permission of instructor. GEC for lang course.

Undergraduate Student Academic Services

100.11 Arts and Sciences Survey UGRD 1
Introduction to the University community; strategies for successful transition to and participation in that community; institutional context of academic programs; education and learning as life-long processes; University resources and procedures.
Not open to students with credit for Agr 100, Arch 100, Arts Col 100, Arts&Sci 100, Bio Sci 100, Bus Adm 100, Engineer 100, Hum Col 100, MPS Col 100, Nursing 100, SBS Col 100, or Scholars 100. H100 (honors) decimal subdivisions may be available to students enrolled in an honors program or by permission of college. Students schedule a section of University Survey corresponding to their curricular academic program.

100.21 Exploration Survey UGRD 1
Introduction to the University community; strategies for successful transition to and participation in that community; institutional context of academic programs; education and learning as life-long processes; University resources and procedures. Not open to students with credit for Agr 100, Arch 100, Arts Col 100, Arts&Sci 100, Bio Sci 100, Bus Adm 100, Engineer 100, Hum Col 100, MPS Col 100, Nursing 100, SBS Col 100, or Scholars 100. H100 (honors) decimal subdivisions may be available to students enrolled in an honors program or by permission of college. Students schedule a section of University Survey corresponding to their curricular academic program.

Urdu

101 Elementary Urdu I UGRD 5
Study of Urdu language, with appropriate cultural background; development of listening, reading, speaking, and writing skills.
Au Qtr. 2 2-hr cl. Prereq: Permission of instructor. Not open to students with credit for NELC 294B (Au 02, Au 03) or 294J (Au 04). GEC for lang course.

102 Elementary Urdu II UGRD 5
Continued study of Urdu language, with appropriate cultural background; further development of listening, reading, speaking, and writing skills.
Wi Qtr. 2 2-hr cl. Prereq: 101 or permission of instructor. Not open to students with credit for NELC 294B (Wi 03, Wi 04, Wi 05). GEC for lang course.

103 Elementary Urdu III UGRD 5
Continued study of Urdu language, with appropriate cultural background; further development of listening, reading, speaking, and writing skills.
Sp Qtr. 2 2-hr cl. Prereq: 102 or permission of instructor. Not open to students with credit for NELC 294B (Sp 03, Sp 04) or 294A (Sp 05). GEC for lang course.

104 Intermediate Urdu I UGRD 5
Continued study of Urdu language, with appropriate cultural background; further development of listening, reading, speaking, and writing skills.
Au Qtr. 2 2-hr cl. Prereq: 103 or permission of instructor. GEC for lang course.

101 Elementary Uzbek I UGRD 5
Introduction to Uzbek language; development of listening, reading, speaking, and writing skills.
Not open to native speakers of Uzbek or students with credit for E Eur LL 671D. GEC for lang course. This course is available for EM credit.

102 Elementary Uzbek II UGRD 5
Continued study of Uzbek language, with appropriate cultural background; further development of listening, reading, speaking, and writing skills.
Prereq: 101 or permission of instructor. Not open to native speakers of Uzbek or students with credit for E Eur LL 671D. GEC for lang course. This course is available for EM credit.

103 Elementary Uzbek III UGRD 5
Continued study of Uzbek language, with appropriate cultural background; further development of listening, reading, speaking, and writing skills.
Prereq: 102 or permission of instructor. Not open to native speakers of Uzbek or students with credit for E Eur LL 671D. GEC for lang course. This course is available for EM credit.

104 Intermediate Uzbek I UGRD 5
Continued study of Uzbek language, with appropriate cultural background; further development of listening, reading, speaking, and writing skills.
Prereq: 103 or permission of instructor. GEC for lang course. This course is available for EM credit.

201 Intermediate Uzbek II UGRD 5
Extensive reading from literary texts, with practice in conversation and composition. Prereq: 104 or permission of instructor.

202 Intermediate Uzbek III UGRD 5
Continued reading from literary texts, with further practice in conversation, composition, and translation.
Prereq: 201 or permission of instructor.

Veterinary Biosciences

640 Fundamentals of Oncology GRAD 4
Lecture/seminars covering aspects of oncology: chemical and biologic carcinogenesis epidemiology, genetics, developmental biology, biochemistry, cell kinetics, clonality, metastases, hormonal and immunology factors, and therapy.
^ Wi Qtr. Prereq: Permission of instructor. Not open to students with credit for Vet Path 640. Offered in cooperation with Pathology.

693 Individual Studies GRAD 1-10
Laboratory, library, conference, and reports concerning animal disease problems.
^ Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 50 cr hrs. This course is graded S/U.

696 Advanced Studies in Veterinary Biosciences GRAD 1-6
Advanced studies in various topics in the fields of Veterinary Biosciences. Su, Au, Wi, Sp Qtrs. Arr. Prereq: Vet Med or Grad standing. Repeatable to a maximum of 20 cr hrs. This course is graded A-E.

700 Applied Functional Neuroanatomy I VMED 3
Study of structure and function of autonomic, peripheral, and central nervous systems of infraprimates, with references to primates, as related to clinical neurology, neurophathology, neurosurgery, or neurobiological research.
^ Wi Qtr. 3 cl. Prereq: VM Coll 603, CBNS&A Anat 704 or equiv, and permission of dept. Not open to students with credit for Vet &CB 700.

710 Applied Veterinary Clinical Pathology GRAD 1
Designed to familiarize the veterinary student with the preparation and cytologic interpretation of blood films, body cavity fluids, and tissue aspirates and imprints. Su, Au, Wi, Sp Qtrs. 1 cl. Prereq: Vet med 2nd, 3rd or 4th yr standing who have completed VM Coll 618.

711 Basic Macroscopic Pathology VMED 2
Interpretation of macroscopic tissue changes in diseases of domestic and exotic animal species, with correlation to pathogenesis.
Sp Qtr. Prereq: Permission of instructor. Not open to students with credit for Vet Path 796.01.
715  Applied Veterinary Medical Virology  VMED  3
Major viral pathogens of domestic animals are discussed and illustrated; principles of virology applicable to the recognition, differentiation, and prevention of diseases of animals are presented.
Sp Qtr. Prereq: Permission of instructor. Not open to students with credit for Vet Path 796.05.

717  Current Topics of Veterinary Immunology  VMED  3
Discussion of modern topics in immunobiology as it relates to domestic animals. 
Not open to students with credit for Vet Path 796.07.

718  Advanced Gross Pathology  GRAD  1-5
Advanced training in gross dissection and interpretation of gross lesions in animals.
Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing in vet med. Not open to students with credit for Vet Path 796.08. Repeatable to a maximum of 5 cr hrs.

719  Basic Histopathology  VMED  3
Interpretation of basic histologic changes in diseases of domestic and exotic animal species, with correlation to pathogenesis.
Wi Qtr. Prereq: 2nd yr standing. Not open to students with credit for Vet Path 796.09. Each student will be provided with a microscopical study set and a microscope.

720  Introduction to Applied Pathology  VMED  2
Correlation of macroscopic and histologic findings in diseases of domestic and exotic animal species, and the use of these findings in deducing pathogenesis.
Sp Qtr. 1-hr cl, 2-hr lab (Sat). Prereq: Vet med 1st yr standing.

721  Laboratory Lab Animal Medicine  VMED  2
This course will give an introduction into the basics of laboratory animal medicine. This knowledge can help to design better experiments.

722  Comparative Medicine Topics  GRAD  2
For veterinary students, graduate students, and laboratory animal medicine residents. Literature about topics relevant to laboratory animal medicine will be reviewed and discussed.
This course is graded S/U.

730  Endocrinology  VMED  5
A study of functions of the thyroid, parathyroid, pituitary, adrenal, pancreas, gonads, and other organs with possible endocrine functions.
Wi Qtr. 4 cl, 1 lab. Prereq: Physiol 312 or equiv, organic chem, and permission of instructor. Not open to students with credit for Vet Phys 730.

739  Laboratory Medicine  GRAD  1-10
Advanced training in veterinary hematology, cytology, and clinical chemistry; independent study, use of laboratory methods for the characterization of clinicalpathologic change in hospitalized patients. Kociga and graduate faculty.

751  Professional and Ethical Issues in Biomedical Sciences
A discussion course based on case scenarios dealing with ethical issues facing biomedical researchers, such as publishing practices, confidentiality, mentoring, etc.
Su (1st term), Wi Qtrs. 2.1-5 hr cl or 2 hrs wk arr. 5 wsks. Prereq: Grad standing in Vet BioSci or permission of instructor. Not open to students with credit for Vet Phys 751. Cross-listed in Pharmacology (3 cr hrs). Offered Wi Qtr for 3 cr hrs and Su Qtr (1T) for 1 hr. This course is graded S/U.

754  Fundamentals of Molecular Virology  GRAD  5
Primary emphasis is on molecular biology of animal/human viruses. Covers the strategy of virus replication with special emphasis on the molecular biology of genomic replication and virus gene expression.
* Sp Qtr. 5-1 hr cl. Prereq: Mol Gen 701, Biochem 702 or equiv. Not open to students with credit for Med Micr 754 or MVIMG 754. Cross-listed in Molecular Virology, Immunology and Medical Genetics.

777  Veterinary Plant Toxicology  VMED  2
To familiarize the veterinary student with toxic plants and their diagnosis and treatment of toxicity.
Au Qtr. Prereq: Vet med 2nd yr standing.

778  Basic and Applied Autonomic Pharmacology  VMED  2
Principles of autonomic pharmacology with special emphasis on the drugs used in the practice of veterinary medicine.
Wi Qtr. 2 cl. Prereq: Vet med 2nd yr standing or permission of instructor. Not open to students with credit for Vet Phys 778.

790  Comparative Cardiovascular Physiology  GRAD  3
Comparative electrocardiography emphasizing fundamentals and clinical interpretations.
Au Qtr. 3 cl. Prereq: Vet med 2nd, 3rd, or 4th yr standing; or permission of instructor. Not open to students with credit for Vet Phys 790.

791  Heart Sounds, Murmurs, and Pulse Curves  VMED  3
Comparative hemodynamics and cardiovascular sound emphasizing apex and echocardiograms and pressure pulses, origins of heart sounds and murmurs, clinical interpretation and clinical pathological correlation.
Wi Qtr. 3 cl. Prereq: Vet med 2nd, 3rd, or 4th yr standing or permission of instructor. Not open to students with credit for Vet Phys 791.

792  Signs, Symptoms, and Treatment of Cardiopulmonary Disease  VMED  3
Advanced comparative cardiovascular physiology with emphasis upon circulatory response to stress of various congenital and acquired cardiovascular defects.
* Sp Qtr. 3 cl. Prereq: Vet med 2nd or 4th yr standing; or permission of instructor. Not open to students with credit for Vet Phys 792.

794  Group Studies  VMED  1-6
Group studies course in areas of comparative pathology and pharmacology.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable.

795  Seminars in Diagnostic Veterinary Pathology  GRAD  1
Seminars emphasizing interpretation of lesions and correlation with pathogenesis and clinical signs are presented in veterinary gross, dermato, neuro, and ophthalmic pathology.
Su, Au, Wi, Sp Qtrs. 1 cl. Prereq: Vet med with VM Coll 550, or grad standing. Repeatable to a maximum of 16 cr hrs. This course is graded S/U.

800.01 Seminar in Veterinary Clinical Pathology  GRAD  1-2
Case presentation with emphasis on clinicopathologic correlations; specimen evaluation, literature searches, preparation of clinicopathologic case reports, and preparation of visual aids.
Prereq: Permission of instructor. Repeatable to a maximum of 24 cr hrs. This course is graded S/U.

800.02 Veterinary Histopathology Seminar  GRAD  1
Weekly histopathology slide seminars.
Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

801  Anatomical Techniques  VMED  2-5
Theory and practice of macroscopic, microscopic, and scanning electron microscopic methods, including specimen preparation for microcirculation studies, fixing, imbedding, sectioning, mounting, and staining of animal tissue. Special emphasis is placed upon techniques for the preparation of microcirculation casts for SEM study.
Su, Au, Wi, Sp Qtrs. 1 cl, 6-15 lab hrs. Prereq: VM Coll 521, 531 or equiv and permission of instructor. Not open to students with credit for Vet A&C&B 801. Repeatable to a maximum of 15 cr hrs.

802.01 Advanced Veterinary Anatomy: Limbs and Back of Domestic Animals  GRAD  3-5
Advanced topographical anatomy of domestic animals studied by lecture, prosection, and dissection.
Prereq: Vet med 3rd yr standing, veterinary gross anatomy, and permission of instructor. Not open to students with credit for Vet A&C&B 802.01.

802.02 Advanced Veterinary Anatomy: Head and Neck of Domestic Animals  GRAD  3-5
Advanced topographical anatomy of domestic animals studied by lecture, prosection, and dissection.
Prereq: Vet med 3rd yr standing, veterinary gross anatomy, and permission of instructor. Not open to students with credit for Vet A&C&B 802.02.

802.03 Advanced Veterinary Anatomy: Thorax, Abdomen, and Pelvis of Domestic Animals  GRAD  3-5
Advanced topographical anatomy of domestic animals studied by lecture, prosection, and dissection.
Prereq: Vet med 3rd yr standing, veterinary gross anatomy, and permission of instructor. Not open to students with credit for Vet A&C&B 802.03.

803  Muscle Biology and Ultrastructure  VMED  3-5
Structural basis of muscle contraction explored through application of methodology & myofibrillar protein isolation and characterization through electron microscopy.
Wi Qtr. 1.2-4 hr cl, 1-3 hr lab. Prereq: Permission of instructor. Not open to students with credit for Vet A&C&B 803. Repeatable to a maximum of 15 cr hrs.

810  Advanced Systemic Pathology I  GRAD  3-5
An advanced study of animal diseases as they affect all organ systems of the body.
* Au Qtr. Prereq: Permission of instructor. Not open to students with credit for Vet Path 810.
811 Advanced Systemic Pathology II VMED 3-5
Advanced study of animal diseases as they affect all organ systems of the body.
Wi Qtr. 3-2 hr cl. Prereq: 810. Not open to students with credit for Vet Path 811.

812 Advanced Systemic Pathology III VMED 3-5
Advanced study of animal diseases as they affect all organ systems of the body.
Sp Qtr. 3-2 hr cl. Prereq: 810 and 811. Not open to students with credit for Vet Path 812.

815 Veterinary Surgical Pathology GRAD 3-5
Biopsy methods and diagnosis; surgical specimens are studied, and emphasis is placed upon the correlation of lesions and functional pathology.
Su, Au, Wi, Sp Qtrs. 3-2 hr cl. Prereq: Enrollment in grad program in vet path; DVM and experience in basic histopathology. Not open to students with credit for Vet Path 815. Repeatable to a maximum of 40 cr hrs.

841 Viral Pathogenesis and Oncogenesis GRAD 5
Cellular, immunological and molecular mechanisms involved with virus pathogenesis in animals/humans.
Au Qtr. 5 cl. Prereq: Med Micr 701 or equiv and Med Micr 754. Not open to students with credit for Vet Path 841 or Med Micr 841. Cross-listed in Medical Microbiology and Immunology.

850 Research Seminar in Veterinary Biosciences GRAD 1
Presentation of new scientific knowledge in lectures and conferences by faculty and graduate students.
Au, Wi, Sp Qtrs. 1 cl. Prereq: Grad or professional standing in vet bios. Repeatable to a maximum of 16 cr hrs. This course is graded S/U.

851 Teaching in the Veterinary Curriculum VMED 3
Reviews pedagogical principles and practices to be used when designing, preparing and delivering courses within a professional veterinary curriculum.
Wi Qtr. 2 hr cl. Prereq: Grad standing in College of Veterinary Medicine or permission of instructor. This course is graded S/U.

852 Hematology Case Discussion VMED 1
This course is a discussion of laboratory data from clinical cases in an interactive small group setting. The focus is on hematology.
Wi Qtr. Prereq: 2nd or 3rd Year DVM student or Graduate Student.

855 Techniques in Veterinary Molecular Medicine VMED 3
Didactic instruction and hands-on experience performing molecular and genetic research techniques while learning their applications in clinical veterinary medicine.
Sp Qtr. Prereq: Biology 113 and 114 (or equiv) and Biochem 511 (or equiv). Priority will be given to first-year veterinary students, followed by second-year veterinary students.

880.07 Research Seminar: Gene Expression: Post-Transcriptional Control GRAD 3
Intensive study of problems in graduate fields of specialization.
Gene Expression: Post-Transcriptional Control.
Sp Qtr. 3 cl. Prereq: 10 grad cr hrs or permission of instructor. Not open to students with credit for Mol Gen 880.07 or MolBioch 880.07. Repeatable to a maximum of 30 cr hrs. Cross-listed in Molecular Genetics and Molecular and Cellular Biochemistry.

999 Research in Veterinary Biosciences GRAD 1-18
Research for dissertation or thesis purposes only.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable. This course is graded S/U.

Veterinary Clinical Sciences

622.01 Advanced Equine Medical and Surgical Procedures VMED 1
Tracheal wash, thoracentesis, CFS samples, bone marrow biopsies, epidural anesthesia, endoscopy, nerve blocks, castrations, arthrocentesis, i. tracheotomy, and cast applications.
Prereq: Vet med 3rd yr standing and VM Coll 617. For students with an interest in equine medicine and surgery. Open to grad students with permission.

628 Small Animal Surgery VMED 4
Topics in surgery of dogs and cats will be discussed, including both general and orthopedic surgery.
Au Qtr. 4 cl. Prereq: Vet Med 3rd yr standing.

696 Advanced Studies in Veterinary Clinical Sciences GRAD 1-4
Advanced Studies in Veterinary Clinical Sciences.
Su, Au, Wi, Sp Qtrs. Prereq: Vet med 2nd, 3rd or 4th yr standing. Repeatable to a maximum of 20 cr hrs.

710.01 Community Practice VMED 3
Clinical instruction designed to improve the student's proficiency in client relations, diagnosis, treatment, and prevention of diseases in out-patients.
Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.02 Small Animal Internal Medicine VMED 3
Clinical instruction and experience in the diagnosis and management of dogs and cats with internal medicine problems and diseases.
Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

710.03 Applied Veterinary Medicine Options: VMED 3
Small Animal Surgery
The application of principles of surgery to treatment of diseases of companion animal:
Prereq: Vet Med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.04 Applied Veterinary Medicine Options: VMED 1-5
Food Animal Medicine and Surgery
Clinical instruction and experience in the diagnosis, treatment, and prevention of diseases of food animals.
Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.05 Applied Veterinary Medicine Options: VMED 1-5
Equine Medicine and Surgery
Clinical instruction and experience in the diagnosis, treatment, and prevention of diseases of the horse.
Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.06 Applied Veterinary Medicine Options: VMED 1-5
Field Service
The application of the principles of management, diagnosis, treatment, and prevention of disease in farm and exotic animals in the environment in which they are produced. Field trips to facilities for patient care, case discussions, seminars, and 24-hr patient care responsibilities.
Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.07 Veterinary Clinical Radiology VMED 3
Develop abilities to methodically interpret radiographs and recognize normal and abnormal radiographic findings. Formulate reasonable conclusions/diagnoses, based on radiographic findings and known case information.
Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.08 Applied Veterinary Medicine Options: VMED 1-5
Clinical Microbiology
Assignment of patients for in-depth study of diagnosis and course of disease with emphasis on selection and interpretation of laboratory parameters; emphasis on microbiologic and immunologic methods for diagnosis and evaluation of infectious disease.
Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.09 Applied Veterinary Medicine Options: VMED 1-5
Clinical Anesthesiology
The application of principles of anesthesia.
Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.12 Applied Veterinary Medicine Options: VMED 1-5
Veterinary Clinical Ophthalmology
Application of principles of diagnosis and treatment of diseases of the eye to patients of all species.
Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.13 Applied Veterinary Medicine Options: VMED 1-5
Applied Theriogenology
Application of principles of diagnosis, treatment, and prevention of diseases of the reproductive system of all species.
Pr Qtr. Prereq: Vet med 4th yr standing. Arranged into an elective program in conjunction with a faculty adviser. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

710.23 Veterinary Clinical Radiology: Ultrasound VMED 3
Learn to recognize normal and abnormal sonographic findings. Develop thought process and understanding to formulate reasonable conclusions or diagnosis based on ultrasound findings and case information.
Prereq: 4th year Veterinary student. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.
710.24 Radiation Oncology VMED 3
Elective course of a two week clinical rotation on the Radiation Oncology service. Prereq: 4th year Veterinary student. This course is graded S/U.

718 Clinical Problem Solving and Treatment in Small Animal Internal Medicine I VMED 3
Problem-oriented course using case discussions to teach the diagnostic and therapeutics approach to the most common clinical problems in small animal internal medicine. Au Qtr. 3 cl. Prereq: Vet Med 3rd yr standing.

719 Clinical Problem Solving and Treatment in Small Animal Internal Medicine II VMED 3
Problem-oriented course using case discussions to teach the diagnostic and therapeutics approach to the most common clinical problems in small animal internal medicine. Wi Qtr. 3 cl. Prereq: Vet Med 3rd yr standing.

720.01 Introduction to Veterinary Clinical Nutrition VMED 2
Basic animal nutrition and feeding and nutrition-related problems. Wi Qtr. 2 cl. Prereq: Vet med 2nd yr standing or permission of instructor. This course is graded S/U.

721 Veterinary Acupuncture VMED 1
Practical approaches to diagnosis and treatment of clinical cases (dog, cat, horse, cow) by acupuncture of animals in the veterinary hospital. Sp Qtr. 1 cl. Prereq: Permission of instructor. This course is graded S/U.

722 Clinical Problems in Small Animal Cardiology VMED 1
This course will increase skills in physical exam, radiographic and electrocardiographic interpretation of common cardiovascular diseases in a small group setting. Wi Qtr. 1 cl. Prereq: Vet Med 2nd or 3rd yr standing. This course is graded S/U.

723 Emergency/Critical Care Volunteer Program VMED 1
Offers students the opportunity to observe daily caseload of emergency/critical care service while volunteering. Au, Wi, Sp Qtrs. 2.5 hr shifts and 12 1-hr rounds sessions. Prereq: Au, Wi: Vet Med 2nd or 3rd yr standing; Sp: Vet Med 1st or 2nd yr standing. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

724 Topics in Feline Medicine and Surgery VMED 2
To provide third and fourth year veterinary students with information on selected medical and surgical topics unique to the cat. Wi Qtr. 2 cl. Prereq: Vet med 3rd or 4th yr standing. Professional students only. Not repeatable. This course is graded S/U.

725 Canine and Feline Dentistry VMED 1
Lectures, demonstrations, and laboratories covering prophyactic care, and extraction of teeth, endodontic and prosthetic therapy. Sp Qtr. Prereq: Vet Med 4th yr standing or permission of instructor.

726 Advanced Practice: Client Communication VMED 2
Provides an applied learning environment for students to develop advanced client communication skills. Au, Wi, Sp Qtrs. Prereq: Vet Med 4th yr standing. This course is graded S/U.

727 Companion Bird Medicine and Surgery VMED 1
All aspects of companion bird medicine, including husbandry, nutrition, pediatrics, diagnostic and therapeutic techniques, disease problems, radiology, anesthesia and surgery. Emphasis placed on psittacine species. Wi Qtr. 3 cl. Prereq: Vet Med 2nd, 3rd, or 4th yr standing or written permission of instructor.

728 Clinical Endocrinology VMED 2
To familiarize pre-clinical veterinary students with the clinical presentation, laboratory abnormalities and treatment of common endocrine disorders of dogs and cats. Au, Wi, Sp Qtrs. Prereq: Vet Med 3rd yr standing. This course is graded S/U.

729 Pet Loss Education and Grief Support GRAD 1-6
An applied learning environment for students to develop introductory client communication, grief education, and grief support skills. Au, Wi, Sp Qtrs. 5-hr seminar and 2-3 hr shifts for ea credit. Prereq: Au, Wi: Vet Med 2nd, 3rd, or 4th yr standing; Sp: Vet Med 1st, 2nd, or 4th yr standing. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

730 Equine Lameness and Gait Abnormalities VMED 2
To acquaint the student with conditions of the horse that produce gait abnormalities as the presenting clinical complaint. Wi Qtr. 2 cl. Prereq: Vet Med 3rd yr standing. Repeatable to a maximum of 4 cr hrs.

731 Equine Medicine and Surgery VMED 2
A course to provide professional students with knowledge to diagnose, treat and prognosticate common medical and surgical diseases of horses. Au Qtr. 2 cl. Prereq: Vet Med 4th yr standing.

732 Equine Soft Tissue Surgery VMED 3
Practical approach to most frequently encountered soft tissue problems in equine practice. Includes rationale for decision-making, procedures, and comprehensive case management. Sp Qtr. 3 cl. Prereq: Vet Med 4th yr standing.

737 Equine Intensive Care VMED 2
Students will be taught to critically evaluate, treat and monitor patients in the Equine Intensive Care Unit through supervised patient contact and weekly seminars. Au Qtr. 1 cl, 4 lab. Prereq: Vet Med 2nd yr standing and successful completion of ICU shadowing.

738 Pleasure Horse Medicine VMED 2
Review of prevention, diagnosis, and treatment of diseases which are common problems of pleasure horses. Au Qtr. 2 lec. Prereq: Vet Med 2nd, 3rd, or 4th yr standing.

739 Diagnostic Equine Lameness VMED 1
Designed to provide hands-on experience in the diagnosis and treatment of equine lameness. Wi Qtr. 2 lab hrs. Prereq: Vet Med 2nd yr standing with concurrent enrollment in 738 and pre-test. Pre-test is required. This course is graded S/U.

743 Pocket Pet Medicine VMED 2
Basic medicine, surgery, and husbandry for pocket pets, including rabbits, ferrets, guinea pigs, mice, rats, gerbils, chinchillas, and hamsters. Au Qtr. 2 cl. Prereq: Vet Med 2nd, 3rd, or 4th yr standing.

744 Reptile Medicine VMED 3
Covers husbandry, medicine, anesthesia and surgery for captive reptiles. Wi Qtr. 2 cl and labs arr. Prereq: Vet Med 3rd or 4th yr standing.

746 Cattle Diseases VMED 5
Medical diagnosis and therapy of individual cattle. The course will teach students medicine and surgery of individual cattle. Au Qtr. 5 cl. Prereq: Vet Med 2nd, 3rd, or 4th yr standing.

747 Small Ruminant Diseases VMED 3
diagnosis and therapy of common medical and surgical disorders in small ruminants. This course is organized in an age-related, problem-oriented manner. Wi Qtr. 3 cl. Prereq: Vet Med 3rd yr standing.

749 Equine Ophthalmology VMED 2
Comprehensive problem-based discussions of equine ophthalmic cases, clinical patient examinations and stall-side rounds, ophthalmic techniques lab and cadaver surgery lab. Wi Qtr. 2 cl. Prereq: Vet Med 3rd yr standing and VM Coll 612. This course is graded S/U.

751 Equine Anesthesia Elective VMED 1
Review of the literature of equine anesthesia. Wi Qtr. Arr. Prereq: Vet Med 3rd or 4th yr standing. This course is graded S/U.

752 Case Studies in Clinical Neurology VMED 1
Diagnostic and management approaches in individual patients are demonstrated and discussed. Lesion localization and differential diagnoses are emphasized. Au, Wi, Sp Qtrs. Arr. Prereq: VM Coll 603. Limited to second and third year students in the veterinary curriculum. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

753 Small Animal Internal Medicine Case Presentations VMED 1
Case discussions in small animal internal medicine for pre-clinical veterinary students. Sp Qtr. 1 cl. Prereq: Vet med 2nd yr standing. This course is graded S/U.

760 Specialized Study in Veterinary Medicine VMED 1-5
Field or lab study encompassing the various areas in the field of veterinary medicine through an approved off-campus experience with qualified professionals. Sp Qtr. Prereq: Vet med 4th yr standing. To be taken during elective qtr. Cross listed in all veterinary medicine depts. Students must serve at least 4 wks in one experience to receive minimum elective cr. Repeatable to a maximum of 16 cr hrs. This course is graded S/U.

762 Clinical Veterinary Ophthalmology VMED 2
A problem-based approach to differential diagnosis, final diagnosis, and treatment of ophthalmic diseases in large and small animals. Wi Qtr. 2 cl. Prereq: Vet Med 3rd or 4th yr standing. Problem-based learning format. This course is graded S/U.

763 Small Animal Endoscopy VMED 1
Use of endoscopy for evaluation of gastrointestinal and respiratory problems in dogs and cats. Au Qtr. 2 cl. Prereq: Vet med 3rd yr standing.

768 Integrative Medicine, Science and Experience VMED 2
Designed to give an overview of integrative medicine, as defined by the National Center for Complementary and Alternative Medicine (housed in NIH). Au Qtr. 1 cl, 2 lab.
782 Pharmacology of Cardiac Drugs VMED 3
Clinical evaluation, pharmacokinetics, and pharmacotherapy of cardiac dysrhythmias.
* Wi Qtr. 2 cl. Prereq: 3rd or 4th yr or grad standing. Not open to students with credit for Vet Phys 782.

783 Equine Cardiology VMED 1
The course considers clinical aspects of equine cardiology, including diseases, diagnostic methods, and treatment.
Wi Qtr. Prereq: 3rd year veterinary or Graduate standing only.

790 Advanced Theriogenology Seminar VMED 1
Review of current theriogenology literature placing primary emphasis on experimental design, procedures, and scientific conclusions of reported work; each student will orally describe and prepare a written research protocol.
Au, Wi, Sp Qtr. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 15 cr hrs.

791.01 Reproductive Techniques: Equine Theriogenology GRAD 4
The lectures and laboratory experiences are designed to present material covering frequently occurring reproductive abnormalities and reproductive management desirable to obtain maximal reproductive efficiency.
3 lecture hrs and 2 lab hrs. Prereq: Vet Med 3rd yr standing or permission of instructor.

791.03 Reproductive Techniques: Canine Theriogenology VMED 2
This course will present information on canine theriogenology in lecture, discussion and laboratory format.
Wi Qtr. 2 hr lab, 1-hr lecture. Prereq: Vet Med 3rd yr or grad standing. Evaluation will be based on laboratory participation and written examination.

791.04 Reproductive Techniques: Reproductive Physiology of Pseudoruminants VMED 3
Provides an in-depth analysis of pseudoruminant physiology including comparisons with true ruminants.
Sp Qtr. Prereq: Vet Med 3rd yr standing.

792 Advanced Theriogenology Laboratory VMED 2
A laboratory for the application of research, diagnostic and therapeutic techniques involving the reproductive system of domestic animals.
Au, Wi, Sp Qtrs. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 18 cr hrs.

793 Individual Studies GRAD 1-8
A supervised critical investigation of some aspects of animal disease about which there is a mutual curiosity on the part of both the student and faculty.
Su, Au, Wi, Sp Qtrs. Prereq: Vet Med 3rd or 4th yr standing, adequate clinical training and written permission of instructor. Repeatable. This course is graded S/U.

795 Introductory Research Experience VMED 2
To obtain basic laboratory experience in a veterinary research setting.
Sp Qtr. Repeatable to a maximum of 4 cr hrs. This course is graded S/U.

796.02 Advanced Studies: Equine Lameness VMED 1-8
Study of the methods used for diagnosis and treatment of diseases causing lameness in horses; includes radiographic and surgical techniques.
Su, Au, Wi, Sp Qtrs. Prereq: Vet med 4th yr standing or written permission of instructor. Repeatable to a maximum of 30 cr hrs.

796.03 Advanced Studies: Gastroenterology VMED 1-8
Study of diagnosis, treatment, and prevention of diseases of the gastrointestinal system.
Su, Au, Wi, Sp Qtrs. Prereq: Vet med 4th yr standing or written permission of instructor. Repeatable to a maximum of 30 cr hrs.

800 Research Methods GRAD 2
Development of a research grant including formation, research, statistical analysis of data, preparing, submitting and editing a grant.
Au Qtr. Odd years. 1 cl. Prereq: DVM or equiv or permission of instructor.

801 Research Methods II GRAD 3
The course content emphasizes the principals and practice of clinical research design and data analysis.
Wi Qtr. 3 cl. Prereq: 800; DVM degree or permission of instructor.

807 Known Case Conference GRAD 1
Teach and train radiology students the correct approach to diagnostic image reading and interpretation.
Au, Wi, Sp Qtrs. 1 cl. Prereq: DVM degree. Repeatable to a maximum of 20 cr hrs.

822.02 Advanced Veterinary Internal Medicine: Gastroenterology VMED 3
Fundamental pathophysiology of disease in small animal gastroenterology.
* Sp Qtr. 2 cl. Prereq: DVM or equiv or permission of instructor. Offered spring quarter every 3 years beginning with Sp 2003.

822.03 Advanced Veterinary Internal Medicine: Respiratory Diseases GRAD 3
Fundamental pathophysiology of disease in comparative veterinary pulmonology.
Au Qtr. 2 cl. Prereq: DVM or equiv or permission of instructor. Offered autumn quarter every 3 years beginning with Au 2000.

822.04 Advanced Veterinary Internal Medicine: Neurology GRAD 3
Fundamental pathophysiology of disease in comparative veterinary neurology.
Wi Qtr. 2 cl. Prereq: DVM or equiv or permission of instructor. Offered winter quarter every 3 years beginning with Wi 2001.

822.05 Advanced Veterinary Internal Medicine: Cardiology GRAD 3
Pathophysiology and select clinical diseases in comparative veterinary cardiology.
Sp Qtr. 2 cl. Prereq: DVM or equiv or permission of instructor. Offered spring quarter every 3 years beginning with Sp 2001.

822.06 Advanced Veterinary Internal Medicine: Nephrology and Urology GRAD 3
Pathophysiology and select clinical diseases in comparative veterinary nephrology and urology.
* Au Qtr. 2 cl. Prereq: DVM or equiv or permission of instructor. Offered autumn quarter every 3 years beginning with Autumn 2001.

822.07 Advanced Veterinary Internal Medicine: Hematology and Oncology GRAD 3
Pathophysiology and select clinical diseases in comparative veterinary hematology and oncology.
^ Sp Qtr. 2 cl. Prereq: DVM or equiv or permission of instructor. Offered spring quarter every 3 years beginning with Sp 2002.

822.08 Advanced Veterinary Internal Medicine: Hepatology GRAD 2
Pathophysiology and select clinical diseases in comparative veterinary hepatology.
* Au Qtr. 2 cl. Prereq: DVM or equiv or permission of instructor. Offered autumn quarter every 3 years beginning with Au 2002.

822.09 Advanced Veterinary Internal Medicine: Dermatology GRAD 2
Pathophysiology and select clinical diseases in comparative veterinary dermatology.
* Au Qtr. 2 cl. Prereq: DVM or equiv or permission of instructor. Offered autumn quarter every 3 years beginning with Au 2002.

822.10 Advanced Veterinary Internal Medicine: Ophthalmology GRAD 2
Pathophysiology and select clinical diseases in comparative veterinary ophthalmology.
* Su Qtr. 2 cl. Prereq: DVM or equiv or permission of instructor. Offered summer quarter every 3 years beginning with Su 2002.

823 Veterinary Core Communications Skills GRAD 2
Competency
Competency in core communication skills increases client satisfaction, compliance and positive outcomes and decreases malpractice risk.
Su Qtr. Restricted to VCS graduate students.

833.01 Advanced Veterinary Surgical Sciences: Anesthesia and Critical Care VMED 2
Fundamental anesthesia and critical care methodology in comparative veterinary surgical sciences.
Wi Qtr. 1-2 hr cl. Prereq: DVM degree. Offered winter quarter every 3 years beginning with Wi 2004.

833.02 Advanced Veterinary Surgical Sciences: Gastrointestinal Surgery GRAD 3
Fundamental gastrointestinal methodology in comparative veterinary surgical science.
Sp Qtr. 1-2 hr cl. Prereq: DVM degree. Offered spring quarter every 3 years beginning with Sp 2004.

833.03 Advanced Veterinary Surgical Sciences: Respiratory/Thoracic Surgery GRAD 2
Fundamental respiratory/thoracic surgery methodology in comparative veterinary surgical sciences.
Au Qtr. 1-2 hr cl. Prereq: DVM degree. Offered autumn quarter every 3 years beginning with Au 2006.

833.05 Advanced Veterinary Surgical Sciences: Cardiovascular/Hemolympathic Surgery VMED 2
Fundamental cardiovascular/hemolympathic surgery methodology in comparative veterinary surgical sciences.
Sp Qtr. 1-2 hr cl. Prereq: DVM degree. Offered spring quarter every 3 years beginning with Sp 2004.
833.06 Advanced Veterinary Surgical Sciences: GRAD 2
Renal/Urinary/Reproductive Surgery
Au Qtr. 1 2-hr cl. Prereq: DVM degree. Offered autumn quarter every 3 years beginning with Au 2004.

833.07 Advanced Veterinary Surgical Sciences: GRAD 2
Musculoskeletal Surgery
Fundamental musculoskeletal surgery methodology in comparative veterinary surgical sciences.
Wi Qtr. 1 2-hr cl. Prereq: DVM degree. Offered winter quarter every 3 years beginning with Wi 2005.

833.08 Advanced Veterinary Surgical Sciences: VMED 2
Selected Surgical Topics
Selected fundamental surgical topics methodology in comparative veterinary surgical sciences.
Sp Qtr. 1 2-hr cl. Prereq: DVM degree. Offered spring quarter every 3 years beginning with Sp 2005.

833.09 Advanced Veterinary Surgical Sciences: GRAD 2
Reconstructive Surgery
Fundamental reconstructive surgical methodology in comparative veterinary surgical sciences.
Au Qtr. 1 2-hr cl. Prereq: DVM degree. Offered autumn quarter every 3 years beginning with Au 2005.

850.02 Seminar: Cardiology VMED 1
Seminar presenting current topics in cardiovascular medicine, pathology, pharmacology and pathophysiology.
Su, Au, Wi, Sp Qtrs. Prereq: DVM or equiv or permission of instructor. Repeatable to a maximum of 16 cr hrs. Only open to graduate students in VCS, VBS, or VPM.

850.04 Seminar: Clinical Pathophysiology Cases in Small Animal Medicine
Detailed clinical approach to small animal internal medicine cases to include an understanding of the differential diagnoses and associated pathophysiologic mechanisms of disease.
Su, Au, Wi, Sp Qtrs. Prereq: DVM o equiv or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

850.08 Seminar: Veterinary Neurology Seminar GRAD 1
Provide a clinical case oriented approach. Discussion of pathophysiology of diseases of the central and peripheral nervous system; emphasis on comparison between species.
Au, Wi, Sp Qtrs. Prereq: DVM or equiv or permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

850.09 Seminar: Surgery Resident Seminar GRAD 1
Gain experience in organization/preparation of scientific/professional presentations.
Su, Au, Wi, Sp Qtrs. 1 cl. Prereq: DVM degree. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

999 Research in Veterinary Clinical Sciences GRAD 1-18
Research for thesis or dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Veterinary Medicine

510 Principles of Epidemiology VMED 4
Descriptive and analytical epidemiology, including design, analysis, and interpretation of results; veterinary economics and information handling techniques; host, agent, and environmental factors in disease causation.
Au Qtr. 3 cl and 2 lab hrs. Prereq: Vet med 1st yr standing.

520 Topographic Anatomy (Canine) VMED 5
Body and its components as forms, relationships, and mechanical functioning.
Au Qtr. 2 cl, 3 2-hr labs. Prereq: Vet med 1st yr standing.

521 Topographic Anatomy (Equine) VMED 4
Continuation of 520.
Wi Qtr. Prereq: Vet med 1st yr standing.

522 Topographic Anatomy (Food Animals) VMED 4
Continuation of 521.
Sp Qtr. 2 cl, 2 lab hrs. Prereq: Vet med 1st yr standing.

525 Principles of Diagnostics Radiology VMED 1
Principles behind the imaging modalities of radiology.
Au Qtr. Prereq: 1st yr standing in vet med.

526 Principles of Radiographic Interpretation VMED 1
Introduction to principles of radiographic interpretation, including general principles as well as specific strategies for musculoskeletal, thoracic and abdominal image interpretation.
Wi Qtr. 1 cl. Prereq: Vet med 1st yr standing.

530 Microscopic and Developmental Anatomy I VMED 5
Study of microscopic and ultrastructural features of cells and tissues, as well as basic fetal development.
Au Qtr. Prereq: Vet med 1st yr standing.

531 Microscopic and Developmental Anatomy II VMED 4
Correlated study of the development, microscopic structure, and ultrastructural morphology of organ systems.
Wi Qtr. Prereq: Vet med 1st yr standing.

540 Structure and Function of Cells VMED 5
Introduction to structure and function at cellular level including physiological principles of homeostasis, energetics, metabolism, enzymes, nutrition, and growth.
Au Qtr. Prereq: Vet med 1st yr standing.

550.01 Comparative Biology of Disease VMED 5
An interdisciplinary study of the interactions between disease producing agents, body systems, tissues, cells, subcellular units, and selected drugs and toxins.
Wi Qtr. Prereq: Vet med 1st yr standing.

550.02 Comparative Biology of Disease II VMED 5
An interdisciplinary study of the interactions between disease producing agents, body systems, tissues, cells, subcellular units, and selected drugs and toxins.
Wi Qtr. 5 cl. Prereq: Vet med 1st yr standing.

560.01 Introduction to Veterinary Professions: Ethics and Jurisprudence VMED 1
Problems faced by the practicing veterinarian in relation to the Ohio code, the law, ethics, and communications.
Au Qtr. Prereq: Vet Med 1st yr. standing.

560.02 Ethics and Jurisprudence in the Veterinary Career VMED 2
Focus on analysis of ethical and legal issues associated with the art of veterinary medicine practice and establishment of optimal veterinarian-client-patient relations.
Wi Qtr. Prereq: Vet Med 1st yr. standing.

561 Pharmacology VMED 4
Basic principles of pharmacology, therapeutics, and chemotherapy of disease.
Sp Qtr. 4 cl. Prereq: Vet med 1st yr standing.

562 Introduction to Anesthesiology VMED 2
Introduction to anesthesia.
Sp Qtr. Prereq: Vet med 2nd yr standing.

563 Introduction to Surgery VMED 3
Introduction to surgery.
Sp Qtr. 2 cl, or 1 2-hr lab. Prereq: Vet med 2nd yr standing.

564 Clinical Veterinary Therapeutics VMED 3
Principles of chemotherapy of bacterial, fungal, viral, and parasitic infections; application of basic principles for chemotherapy of neoplastic disease.
Wi Qtr. 3 cl. Prereq: Vet Med 3rd yr standing.

600 Cardiovascular System VMED 6
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.
Au Qtr. Prereq: Vet med 2nd yr standing.

601 Respiratory System VMED 5
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.
Au Qtr. 5 cl. Prereq: Vet med 2nd yr standing.

602 Urinary System VMED 5
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.
Wi Qtr. 5 cl. Prereq: Vet med 2nd yr standing.

603 Neurobiology VMED 6
Comparative study of structure, stressing functional anatomy, normal physiology, and the examination of the nervous system.
Sp Qtr. 6 cl. Prereq: Vet med 1st yr standing.

604 Endocrine System VMED 5
A comparative study of the structures, function, and dysfunction of the endocrine system including diseases of each endocrine organ and their relationships to whole body functions.
Sp Qtr. 5 cl. Prereq: Vet med 1st yr standing.

605 Reproductive System VMED 5
A comparative study of the structure, function, and dysfunction of the reproductive system including etiologic, pathogenic, pathophysiological, therapeutic, and preventative aspects of reproductive diseases.
Sp Qtr. 5 cl, 2 labs. Prereq: Vet med 2nd yr standing.
606 Integumentary System VMED 5
A comparative study of the structure, function, and dysfunction of the integumentary system including important infectious and parasitic diseases, diagnosis, treatment, and prevention.
Sp Qtr. 5 cl, or 4 cl and 2 labs. Prereq: Vet med 2nd yr standing.

607 Musculoskeletal System VMED 6
A comparative study of the structure, function, and dysfunction of the musculoskeletal system including congenital and acquired diseases, their radiographic diagnosis, treatment, and prevention.
Wi Qtr. 6 cl. Prereq: Vet med 2nd yr standing.

608 Non-Mammalian and Avian Medicine VMED 2
Basic study of avian, reptile, amphibian and fish medicine including anatomy, physiology, pathogenesis of disease, diagnosis, treatment, and disease prevention and control.
Sp Qtr. Prereq: Vet Med 2nd yr standing.

609 Digestive System VMED 6
A comprehensive study of the gastrointestinal system of domestic animals. Wi Qtr. 6 cl or equiv lab hrs. Prereq: Vet Med 2nd yr standing.

610 Clinical Veterinary Parasitology VMED 3
Clinical aspects of parasitic infections of cats, dogs, horses, cattle and small ruminants, including symptoms diagnosis treatments, control measures and zoonotic concerns.
Sp Qtr. 3 cl. Prereq: Vet Med 2nd yr standing.

611 Veterinary Preventive Medicine VMED 4
Introduction to prevention and control of disease in the human and animal populations with emphasis on the important role of the veterinarian in these activities.
Wi Qtr. 3 cl, 2 lab hrs. Prereq: Vet med 3rd yr standing.

612 Introduction to Veterinary Ophthalmology VMED 3
Comparative anatomy, histology and physiology of the normal and abnormal eye and adnexa of domestic animals.
Au Qtr. 3 cl. Prereq: Vet med 3rd yr standing.

613 Fluid Therapy VMED 1
Principles and applications of fluid therapy in small and large animals.
Wi Qtr. 1 cl. Prereq: Vet med 2nd yr standing.

614.01 Professional Development: Basic Life Skills VMED 1
Basic life skills for the successful veterinarian.
Sp Qtr. 1 cl. Prereq: Vet med 1st yr standing.

614.02 Professional Development: Career Strategies VMED 1
Choosing a career and career search strategies.
Au Qtr. 1 cl. Prereq: Vet med 2nd yr standing.

614.03 Professional Development: Leadership Success VMED 1
Understanding leadership; leadership as a pathway to success.
Wi Qtr. 1 cl. Prereq: Vet med 2nd yr standing.

614.04 Professional Development: Communications VMED 1
The art of successful communication.
Sp Qtr. 1 cl. Prereq: Vet med 2nd yr standing.

614.05 Professional Development: Career Development and Business Management VMED 2
Introduction to career planning; reviewing the normal stages of a professional career.
Au Qtr. 2 cl. Prereq: Vet med 3rd yr standing.

614.06 Professional Development: Practice Success VMED 1
The art and knowledge for a successful veterinary practice.
Wi Qtr. 1 cl. Prereq: Vet med 3rd yr standing.

615.01 Small Animal Operative Practice VMED 4
Clinical instruction in and application of surgical techniques and treatment of small animal diseases.
Au, Wi Qtrs. 1 cl, 12 lab hrs/wk. Prereq: Vet med 3rd yr standing. Not open to students with credit for 615.

615.02 Small Animal Diagnostic Medicine Techniques VMED 1
Clinical instruction in and application of medical diagnostic and therapeutic technique in small animals.
Au, Wi Qtrs. 4 lab hrs/wk. Prereq: Vet med 3rd yr standing.

616 Food Animal Medicine Techniques and Diagnostic Procedures VMED 3
Laboratory instruction in microbiology, parasitology, and radiology; instruction and self-study in minor techniques for large animals.
Au, Wi Qtrs. 9-13 lab hrs. Prereq: Vet med 3rd yr standing.

617 Basic Equine Medical and Surgical Procedures VMED 1
Laboratory and self-instruction in equine techniques.
Au, Wi Qtrs. 3-6 lab hrs. Prereq: Vet med 3rd yr standing.

618 Hemic-Lymphatic System VMED 5
A comparative study of the hemic-lymphatic system with emphasis on dysfunction immunologic diseases diagnosis, treatment and prevention of hemopoetic disease.
Au Qtr. Prereq: Vet med 2nd yr standing.

640 Veterinary Toxicology VMED 3
Study of toxic substances affecting domestic animals including major types of poison sources, mechanisms of action, diagnosis, and treatment.
Au Qtr. 3 cl. Prereq: Vet med 3rd yr standing.

641 Introduction to Animal Behavior VMED 1
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.
Au, Wi Qtrs.

646 Veterinary Population Medicine and Public Health VMED 2
Study of risk factors affecting health of populations; interrelationships of populations; and control measures to enhance population health.
Au Qtr. 2 cl. Prereq: Vet med 2nd yr standing.

689 Practicum in Veterinary Medicine VMED 0
Applied veterinary experiences offered to fourth year veterinary students which enhance their skills in areas such as medicine, surgery, dentistry, research, etc.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Vet med 4th yr standing on elective qtr. Repeatable. This course is graded S/U.

700.02 Applied Veterinary Medicine: Small Animal Internal Medicine VMED 3
Clinical instruction and experience in the diagnosis, treatment, and prevention of diseases of small companion animals.
Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

700.03 Applied Veterinary Medicine: Small Animal Surgery VMED 6
The application of principles of surgery to treatment of diseases of companion small animals.
Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

700.04 Applied Veterinary Medicine: Food Animal Medicine and Surgery VMED 6
Application of principles of diagnosis, treatment, and prevention of diseases of food animals.
Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

700.05 Applied Veterinary Medicine: Equine Medicine and Surgery VMED 6
Application of principles of diagnosis, treatment, and prevention of diseases of equine patients.
Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

700.06 Applied Veterinary Medicine: Equine Field Services VMED 3
Application of principles of management, diagnosis, treatment and prevention of diseases in horses in environment in which they are raised.
Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

700.07 Applied Veterinary Medicine: Radiology VMED 3
Application of radiological principles to diagnosis of diseases of animals.
Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

700.08 Applied Veterinary Medicine: Preventive Medicine VMED 3
Intensive practical training in preventive medicine applied to public health and animal health; emphasis on herd health management, food hygiene, laboratory animals, public service, and control of livestock and poultry diseases.
Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs. This course is graded S/U.
### Veterinary Preventive Medicine

**700.09 Applied Veterinary Medicine: Clinical Anesthesiology**  
VMED 3  
Provides supervised experience in hospital-based anesthesia practice. Students anesthetize patients for surgical as well as diagnostic procedures.  
Prereq: Vet med 4th yr standing. Seminars supplement clinical patient management. Repeatable to a maximum of 6 cr hrs.

**700.10 Applied Veterinary Medicine: Large Animal Ambulatory Clinics**  
VMED 3  
Provides student the experience of working in a large animal clinic, including patient and business management aspects. Provides instruction in production medicine and its role in modern agriculture.  
Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

**700.11 Applied Veterinary Medicine: Small Animal Emergency/Critical Care**  
VMED 6  
Application of principles of diagnosis, therapy, and management of patients with acute or critical illness.  
Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

**700.12 Applied Veterinary Medicine: Veterinary Clinical Ophthalmology**  
VMED 3  
Application of principles of diagnosis and treatment of diseases of the eye to patients of all species.  
Su, Au, Wi, Sp Qtrs. Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

**700.14 Applied Veterinary Medicine: Applied Pathology**  
VMED 3  
Training in gross dissection and interpretation of gross and microscopic pathologic lesions in animals.  
Prereq: Vet med 4th yr standing.

**700.15 Applied Veterinary Medicine: Dermatology**  
VMED 3  
One of a series of clinical studies offered fourth-year veterinary medical students as part of the core curriculum.  
Su, Au, Wi, Sp Qtrs. Prereq: Vet med 4th yr standing. Repeatable to a maximum of 32 cr hrs.

**700.16 Applied Veterinary Medicine: Equine Emergency/Critical Care**  
VMED 3  
Provides students supervised experience in hospital-based emergency and critical care practice with horses.  
Prereq: Vet med 4th yr standing. Seminars supplement clinical patient management. Repeatable to a maximum of 32 cr hrs.

**700.17 Applied Veterinary Medicine: Shelter Medicine and Surgery**  
VMED 3  
Clinical rotation teaching principles and practice of shelter medicine.  
Prereq: Vet med 4th yr standing.

**700.19 Applied Veterinary Medicine: Cardiology**  
VMED 3  
Clinical instruction in client relations, diagnosis, treatment and prevention of heart diseases.  
Au, Wi, Sp, Su Qtrs. Prereq: Vet med 4th yr standing. Repeatable to a maximum of 6 cr hrs.

**700.20 Applied Veterinary Medicine: Small Animal Neurology**  
VMED 2  
Clinical instruction in client relations, diagnosis, treatment and prevention of neurologic disorders.  
Prereq: Vet med 4th yr standing.

**700.21 Applied Veterinary Medicine: Veterinary Public Practice**  
VMED 1  
Theory and application of public health in veterinary medicine.  
Prereq: Vet med 4th yr standing. This course is graded S/U.

**700.22 Applied Veterinary Medicine: Small Animal Oncology**  
VMED 3  
Clinical instruction in client relations, diagnosis, treatment and prevention of cancer.  
Prereq: Vet med 4th yr standing.

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**Veterinary Preventive Medicine**

**101 Introduction to Veterinary Medicine**  
UGRD 3  
To increase awareness of the many dimensions of veterinary medicine.  
Sp Qtr.

**693 Individual Studies**  
GRAD 1-6  
Laboratory and library investigations of animal disease problems involving veterinary preventive medicine.  
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 20 cr hrs. This course is graded S/U.

**696 Advanced Studies in Veterinary Preventive Medicine**  
GRAD 1-6  
Advanced Studies in Veterinary Preventive Medicine.  
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

**700 Molecular Epidemiology of Infectious Diseases**  
GRAD 3  
Provides students with the knowledge and skills to study disease outbreaks in livestock using molecular biology techniques.  
Sp Qtr. 1 1.5-hr cl. Prereq: Some basic knowledge of infectious diseases and molecular biology or permission of the instructors. Grad or 1st or 2nd yr VetMed standing. Not open to student with credit for PubHEpi 724. Cross-listed in PubHEpi 724.

**710.08 Beef and Dairy Production Medicine**  
VMED 3  
Students prepare for roles in dairy production medicine by focusing on techniques, diagnostics and investigations on dairy farms.  
Prereq: Vet Med 4th year standing. This course is graded S/U.

**711.01 Applied Veterinary Medicine Options: VMED 2-3**  
Herd Health Problems

Field instruction and experience in comprehensive disease prevention, nutritional, reproductive, and economic services in modern confinement and conventional livestock production.  
Offered as an elective for fourth year veterinary students to arrange into an elective program in conjunction with a faculty adviser.

**711.02 Applied Veterinary Medicine Options: VMED 2-3**  
Public Service Programs

Instruction and experience in animal and human disease (zoonoses) prevention, control, and eradication as provided by public service veterinarians in local, state, and national agencies.  
Offered as an elective for fourth year veterinary students to arrange into an elective program in conjunction with a faculty adviser.

**715 Veterinary Public Service**  
VMED 3  
Practice of public service directed at animal and public health in international, national, state, and local agencies with emphasis on planning, decision making, and budgeting; interaction of veterinarian and other health workers.  
Au Qtr.

**717 Introduction to Shelter Medicine**  
VMED 1  
Course focuses on basic herd health principles applied in shelter settings including infectious disease management, quarantine, isolation, cleaning, disinfection, roles and opportunities.  
Sp Qtr. Prereq: 2nd year Vet student. This course is graded S/U.

**721 Zoonotic Diseases**  
GRAD 4  
Epidemiology of zoonotic diseases, including understanding basic prevention and control strategies associated with each disease.  
Au Qtr. 2.2-hr cl. Prereq: Vet med 2nd, 3rd or 4th yr, or grad standing. Repeatable to a maximum of 30 cr hrs.

**722 Food-Borne Diseases, Food Animal Production Systems, and Food Safety**  
GRAD 4  
Detailed description of common zoonotic food-borne diseases, with previous description of food chains for products from animal sources. Food safety issues will also be discussed.  
Wi Qtr. 2.2-hr cl. Prereq: Vet med 3rd or 4th yr standing. Repeatable to a maximum of 30 cr hrs.

**723 Biosecurity, Environmental Health, and Other Veterinary Public Topics**  
GRAD 4  
Overview on biosecurity (bioterorism, preparedness, management of zoonotic outbreaks), common environmental health issues related to human and animal interactions, and other topics about Veterinary Public Health.  
Sp Qtr. 2.2-hr cl. Prereq: Vet med 4th yr standing. Repeatable to a maximum of 30 cr hrs.

**750 Veterinary Practice and Hospital Management**  
VMED 2  
Basic principles of hospital and practice management including insurance, partnerships, corporations, accounting, taxes, employees, and general management procedures.  
Sp Qtr. 3 cl. Prereq: Vet med 1st or 2nd yr standing.

**760 Specialized Study in Veterinary Medicine**  
VMED 1-16  
Field or lab study encompassing the various areas in the field of veterinary medicine through an approved off-campus experience with qualified professionals.  
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Vet med 4th yr standing and permission of instructor. Repeatable to a maximum of 16 cr hrs. To be taken during elective qtr. Cross listed in all veterinary medicine depts. Students must serve at least 4 wks in one experience to receive minimum elective cr. This course is graded S/U.

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453
770 Zoo and Wildlife Medicine I VMED 1
Introduction to zoo and wildlife medicine. Overview of taxonomy, natural history, behavior, husbandry, restraint and common veterinary techniques and concerns for a wide range of species. Sp Qtr. 1 cl. Prereq: Vet med 1st and 2nd yr standing. This course is graded S/U.

771 Zoo and Wildlife Medicine II VMED 2

796.01 Advanced Studies: Public Health Organization, Environmental Health, Food-Borne Illnesses A course providing small group instruction in the topics designated. Deals with application of public health principles to solution of community problems. Au, Wi, Sp Qtr. Prereq: 715, 796.02, 796.03, 796.04, 796.05. Open only to DVM and grad students. Repeatable with permission of instructor. This course is graded S/U.

796.02 Advanced Studies: Prevention of Communicable Diseases Discussion of the epidemiology of communicable diseases of animals and fundamental approaches used by state and federal animal health agencies for prevention, control, and eradication. Au Qtr. 3 cl. Prereq: Vet med 2nd, 3rd or 4th yr standing. Repeatable to a maximum of 30 cr hrs.

796.06 Advanced Studies: Disease Control in Dairy VMED 3 Cattle Principles and applications of preventive medicine in establishing and maintaining dairy herd health programs and laboratory practices in mastitis control. Sp Qtr. 2 1-hr cl, 1-2 hr lab. Prereq: Vet med 2nd, 3rd, 4th yr or grad standing. Repeatable to a maximum of 30 cr hrs.

796.08 Advanced Studies: Diseases of Swine VMED 3 Discussion of swine diseases and herd health programs with emphasis on diagnosis, prevention, control and treatment. Au Qtr. 3 cl. Prereq: Vet med 2nd, 3rd or 4th yr standing. Repeatable to a maximum of 30 cr hrs.

796.12 Advanced Studies: Literature of Production Medicine Review and discussion of current, selected refereed literature in production medicine. Au, Wi Qtr. 1- hr cl. Prereq: Vet med 3rd of 4th yr or grad standing. Repeatable to a maximum of 2 cr hrs.

796.13 Advanced Studies: Applied Dairy Nutrition VMED 3 Applied principles of dairy nutrition and feeding to prevent metabolic diseases. Wi Qtr. 3 cl. Prereq: 796.06 or Anim Sci 330 or equiv; vet med 3rd or 4th yr, grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs. Not open to students with credit for Anim Sci 630.03. Cross-listed in Animal Sciences as 630.03.

796.14 Advanced Studies: Swine Production Medicine A course providing small group instruction in the topics designated. Discussion of the components of a swine production medicine program. Au Qtr. 3 cl. Prereq: Vet med 2nd, 3rd or 4th yr standing. Repeatable to a maximum of 30 cr hrs.

796.15 Advanced Studies: Dairy Herd Record Analysis Interpretation of dairy records based on understanding of nutrition and physiology of lactation and reproduction. Wi Qtr. 2 cl. Prereq: Vet med 3rd yr standing with 796.06. Requires computer access. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

796.16 Advanced Studies: Topics in Dairy Production Medicine Presentation and discussion of current issues of interest in dairy production medicine and management. Wi Qtr. 1 cl. Prereq: Vet med 2nd or 3rd yr or grad standing. Experts in various dairy-associated fields will be presenters and lead discussions. Offered odd numbered years This course is graded S/U.

796.17 Advanced Studies: Bovine Palpation VMED 2 To review and enhance techniques of bovine reproductive exams, palpation, pregnancy diagnosis, and dystocia management. Wi Qtr. 1 cl, 1-2 hr lab. Prereq: Vet med 3rd yr standing with Vet Clin 746.

796.18 Advanced Studies: Bovine Theriogenology VMED 2 Reproductive physiology, hormonal manipulation of the estrus cycle, A.I. and E.T., embryonic loss and abortion, obstetrics and the post-partum period, beef and dairy herd concepts. Au Qtr. 2 cl. Prereq: Vet med 3rd yr standing. This course is graded S/U.

797 Wildlife Disease Ecology VMED 2 Topics in wildlife disease ecology as it relates to habitat quality, population regulation, wildlife management, and its implications for human and domestic animal health. Sp Qtr. 2 cl. Prereq: Vet Med or grad standing; also, undergrads in the College of Food, Agricultural, and Environmental Sciences, College of Biological Sciences or School of Natural Resources.

798 Applied Avian Medicine GRAD 1 Review and discussion of current avian medicine topics as applied to a production medicine environment, diagnostics and prevention and control strategies. Su, Au, Wi, Sp Qtr. Prereq: Permission of instructor. Repeatable to a maximum of 9 cr hrs. This course is graded S/U.

810 Principles of Epidemiology VMED 2 Discussion of principle theories and philosophies of epidemiology and scientific investigation. Wi Qtr. 1 2-hr cl. Prereq: Grad standing.

820 Veterinary Clinical Epidemiology GRAD 1 Application of clinical examination and diagnostic testing. Su Qtr. 1 1-hr cl. Prereq: Grad standing. This course is based on a book "Clinical Epidemiology: A Basic Science for Clinical Medicine" by Sackett, Haynes, Guyatt and Tugwell.

850.01 Seminar in Veterinary Preventive Medicine VMED 1 Seminar in Veterinary Preventive Medicine. Repeatable to a maximum of 3 cr hrs.

850.02 Seminars in Veterinary Preventive Medicine GRAD 1 Graduate student presentations on their research projects. * Au, Sp Qtr. Repeatable. This course is graded S/U.

850.03 Seminar in Veterinary Preventive Medicine GRAD 2 Group discussions of appropriate methodology and statistical analysis to meet objectives of investigators presenting seminars. Au, Wi Qtr. 2 cl. Prereq: Grad standing with DVM degree. Repeatable to a maximum of 4 cr hrs.

851 Group Discussion on New Findings in Biolog y Group works on recent research discoveries in infectious diseases, microbiology, and immunology, and ethics in research. Au, Wi, Sp, Su Qtr.

999 Research in Veterinary Preventive Medicine GRAD 1-18 Research thesis or dissertation purposes only. Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Vision Science

501 Geometric Optics OPT 5 Vergeence, objects, and images, thin lenses, simple model eyes, spherical refracting surfaces, thick lens systems, mirrors, ray tracing, and prisms. Au Qtr. 4 cl, 1-2 hr lab. Prereq: Optometry 1st yr standing or permission of instructor.

503 Geometric and Physical Optics OPT 5 Angular magnification, telescopes, apertures and stops, astigmatism, prismatic effects of lenses, diffraction, polarization, interference, electromagnetic waves, quantum optics. Wi Qtr. 4 cl, 1-2 hr lab. Prereq: Optometry 1st yr standing and 501.

506 Genetics for Optometrists OPT 1 Course is designed to help optometry students place genetics into the context of ocular disease and treatment. Au Qtr. Prereq: Optometry first year standing or permission of instructor. This course is graded S/U.

507 Biochemistry for Optometrists OPT 1 Designed to help optometry students place biochemistry into the context of ocular disease, and treatment. Wi Qtr. Prereq: Optometry 1st yr standing or permission of instructor. Course is part of a sequence with 506 and 508. On-line course.

508 Microbiology for Optometrists OPT 1 Designed to help optometry students place microbiology into the context of ocular disease, and treatment. Sp Qtr. Prereq: Optometry 1st yr standing or permission of instructor. On-line course.

511 Optics of the Eye OPT 5 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. Sp Qtr. 4 cl, 1-2 hr lab. Prereq: Optometry 1st yr standing and 503 or permission of instructor.

512 Ocular Motility OPT 5 The motility of the eye; the structure and innervation of the extraocular muscles; mechanisms and analysis and description of eye movements. Au Qtr. 4 cl, 1-2 hr lab. Prereq: 511 or permission of instructor. Not for grad credit to students majoring in vision science.
520 Measurement of Light and Color  OPT  5
Principles of photometry and colorimetry; light sources; color vision theory; clinical tests of color discrimination; and introduction to visual psychophysics.  
Wi, Qtr. 4 cl, 1 2-hr lab. Prereq: Optometry 1st yr standing. Not for grad credit to students majoring in vision science.  

531 Basic Human Anatomy  OPT  5
Basic human developmental, neural, and gross anatomy, using models and films, supplemented with prepared specimens.  
 Au, Wi Qtr. 3 cl, 2 2-hr lab. Prereq: 535, 580 and Optometry 1st yr standing or major in vision science.  

535 Microscopic Anatomy  OPT  5
Microscopic anatomy of cells and tissues and special histology of the organ systems.  
 Au, Wi Qtr. 3 cl, 2 2-hr lab. Prereq: Optometry 1st yr standing or major in vision science.  

580 Physiology for Optometrists I  OPT  4
Physiology of the blood, respiratory physiology, renal physiology, gastrointestinal physiology, endocrinology, and immunology.  
 Au Qtr. 4 cl. Prereq: Optometry 1st yr standing or permission of instructor.  

581 Physiology for Optometrists II  OPT  5
A continuation of 580. Physiology of the cell, molecular physiology, neurophysiology muscle physiology and cardiovascular physiology.  
 Wi Qtr. 5 cl. Prereq: 535 and 580.  

608 Anatomy of the Eye  OPT  5
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.  
 Sp Qtr. 3 cl, 2 2-hr lab. Prereq: 581, 531 and Optometry 1st yr standing or permission of instructor.  

613 Monocular Sensory Processes  OPT  4
Spatial, temporal and chromatic aspects of visual sensitivity and their relation to photopic and scotopic visual systems and to the neurophysiology of the visual system.  
 Au Qtr. 4 cl. Prereq: Optometry 2nd yr standing or permission of instructor.  

626 Ocular Physiology  OPT  5
A comprehensive study of the physiology of the eye, including related pathophysiologic mechanisms.  
 Sp Qtr. 5 cl. Prereq or concur: 531, 581 and 608.  

650 Mechanisms of Disease for Optometry  OPT  5
Provides an introduction to the techniques used in the assessment of ocular health and in the diagnosis and management of ocular disease.  
 Sp Qtr. 5 cl. Prereq: 531, 581 and Optometry 1st yr standing.  

680 Introduction to Pharmacology for Optometrists  OPT  3
A survey of general pharmacological principals and actions; effects of drugs on the central nervous system, cardiovascular system, and other systems.  
 Wi Qtr. 3 cl. Prereq: 581and Optometry 2nd yr standing or permission of instructor.  

715 Binocular and Spatial Vision  OPT  5
The study of the sensory processes involved in the coordination of the two eyes in the perception of space and the sensorimotor processes of spatial localization.  
 Sp Qtr. 4 cl, 1 2-hr lab. Prereq: Optometry 2nd yr standing.  

716 Visual Perception  OPT  3
Traditional topics in visual perception; "higher brain function" and behavioral neuroscience of vision; brain disorders of vision and visual perception.  
 Wi Qtr. 3 cl. Prereq: Enrollment in College of Optometry or permission of instructor.  

731 Environmental Vision  OPT  4
Visual testing in industry; relation of vision to performance, comfort, and safety; visual requirements for licenses; eye hazards and protection; compensation for vision loss.  
 Wi Qtr. 3 cl, 1 2-hr lab. Prereq: 520.  

732 Vision of Children  OPT  5
Vision screening; the prevalence of visual anomalies and eye diseases in children; basic visual skills required in school and methods for their improvement.  
 Au Qtr. 3 cl, 1 4-hr lab. Prereq: Optometry 3rd yr standing.  

733 Optometric Gerontology  OPT  4
A survey of visual and systemic changes associated with aging, with emphasis on ophthalmic examination and rehabilitative techniques.  
 Wi Qtr. 3 cl, 1 2-hr lab. Prereq: Optometry 3rd yr standing.  

740 Survival Skills for Graduate Students  GRAD  2
Provides "survival skills" for beginning graduate students. These include critiquing papers, writing abstracts, presenting data and analyses, preparing audiovisual materials, and some experimental design issues.  
 Su, Au, Wi, Sp Qtr. 2 cl.  

780 Special Topics in Vision Science  GRAD  1-5
Experimental and theoretical aspects of areas of current interest in vision science.  
 Su, Au, Wi, Sp Qtr. Prereq: Enrollment in Optometry or permission of instructor. Repeatable to a maximum of 20 cr hrs.  

790 Advanced Topics in Anterior Segment and Contact Lenses  GRAD  2
Intended for students furthering their research experience in the areas of anterior segment (e.g., cornea, conjunctiva, tear system) or contact lenses.  
 Su, Au, Wi, Sp Qtrs. 2 cl. Prereq: Optometry 654 or permission of instructor. Repeatable to a maximum of 16 cr hrs.  

795 Seminar  GRAD  1-5
A series of seminars dealing with new developments in the various phases of vision science.  
 Su, Au, Wi, Sp Qtrs. 1-5 cl. Prereq: Permission of instructor. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.  

796 Ethics in Biomedical Research  GRAD  2
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.  
 Au Qtr. 2 cl.  

797 Grantsmanship  GRAD  2
Designed to explain the structure of the National Institutes of Health, especially the National Eye Institute, to illustrate the principles of good grantmanship, and to describe the review process grants undergo. Emphasis will be focused on two particular grant mechanisms: the Mentored Clinical Scientist Development Award (K23) and the Research Project Grant (R01).  
 Wi Qtr. 2 cl.  

798 Statistics in Clinical Research  GRAD  2
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.  
 Su Qtr. 2 cl.  

799 Assessing the Literature  GRAD  1
Students will present findings from a journal article and discuss study design, statistical, analysis, presentation of data, conclusions, and other relevant information.  
 Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.  

801 Optics of the Eye and Specification of the Visual Stimulus  GRAD  5
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.  
 Au Qtr. 4 cl, 1 2-hr lab. Prereq: 501, 511, 520 and grad standing, or permission of instructor.  

802 Ocular Motility and Binocular Vision  GRAD  5
Advanced topics on eye movements, ocular motility, and sensorimotor aspects of visual perception and binocular vision.  
 Sp Qtr. 4 cl, 1 2-hr lab. Prereq: 512, 715, 716 and grad standing, or permission of instructor.  

803 Monocular Sensory Processes of Vision  GRAD  5
Spatial, temporal and spectral properties of photopic and scotopic vision; color vision and color deficiencies; visual development, clinical psychophysics.  
 Wi Qtr. 4 cl, 1 2-hr lab. Prereq: 511, 520, 613 and grad standing, or permission of instructor.  

804 Anatomy and Physiology of the Visual System  GRAD  5
Advanced anatomy, physiology and neurology of the visual system.  
 Su Qtr. 4 cl, 1 2-hr lab. Prereq: 608, 626 and grad standing or permission of instructor.  

810 Image Evaluation  GRAD  3-5
Evaluation of optical systems and image forming systems including the eye by objective and subjective methodologies.  
 Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: 801 and grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.  

811 Color Vision  GRAD  3-5
Spectral sensitivity; color vision deficiency, color matching and color appearance; theory and laws of color mixture.  
 Su, Au, Wi, Sp Qtrs. 5 cl. Prereq: 803 and grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.  

812 Neurophysiology of Vision  GRAD  3-5
Phototransduction; photoreceptor recordings; horizontal, bipolar and amacrine cells; ganglion and LGN cells; M and P pathways and relationship to optic nerve disorders; striate and extrastriate cortex.  
 Su, Au, Wi, Sp Qtrs. 4 cl, 1 2-hr lab. Prereq: 804 and grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.  

813 Physiology of the Eye  GRAD  3-5
Recent developments in the respiration, metabolism, and mechanics of ocular tissues, and the aqueous dynamics of the eye.  
 Su, Au, Wi, Sp Qtrs. 4 cl, 1 2-hr lab. Prereq: 804 and grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.
814 Experimental Design in Eye Movements GRAD 3
Provides the student with experience in the use of the eye tracking and accommodation-monitoring equipment and eye movement data analysis including main sequence relationships, coordinate systems, filtering techniques and data calibration.
Su, Au, Wi, Sp Qtrs. 2 cl, 1, 1-hr lab. Prereq: 512 and 802.

815 Binocular Vision and Perception GRAD 3-5
Study of binocular vision and visual spatial localization including the perception of distance, direction, form and motion.
Su, Au, Wi, Sp Qtrs. 3 cl, 1, 1-hr lab. Prereq: 802 and grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.

816 Visual Development GRAD 3-5
Introduction to the fundamental concepts underlying human visual development and how to study it as well as learning to collect psychophysical data on human infants. Sp Qtrs. 3-5 cl. Prereq: Enrollment in the College of Optometry or grad standing in vision sci, or permission of instructor. Repeatable to a maximum of 5 cr hrs.

818 Anatomy of the Visual Pathway GRAD 3-5
Advanced study of the neuroanatomy of the visual system; recent advances in ocular anatomy and neuroanatomy of the visual pathway.
Su, Au, Wi, Sp Qtrs. 3-5 cl. Prereq: 804.

820 Specification of the Visual Stimulation GRAD 3-5
Assessment of critical detail of visual tasks to determine visual standards and appropriate level and distribution of light; study of apparatus to control intensity and composition of visual stimuli, measurement of light.
Su, Au, Wi, Sp Qtrs. 3 cl, 4-4-hr lab. Prereq: 801 and grad standing, or permission of instructor. Repeatable to a maximum of 12 cr hrs.

891.01 Interdisciplinary Seminar on Biomedical Images GRAD 1-2
Graduate seminar for graduate interdisciplin ary specialization in comprehensive engineering and science of medical images.
Au, Wi, Sp Qtrs. 1 cl. Prereq: Grad standing. Cross-listed in biomedical engineering, biomedical informatics, biophysics, computer science and engineering, electrical and computer engineering, integrated biomedical science, pathology, radiology, and statistics. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

894 Group Studies in Vision Science GRAD 1-5
Group studies on special problems in vision science.
Su, Au, Wi, Sp Qtrs. Prereq: Grad standing or permission of instructor. Repeatable to a maximum of 30 cr hrs.

999 Research in Vision Science GRAD 1-18
Research for thesis on dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Repeatable. This course is graded S/U.

Vocational Education, Comprehensive

893 Individual Studies in Vocational Education GRAD 1-3
Individual research and study on approved topics in comprehensive vocational education.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs. This course is graded S/U.

894 Group Studies in Vocational Education GRAD 1-3
Selected topics directly related to comprehensive vocational education.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 12 cr hrs.

999 Research in Vocational Education GRAD 1-18
Individual dissertation research on problems of significance in comprehensive vocational education.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of adviser. Repeatable. This course is graded S/U.

Welding Engineering

293 Individual Studies in Welding Engineering UGRD 1-5
Topics in welding engineering of individual interest at the undergraduate level; must be arranged with a member of the department faculty.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs. This course is graded S/U.

300 Survey of Welding Engineering UGRD 3
Principles of welding engineering, including processes, materials effects, design, and quality assurance and codes.
Au, Wi Qtrs. 3 cl. Prereq: One unit of high school physics.

350 Introductory Welding Laboratory I UGRD 1
Demonstration of fundamental working knowledge of manual arc welding.
Au Qtr. 1, 1-hr lab cl. Concurr: To collect and acceptance as a Weld Eng major on written permission of chairperson.

351 Introductory Welding Laboratory II UGRD 1
Demonstration of a fundamental working knowledge of semi-automatic arc welding.
Wi Qtr. 1, 1-hr lab. Concur: 350 and acceptance as a Weld Eng major or written permission of chairperson.

400 Chemistry of Welding and Joining Processes UGRD 3
Study of the chemical principles occurring during joining processes.
Sp Qtrs. 3 cl. Prereq: Physics 133, Weld Eng 300 and acceptance as a Welding Engineering major.

489 Industrial Experience I UGRD 1
Experience in an industrial organization and the submitting of an acceptable report on the work done.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. One qtr full time or equiv part-time field experience.

500 Physical Principles in Welding Engineering I UGRD 3
Study of the application of electric and magnetic principles in welding engineering.
Au Qtr. 3 cl. Prereq or concurrent: 300 and Elec Eng 300.

550 Physical Principles in Welding Engineering Laboratory UGRD 1
Experimentation with the application of electric and magnetic principles in welding engineering.
Au Qtr. 1, 3-hr lab. Concur: 500 and a second writing course.

600 Physical Principles in Welding Engineering II UGRD 3
Study of physical principles in welding processes.
Wi Qtr. 3 cl. Prereq: 500, Mech Eng 440 or Mech Eng 420 or 440. GEC course.

601 Welding Processes and Applications UGRD 3
Solid state welding, resistance welding and welding applications.
Sp Qtr. 3 cl. Prereq: 600. Safety related equipment and procedures required.

602 Fundamentals of Resistance Welding Processes UGRD 3
The fundamentals of the resistance welding process will be presented; distinctions made between variations in processes. Emphasis will also be placed on process systems.
Sp Qtr. Prereq: 601.

605 Principles of Welding Process Control UGRD 3
Study of principles and practical application of control systems and control elements of welding processes.
Wi Qtr. 3 cl. Prereq: 500 or permission of instructor.

610 Introduction to Welding Metallurgy UGRD 3
Application of physical metallurgy principles to nonequilibrium thermo/mechanical conditions associated with welding.
Sp Qtr. 3 cl. Prereq: Matsc&En 542.01. Safety related equipment and procedures required. GEC course.

611 Welding Metallurgy I UGRD 3
Study of the metallurgy and welding of transformable steels.
Wi Qtr. 3 cl. Prereq: 610 or permission of instructor. Safety related equipment and procedures required.

612 Welding Metallurgy II UGRD 3
Welding metallurgy and weldability of stainless steels, aluminum alloys and nickel- and cobalt-based superalloys; joining of polymers and polymer-based composites.
Wi Qtr. 3 cl. Prereq: 611. Safety related equipment and procedures required.

620 Engineering Analysis for Design and Simulation UGRD 4
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.
Au Qtr. 2, 1.5-hr cl, 1, 3-hr lab. Prereq: Eng Mech H210 or 400, or Mech Eng H210 or 400 or 410. Not open to students with credit for Ind Eng 625. Cross-listed with Ind Sys Eng 625.

621 Welding Semy Design UGRD 4
Design fundamentals applicable to welded structures. Hands-on PC-based design laboratory.
Wi Qtr. 3 cl, 1, 3-hr clpr lab. Prereq: 620 and Eng Mech 440 or Mech Eng 420 or 440.

631 Nondestructive Evaluation UGRD 4
Principles of nondestructive evaluation and inspection of materials and structures for engineering plus laboratory experience with principles, equipment, techniques and interpretation of nondestructive tests.
Au Qtr. 3 cl, 1, 3-hr lab. Prereq: 3rd yr standing in ENgr or equiv with written permission of instructor. Safety related equipment and procedures required.

635 Fundamentals of Radiography UGRD 4
Intended for engineering students who require knowledge of non-destructive testing methods; basic industrial radiographic methods such as film and real time, radiography, and image analysis are included.
Sp Qtrs. 3 cl, 1-hr lab. Prereq: 631 or written permission of instructor.

456
638 Introduction to Ultrasonics UGRD 4
Ultrasonic waves in solids and fluids; ultrasonic generators and systems; physical ultrasonics; applications of ultrasonics.
* * * Au Qtr. 8 cl. Prereq: Eng Mech 440 or Mech Eng 420 or 440; Math 255 or 415. Not open to students with credit for 634, Eng Mech 634, or Mech Eng 638. Cross-listed in Mechanical Engineering.

640 Welding Production UGRD 3
Cost-effective production of quality-welded structures.
Wi Qtr. 3 cl. Prereq: 601; 4th yr standing in ENG or permission of instructor. Not open to students with credit for 642.

641 Welding Codes, Specifications, and Standards UGRD 3
Consideration of the welding requirements in a variety of industry and government documents including examples from the aircraft, automotive, maritime, piping, and pressure vessel fields.
Sp Qtr. 3 cl. Prereq: 4th yr standing in ENG or permission of instructor.

651 Welding Process Applications - Laboratory UGRD 1
Laboratory experience in engineering aspects of welding.
Sp Qtr. 1-3 hr-lab. Concur: 601. GEC course.

655 Welding Process Controls I - Laboratory UGRD 1
Experimentation with the applications of process controls in welding engineering.
Wi Qtr. 1-3 hr-lab. Concur: 605.

656 Robot Programming and Operations UGRD 1
Types and applications of industrial robot systems; lab experience in robot operation and programming.
Au, Wi, Sp Qtrs. 1-3 hr-lab. Prereq: Weld Eng or Ind Eng major and written permission of instructor.

661 Welding Metallurgy I Laboratory UGRD 1
Laboratory experience in welding metallurgy.
Au Qtr. 1-3 hr-lab. Concur: 611. GEC course.

662 Analysis of Non-Ferrous and High Alloy Welds UGRD 1
Characterization of weld structures in stainless steel, aluminum alloys, and nickel-based superalloys.
Wi Qtr. 1-3 hr-lab. Prereq: 610; concur: 612. GEC course.

681 Nondestructive Evaluation Seminar UGRD 1
Theory and application of nondestructive evaluation as presented in lectures by faculty, staff, graduate students, and guest speakers.
Au, Wi, Sp Qtrs. 1 cl. Prereq: 4th yr standing in ENG. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

690 Capstone Welding Design I UGRD 1
Group design projects building on all aspects of welding engineering.
Au Qtr. 1 cl. Prereq: 4th yr standing in weld eng. GEC course.

691 Capstone Welding Design II UGRD 2
Group design projects building on all aspects of welding engineering.
Wi Qtr. 2 cl. Prereq: 690. GEC course.

692 Capstone Welding Design III UGRD 2
Group design projects building on all aspects of welding engineering.
Wi, Sp Qtrs. 1-2 hr-cl. Prereq: Permission of instructor. GEC course.

694 Group Studies in Welding Engineering UGRD 1-15
The student must register for particular topics from fields of welding engineering, the topics, cr hrs, and instructor will be announced in quarter previous to the quarter offered.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

695 Topics in Welding Engineering UGRD 1-3
An opportunity for systematic exposure to timely and/or practical topics in welding engineering as presented by leaders in the field.
1-3 cl. Prereq: Sr or grad standing in welding engineering. Repeatable to a maximum of 6 cr hrs.

699 Undergraduate Research in Welding Engineering UGRD 1-5
Opportunity for undergraduate student to conduct research in Welding Engineering.
Su, Au, Wi, Sp Qtrs. Repeatable to a maximum of 6 cr hrs. This course is graded S/U.

701 Solid State Welding UGRD 3
The welding and joining of metals in the solid state with emphasis on processes and metallurgical principles.
* Sp Qtr. 3 cl. Prereq: 600, Eng Mech 440, or Mech Eng 420 or 440, and Mat Sci&En 542.01.

702 Fundamentals of Resistance Welding UGRD 3
Fundamentals of the resistance welding process with emphasis on process analysis.
Au Qtr. 3 cl. Prereq: 601.

703 Brazing and Soldering UGRD 3
Brazing and soldering processes with emphasis on physical and metallurgical principles, materials, design, and application considerations.
Wi Qtr. 3 cl. Prereq: 504 or permission of instructor.

704 High Energy Density Welding Processes UGRD 3
Theory and practices in laser, electron beam, plasma, and other high energy density welding processes; process demonstrations.
Au Qtr. 3 cl. Prereq: 600.

705 Advanced Welding Process Control Systems UGRD 3
Principles of continuously variable and digital control systems for manual, mechanized, automatic, and feedback operation of arc, resistance, and advanced welding processes.
Sp Qtr. 3 cl. Prereq: 605 or permission of instructor.

706 Welding of Plastics and Composites UGRD 3
Theory and practice in welding of plastics and polymeric composites, including theory and analysis of welding processes, part and joint design, and process selection.
Wi Qtr. 2 1.5-hr cl. Prereq: 620 or permission of instructor.

707 Adhesive Bonding and Mechanical Joining of Plastics UGRD 3
Fundamentals of adhesive bonding science and technology and methods for mechanical joining of plastics including fasteners, swaging, staking, snap-fits and press-fits.
Sp Qtr. Prereq: 620 or permission of instructor.

713 Joining of Specialty Metals UGRD 3
Theory and practice of joining specialty metals is presented, with emphasis on jointability, joining processes, and procedures and applications.
Wi Qtr. 2 1-2 hr-cl, 1-2 hr-lab. Prereq: 610

714 Weldability UGRD 3
Weldability of alloy systems-steels, stainless steels, nickel, aluminum, and titanium alloys-with reference to basic metallurgical phenomena, weldability testing, and interpretation; individual projects and presentations.
Sp Qtr. 3 cl. Prereq: 611; prereq or concur: 612.

715 Special Topics in Welding Engineering UGRD 3
The course will review the nature of weld defects and their prevention. Other topics include failure analysis and weldability testing.
Sp Qtr. Prereq: 610. Student must have basic knowledge of physical metallurgy principles.

722 Analysis of Welding Systems UGRD 3
Development of an analytical and empirical base for the selection of optimum parameters in the design and fabrication of welded structures.
Au Qtr. 3 cl. Prereq: 620.

732 Ultrasonic Nondestructive Evaluation UGRD 4
Principles of ultrasonic wave interaction with material structures with emphasis on nondestructive measurements of material discontinuities, properties, and non-uniformities.
Wi Qtr. 3 cl. 1.5 hr-lab. Prereq: 631 or permission of instructor, and Math 255 or 256 or 416.

736 Health and Safety UGRD 3
Major health and safety hazards associated with welding and cutting; radiation, fumes, gases, and noise; discussion of hazard origin, technological control, physiological effects, and regulatory control.
Wi Qtr. 3 cl. Prereq: 601 or permission of instructor.

740 Fitness-for-Service of Welded Structures UGRD 3
The interrelationship of design, fabrication, nondestructive evaluation, fracture mechanics, and reliability concepts in establishing the overall fitness-for-purpose of welded structures.
Sp Qtr. 3 cl. Prereq: 620 or permission of instructor.

755 Welding Process Control Laboratory UGRD 1
Laboratory experiments in basic instrumentation and control systems for welding processes such as arc, resistance, electron-beam, and others.
Wi Qtr. 1-3 hr-lab. Concur: 705.

783H Undergraduate Honors Program Research UGRD 1-3
Honors program students are offered the opportunity to pursue independent project/research. Student presentations and thesis writing included.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Sr standing in weld eng (or equiv). Repeatable to a maximum of 6 cr hrs. Students must have a GPA of at least 3.4 and permission of instructor.

793 Individual Studies in Welding Engineering UGRD 1-15
Individual Studies in Welding Engineering.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

794 Group Studies GRAD 1-6
Special advanced topics.
Repeatable to a maximum of 18 cr hrs.
Women's Studies

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Introduction to Women's Studies in the Humanities</td>
<td>5</td>
<td>Examination of the feminist viewpoint through interdisciplinary studies in the humanities; introduction to feminist concepts, methods, and analyses to traditional academic disciplines. Su, Au, Wi, Sp Qtr.; Prereq: 101, 110, 201, 202, or 210. GEC arts and hums culture and ideas. Not open to students with credit for 201, 202, or 210. Not available to students with credit for English 282. Cross-listed in English.</td>
</tr>
<tr>
<td>101H</td>
<td>Introduction to Women's Studies in the Humanities (Honors)</td>
<td>1-5</td>
<td>Not open to students with credit for 201, 202, or 210. Not available to students with credit for English 282. Cross-listed in English.</td>
</tr>
<tr>
<td>110</td>
<td>Gender, Sex, and Power</td>
<td>5</td>
<td>Introduces students from diverse backgrounds and disciplines to the interdisciplinary field of Women's Studies and to the study of gender, sex, and power. We will draw on a variety of literature to analyze gender, race, sexuality, and other dimensions of identity, past and present. We will place the study of US women and gender roles in broader transnational contexts of analysis. Su, Au, Wi, Sp Qtrs.; Prereq: Written permission of instructor. Repeatable to a maximum of 10 cr hrs.</td>
</tr>
<tr>
<td>110H</td>
<td>Gender, Sex, and Power (Honors)</td>
<td>5</td>
<td>Not open to students with credit for 101, 201, 202, or 210. Not available to students with credit for English 282. Cross-listed in English.</td>
</tr>
<tr>
<td>215</td>
<td>Reading Women Writers</td>
<td>5</td>
<td>Study of women writers' strategies for articulating experiences and using literature as a lens for social reality and catalyst for political and social change. GEC Arts and Hum's literature.</td>
</tr>
<tr>
<td>230</td>
<td>Gender, Sexuality, and Race in Popular Culture</td>
<td>5</td>
<td>Explores how popular culture generates and articulates our understandings of gender and sexuality and their intersections with race and class. Prereq: English 110. GEC arts and hums VPA course.</td>
</tr>
<tr>
<td>282</td>
<td>Introduction to Queer Studies</td>
<td>5</td>
<td>Introduces and problematizes foundational concepts of the interdisciplinary field of queer studies, highlighting the intersections of sexuality with race, class, and national identity. Not available to students with credit for English 282. GEC arts and hums culture and ideas. Cross-listed in English.</td>
</tr>
</tbody>
</table>
370 Varieties of Female Experience: Lesbian Cultures UGRD 5
A survey of cultural, social, and political issues related to historical and contemporary
lesbian experiences in the United States. 2-2 hr cl. GEC social diversity course.

372 Modern Arabic Literature in Translation UGRD 5
Reading and analysis of representative works of the 19th and 20th centuries by
contemporary women authors. 2 2-hr cl. 372H (honors) may be available to students enrolled in an honors program or
by permission of department or instructor. Prereq: English 110 or 111 or equiv. Not open to students with credit for Arabic 273 or 372. Cross-listed in Arabic. GEC arts and hums lit course.

375 Women and Visual Culture UGRD 5
Analysis of visual images in women's historical, racial, and class contexts. 2 2-hr cl.

385 Women in Political Leadership Internship UGRD 5
This course offers students opportunities to learn leadership and policy making skills
by working with Ohio women lawmakers.

389 Theory and Practice of Peer Outreach in Women's Studies UGRD 5

494 Group Studies UGRD 1-5
Special studies not otherwise offered; topic varies; students should consult department
course list. Au, Wi, Sp Qtr. Prereq: 101 or 201, or 110 or 210, or permission of instructor. Repeatable to a maximum of 15 cr hrs.

505 Feminist Analysis in Global Perspective UGRD 5
An examination of the global dimensions of feminist research and politics with
particular attention to feminism in the non-Western world. Prereq: 5 cr hrs in wom stds or Honors standing or permission of instructor. Not open to students with credit for 597.

510 American Women's Movements UGRD 5
An interdisciplinary analysis of the American women's movements, including
historical, literary, sociological, and theoretical perspectives. 510H (honors) may be available to students enrolled in an honors program or
by permission of department or instructor. Prereq: 5 cr hrs of wom stds or Honors standing or permission of instructor. GEC social diversity course.

513 Women, Government, and Public Policy UGRD 5
An examination of policymaking on gender-related issues and the impact of women in
government. 2-2 hr cl. Not open to students with credit for Polit Sc 513. Cross-listed in Political Science.

517 Women Film Directors UGRD 5
The works of women film directors from the 1940s to the present, with particular
attention to the ways their works embody preoccupations with the representation of
women's experience and a female point-of-view. Wi Qtr. 2 2-hr cl. Prereq: 317 or permission of instructor.

520 Women of Color and Social Activism UGRD 5
Examination of multiple forms of social activism among women of color from various
parts of the world concerning local, national, and international issues. 2 2-hr cl. Prereq: 5 cr hrs of wom stds or Honors standing or permission of instructor. GEC social diversity course.

524 Women and Work UGRD 5
The social, cultural, and historical factors that influence women's work in the U.S. and
the multiple ways work is gendered. Prereq: 5 cr hrs in wom stds or Honors or permission of instructor; AFAm&ASi 101 or 230, History 237 or 325, or Sociol 101 recommended. Not open to students with credit for 424.

527 Studies in Gender and Cinema UGRD 5
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. Prereq: 317 or permission of instructor. Repeatable to a maximum of 10 cr hrs.

535 Gender, Sexuality, and Science UGRD 5
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. 2 2-hr cl. Prereq: One course in comp std or wom stds. Not open to students with credit for Comp Std 535. Cross-listed in Comparative Studies.

540 Studies in Women of Color Writing Culture UGRD 5
Interdisciplinary feminist study of selected historical and cultural movements through
writing by women of color; topics vary by genre and by era. Prereq: 5 cr hrs in wom stds or Honors or permission of instructor. Repeatable to a maximum of 10 cr hrs.

545 Intersections: Approaches to Race, Gender, Class, and Sexuality UGRD 5
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 afam&ast or wom stds or comp std or grad standing. Not open to students with credit for AFAm&ASi 545 or Comp Std 545. Cross-listed in African-
American and African Studies and Comparative Studies.

550 History of Western Feminist Thought UGRD 5
An introduction to and analysis of major texts of Western feminist theory as it has
developed and changed since the Enlightenment. Prereq: 101 or 201, or 110 or 210, and 367.01; or equivs.

560 Chicana Feminism UGRD 5
Course provides a general overview of Chicana feminist theory and practice from the
early 1970's to the present. Prereq: 5 cr hrs in wom stds or Honors standing or permission of instructor.

575 Issues in Contemporary Feminist Theory UGRD 5
Examination of contemporary issues which have crucial implications for
feminist inquiry (topics vary). Prereq: 299 or 300 or permission of instructor.

576 Women and Visual Cultures of Latin America UGRD 5
Analysis of Latin American women visual artists of 20th and 21st centuries, with
emphasis on contemporary feminist theories of visual culture. Prereq: 5 cr hrs in wom stds or Honors standing or permission of instructor.

589 Internship in Feminist Theory and Collective Action UGRD 5
Field-based learning experience to explore the relationship between feminist theory
and collective action; use of field work and class discussion to relate theory to practice
Wi Qtr. Minimum 10 hrs field work per week. Prereq: 299 or 300, 15 cr hrs in wom stds course work, and permission of instructor. Not open to students with credit for 489. Contact the department for additional information.

597 Gender and Democracy in the Contemporary World UGRD 5
Highlighting perspectives from various contexts across the globe, this course explores
issues of gender and democracy in the contemporary world.

598 African Women: History and Socioeconomic Change UGRD 5
Focuses on African women's experiences: legal and socioeconomic status, religious
and political roles, the impact of colonial and post colonial developments, feminism
and representation issues. 2 2-hr cl. Prereq: Recommended 505 for undergrads. Not open to students with credit
for History 744. Cross-listed with History 744.

620 Topics in Feminist Studies GRAD 5
Interdisciplinary in-depth analysis of selected topics in feminist research and
interpretation; topic varies quarterly. 5 cl. Prereq: 101 or 201, or 110 or 210, and at least 10 additional cr hrs in wom stds or written permission of instructor. Repeatable to a maximum of 30 cr hrs. Contact the department for information.

623 African Women: History and Socioeconomic Change UGRD 5

624 Women and Social Change in Latin America UGRD 5
Feminist perspectives to introduce students to Latin American women's experiences
and reality as perceived by those who study women and by women themselves.

657 Gender and National Identity in Russian Cinema UGRD 5
Explores changes of Russian national and gender identities during the twentieth
century as reflected in Russian cinema. 2 2-hr cl. Prereq: 317 or Russian 360 or English 263 or 378 or Film Std 270 or grad standing or permission of instructor. Cross-listed in Russian. Taught in English. No prior knowledge of Russian language required.

670 Gender Discrimination UGRD 5
Legal, social, and public policy trends; analysis of gender-related constitutional law
and relationship to social, political, and economic developments; meaning and
significance of sex discrimination.

Wi Qtr. 2 2-hr cl. Prereq: 10 cr hrs of wom stds course work, or permission of instructor. Not open to students with credit for Social 670A.
693 Individual Studies  GRAD  1-5
Students may register for individual directed study in subjects not covered in regular course work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: It standing or above; permission of instructor. Repeatable to a maximum of 15 cr hrs. No more than 5 cr hrs may be applied to women's studies major or minor. This course is graded S/U.

699 Undergraduate Research in Women's UGRD  1-15
Studies
Undergraduate research or creative activities in variable topics.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs. Only 5 hours can count toward major/minor. This course is graded S/U.

700 Introduction to Graduate Studies GRAD  5
Introduction to women's studies as an academic field of study and an orientation to the graduate program, facilities, resources, and people.
Au Qtr. 1 3-hr lec, 1 1-hr rec. Prereq: Grad standing in wom stds.

702 Teaching Women's Studies GRAD  5
Assist graduate students in meeting instructional responsibilities and developing necessary skills for college level teaching in women's studies.
Au Qtr. 1 3-hr lecture, 1 field obs. Prereq: Grad standing in wom stds and TA.

710 Theorizing Difference GRAD  5
Examines theories of difference based on race, ethnicity, nationality, sexuality, and class and the ways difference defines and modifies women's realities.
2 2-hr cl. Prereq: 10 cr hrs of wom stds course work and permission of instructor.

720 Theorizing Gender, Power, and Change GRAD  5
Examination of feminist theoretical approaches to the material conditions of women's lives and the changing structures of social, economic, and political power.
2 2-hr cl. Prereq: Grad standing in wom stds or permission of instructor.

726 Gender and Public Policy GRAD  5
This graduate level course addresses gender and public policy with special attention to policy areas that most directly impact women's lives.
2 2-hr cl. Prereq: 299 or 300, plus 5 additional wom stds cr hrs at 300 or above; or grad standing.

740 Theorizing Gender Representation GRAD  5
Designed to introduce graduate students to the central debates that have characterized feminist theories of representation.
2 2-hr cl. Prereq: Grad standing in wom stds or permission of instructor.

742 Feminism and the Cinema GRAD  5
Study of the relationship between feminist film theory and criticism and specific genres, historical periods, and issues in cinematic representation.
2 2-hr cl. Prereq: Grad standing in wom stds or permission of instructor.

750 Violence Against Women: Theory and Response GRAD  5
Seminar on theories and women's experiences of and responses to violence; special focus on evaluating theories and programs.
5 hrs cl. Prereq: Grad standing or 20 hrs of wom stds course work or permission of instructor.

760 Survey of Feminist Methodologies GRAD  5
An overview of feminist methodological issues and dilemmas and an introduction to a variety of research methods.
1 cl, field research. Prereq: Grad standing in wom stds or Edu P&L or permission of instructor. Not open to students with credit for Edu P&L 760. Cross-listed in Educational Policy and Leadership.

771 Feminism and Psychoanalysis GRAD  5
An analysis of major psychoanalytic writings about women and feminist responses to them.
2 2-hr cl. Prereq: Grad standing in Wom Stds or Edu P&L or permission of instructor. Repeatable to a maximum of 20 cr hrs.

780 Global/Transnational Feminisms GRAD  5
This course provides a broad comprehension of theoretical aspects of global and transnational feminisms.
Sp Qtr. Prereq: 700 and grad standing or permission of instructor. This course joins other foundational courses in our core theory offerings. This course provides an overview of theories and debates surrounding feminist organizing transnationally and from a comparative perspective. Issues covered include human rights movements, universalism/multiculturalism, development and economic policies, gender and globalization, and links between local activism and global campaigns.

783H Honors Research GRAD  3-5
A program of individual study for undergraduate honors students; may include individual conferences and reports; requires presentation and oral defense of an honor thesis.
Su, Au, Wi, Sp Qtrs. Prereq: 4th yr standing with a CPHR of at least 3.50 in women's studies courses; permission of thesis advisor and Arts and Sciences Honors Committee. Repeatable to a maximum of 15 cr hrs. At least 8 hrs and 2 qtrs of enrollment are required of candidates for the BA degree with distinction in women's studies. This course is graded S/U.

792 Interdepartmental Studies in the Humanities GRAD  3-5
Two or more departments offer courses on subjects of mutual interest.
Repeatable to a maximum of 15 cr hrs.

810 Topics in Black Feminist Theory GRAD  5
Theoretical analysis of the politics and perceptions of womanhood in the black community.
Prereq: Grad standing in Wom Stds or permission of instructor. Repeatable to a maximum of 20 cr hrs. Cross-listed in African American and African Studies. Contact department for current course topic.

820 Topics in Gender, Power, and Social Change GRAD  5
Advanced study of variable topics relating to gender, power and change, both theoretical (especially materialist) and practical.
2 2-hr cl. Prereq: Grad standing in Wom Stds or permission of instructor. Repeatable to a maximum of 20 cr hrs. Contact department for current course topic.

840 Topics in Representing Gender GRAD  5
In-depth investigations of topics and genres central to feminist theories of gender representation, including considerations of aesthetics, subjectivity, intersectionality, narrative, and spectatorship.
5 cl. Prereq: 740, 742, or permission of instructor. Repeatable to a maximum of 15 cr hrs. Contact department for current course topic.

860 Topics in Feminist Studies GRAD  5
Feminist studies on a variety of topics at the PhD level.
5 cl. Prereq: PhD standing. Repeatable to a maximum of 15 cr hrs. Contact department for current course topic.

863 Women's Studies Practicum GRAD  3-5
Internship placement in an agency or organization serving women to provide an opportunity to integrate feminist theory and practice.
Su, Au, Wi, Sp Qtrs. Prereq: 700 and at least 10 additional cr hrs of wom stds course work and permission of instructor. Repeatable to a maximum of 10 cr hrs. Each hr correspends to 3 hrs per wk of internship for 10 wks. This course is graded S/U.

870 Topics in Sexuality Studies GRAD  5
Contemporary biological, psychological, social, legal, and political theories of sexuality.
Prereq: PhD standing. Repeatable to a maximum of 15 cr hrs. including cr hrs earned in 850. Contact department for current course topic.

880 Topics in Transnational Feminisms GRAD  5
This variable topic course includes various possible offerings on the subject of transnational feminisms.
Prereq: 700.

890 Interdepartmental Studies in Critical Theory GRAD  5
Interdisciplinary study of a movement (phenomenology, deconstruction, etc.) or problem (intentionality, evaluation, etc.) in literary theory.
Sp Qtr. 2 2-hr or 5 cl. Prereq: Background in critical theory recommended. Repeatable to a maximum of 10 cr hrs. Cross-listed in Comparative Studies, English, French, German, and Spanish.

893 Individual Studies GRAD  1-5
Students may register for individual directed study in subjects not covered in regular course work.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: PhD standing. No more than 10 cr hrs may be applied to doctoral program. Repeatable to a maximum of 30 cr hrs. This course is graded S/U.

998 Research in Women's Studies: Thesis GRAD  1-15
Directed research for master's thesis.
Su, Au, Wi, Sp Qtrs. Arr. Prereq: Appropriate progress toward the degree. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

999 Research in Women's Studies: Dissertation GRAD  1-18
Research for dissertation purposes only.
Su, Au, Wi, Sp Qtrs. Arr. Repeatable. This course is graded S/U.

**Yiddish**

**101 Elementary Yiddish I** UGRD  5
Introduction to Yiddish; development of listening, reading, speaking and writing skill
Su, Au, Wi Qtrs. 5 cl. Not open 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. This course is available for EM credit. GEC for lang course. FL Admis Cond course.

**102 Elementary Yiddish II** UGRD  5
Continuation of 101; further development of listening, reading, speaking and writing skills.
Su, Wi Qtrs. 5 cl. Prereq: 101. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course. FL Admis Cond course.
103 Intermediate Yiddish I UGRD 5
Continued study of Yiddish; development of listening, reading, speaking and writing skills; reading of simplified literary texts about Yiddish culture.
Wt, Sp Qtr. 5 cl. Prereq: 102. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course.

104 Intermediate Yiddish II UGRD 5
Readings of Yiddish short stories and poems with attention to literary and cultural appreciation; development of basic language skills.
Au, Sp Qtr. 5 cl. Prereq: 103. Not open to native speakers of this language through regular course enrollment or EM credit. This course is available for EM credit. GEC for lang course.

241 Yiddish Culture UGRD 5
Introductory survey of political, social, ideological, and religious trends as reflected in Yiddish culture, especially folklore and literature.
Au Qtr. 5 cl. Not open to students with credit for 341. GEC arts and hums cultures and ideas course.

293 Individual Studies UGRD 1-5
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

294 Group Studies UGRD 1-5
Special topics announced in the quarter previous to the one in which the course is offered.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

367 Jewish-American Voices in U.S. Literature UGRD 5
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.
2 2-hr cl. Prereq: English 110 or 111 or equiv, and soph standing or above. GEC second writing course.

371 Yiddish Literature in Translation UGRD 5
Reading, analysis, and discussion of representative works and of the development of major movements and genres in Yiddish literature.
5 cl. Taught in English. GEC arts and hums lit course.

399 The Holocaust in Literature and Film UGRD 5
Reading, analysis, and discussion of representative works pertaining to the Holocaust, from the perspectives of the German and Ashkenazic traditions.
2 2-hr cl. Not open to students with credit for German 399. Cross-listed in German. Taught in English. GEC arts and hums lit course.

401 Advanced Yiddish I UGRD 5
Reading in literary and journalistic prose, with practice in conversation and composition; intensive review of Yiddish grammar.
5 cl. Prereq: 104 or equiv.

402 Advanced Yiddish II UGRD 5
Readings in texts from the nineteenth century to the present with emphasis on contemporary prose; practice in conversation and composition.
5 cl. Prereq: 401 or equiv.

603 Advanced Yiddish Conversation and Composition UGRD 5
Intensive practice in speaking and writing Yiddish, based on contemporary Yiddish literary usage; conducted entirely in Yiddish.
^ 5 cl. Prereq: 402 or permission of instructor.

611 History of the Yiddish Language UGRD 5
Linguistic history of Yiddish; Yiddish dialect formation; analysis of Yiddish documents from the 13th century to the present; Yiddish in the context of Jewish interlinguistics.
5 cl. Prereq: 402 or equiv or permission of instructor.

612 Language and Culture Geography in Ashkenaz UGRD 5
Development and description of Yiddish dialect areas: linguistic atlases and the mapping of Yiddish dialect and Ashkenazic cultural features; dialect networks; development of standard Yiddish.
2 2-hr cl.

641 Places in Ashkenaz UGRD 5
Jewish society of a specific place (e.g., Vienna; Amsterdam); tradition and modernity; assimilation and continuity; cultural, literary, and linguistic expression; arts and entertainment.
2 2-hr cl. Prereq: Jr standing or permission of instructor. Not open to students with credit for German 641, without permission of instructor. Repeatable to a maximum of 15 cr hrs. Specific topics not repeatable for credit.

651 Modern Yiddish Prose UGRD 5
Reading and analysis of short stories and novels representative of major developments and trends in Yiddish prose of the 19th and 20th centuries.
^ 5 cl. Prereq: 402 or equiv.

671 Yiddish for Speakers of German UGRD 5
Yiddish for speakers of German, stylistics of academic Yiddish; introduction to bibliography in Yiddish and Ashkenazic studies.
3 1.3-hr cl. Prereq: German 201 or higher or equiv, or grad standing in German. May not be used to satisfy any part of the undergrad foreign language requirement.

693 Individual Studies UGRD 1-5
Individual Studies.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of instructor. Repeatable to a maximum of 15 cr hrs.

694 Group Studies UGRD 1-5
Special topics to be announced in the quarter previous to the one in which the course is offered.
Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

697 Study at a Foreign Institution UGRD 1-15
An opportunity for students to study at a foreign institution and receive Ohio State credit for that work.
Su, Au, Wi, Sp Qtrs. Prereq: Written permission of dept chairperson. Repeatable to a maximum of 45 cr hrs. This course is Progress (‘P’) graded. Students will pay Ohio State fees and any fees in excess of Ohio State tuition, as well as all travel and subsistence costs.

721 Studies in Yiddish Literature UGRD 5
Advanced study of specific literary periods, figures, and/or topics involving extensive reading and discussion of appropriate primary and secondary source materials.
5 cl. Prereq: 5 cr hrs of Yiddish at the 600 level. Repeatable to a maximum of 15 cr hrs.

783H Honors Research UGRD 3-5
A program of research for each student which includes individual conferences and which culminates in an honors thesis or oral defense.
Su, Au, Wi, Sp Qtrs. Prereq: Approved candidacy for graduation with distinction, which includes faculty adviser and ASC Honors Committee approval of project, a minimum 3.50 pt-hr ratio in the field of distinction, sr standing, and CPHR in the commensurate with honors program membership. Repeatable to a maximum of 15 cr hrs. This course is graded S/U.

811 Seminar in Yiddish Studies GRAD 5
In-depth study of a selected topic or issue in Yiddish literature, linguistics, or intellectual culture.
3-5 cl. Prereq: Permission of instructor. Repeatable to a maximum of 15 cr hrs.

998 Research in Yiddish GRAD 1-10
Research for thesis purposes only.
Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

**Yoruba**

101 Elementary Yoruba I UGRD 5
Introduction to elementary Yoruba with emphasis on oral proficiency.
^ Not open to native speakers of this language through regular course enrollment or EM credit or to students with 3 or more yrs of study in this language in high school. GEC for lang course. FL Admis Cond course.

102 Elementary Yoruba II UGRD 5
Continuation of 101 with emphasis on oral proficiency.
^ Prereq: 101. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course.

103 Intermediate Yoruba I UGRD 5
Intermediate Yoruba, combining oral and reading skills.
^ Prereq: 102. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course.

104 Intermediate Yoruba II UGRD 5
Continuation of 103, combining oral and reading skills.
^ Prereq: 103. Not open to native speakers of this language through regular course enrollment or EM credit. GEC for lang course. FL Admis Cond course.

**Zulu**

101 Elementary Zulu I UGRD 5
Introduction to elementary Zulu, using a proficiency-based approach. Not open 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. GEC for lang course. FL Admis Cond course.
102  Elementary Zulu I  UGRD  5
Continuation of 101, using a proficiency-based approach.
Prereq: 101. Not open to native speakers of this language through regular course
enrollment or EM credit. GEC for lang course. FL Admin Cond course.

103  Intermediate Zulu I  UGRD  5
Introduction to intermediate Zulu, using a proficiency-based approach.
Prereq: 102. Not open to native speakers of this language through regular course
enrollment or EM credit. GEC for lang course.

104  Intermediate Zulu II  UGRD  5
Continuation of 103, using a proficiency-based approach.
Prereq: 103. Not open to native speakers of this language through regular course
enrollment or EM credit. GEC for lang course.