The Ohio State University

Mission and Vision Statement

The Ohio State University has as its mission the attainment of international distinction in education, scholarship, and public service. As the state’s leading comprehensive teaching and research university, Ohio State combines a responsibility for the advancement and dissemination of knowledge with a land-grant heritage of public service. It offers an extensive range of academic programs in the liberal arts, the sciences, and the professions.

Ohio State provides accessible, high-quality undergraduate and graduate education for qualified students who are able to benefit from a scholarly environment in which research inspires and informs teaching.

At Ohio State, we celebrate and learn from our diversity and we value individual differences. Academic freedom is defended within an environment of civility, tolerance, and mutual respect.

The Ohio State University is a community of scholars in which:

- teaching and research are recognized as part of the same process: learning;
- academic units and curricula are structured to foster learning and nurture creativity;
- administrative services, facilities, and technology enrich the academic experience;
- academic programs and research opportunities are extensive and excellent, but not exhaustive; and
- human resources complement our promise. High-ability students, faculty, and staff from diverse backgrounds participate in leading programs and enrich an environment that sustains learning and growth.

Nondiscrimination Policy

The policy of The Ohio State University, both traditionally and currently, is that discrimination against any individual for reasons of race, color, creed, national origin, religion, sex, sexual orientation, age, handicap, or Vietnam-era veteran status is specifically prohibited. Accordingly, equal access to employment opportunities, admissions, educational programs, and all other university activities is extended to all persons, and the university promotes equal opportunity through a positive and continuing affirmative action program.

The university’s Office of Human Resources / Affirmative Action, 1590 N. High St., Suite 300, Columbus, Ohio 43201-2190; 614-292-1050, is responsible for the coordination of matters relating to equal opportunity and affirmative action. United States Department of Defense regulations prohibit gay men, lesbians, and bisexuals from serving in the armed forces, including Reserved Officer Training Corps. As a result of the prohibition, ROTC programs are in violation of University Policy Number 1.10 (Issued 10/1/73).

Equality of opportunity is a basic philosophy at Ohio State. Mindful of the need for all persons to adapt to the changing roles and needs of society, the university also provides evening programs and continuing education opportunities to serve a wide spectrum of lifelong learning needs. In the exploration of new ideas and in the preparation of citizens for their roles in a changing society, the university represents a human commitment—an expression of the aspiration of people to better themselves and the world in which they live.

Campuses

Columbus
Lima
Mansfield
Marion
Newark
Agricultural Technical Institute, Wooster
Agricultural Technical Institute

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At The Ohio State University, every effort is made to provide accurate and up-to-date information. However, the university reserves the right to change without notice statements in university publications concerning rules, policies, fees, curricula, courses, or other matters when necessary. In addition, Ohio State is currently reviewing and restructuring many of our academic programs in an effort to enhance their quality and improve our efficiency. In that process, some of the programs and courses mentioned in this bulletin may be modified, consolidated with other programs or courses, or eliminated.
Mission
The Ohio State University Agricultural Technical Institute provides educational programs leading to associate degrees in agriculture, horticulture, environmental sciences, business, and engineering technology. With a high value placed on lifelong learning, we provide accessible, high-quality, applied educational experiences. Our goal is to prepare individuals to be technically competent, self-reliant, and productive citizens in a global society.

The purposes of the institute are to offer: 1) associate of science and associate of applied science degrees and certificates which include general and technical courses; 2) credit and non-credit continuing education and workforce development opportunities; and 3) transfer programs leading to higher levels of education.

Emphasis is placed on: 1) preparing technically proficient individuals for various careers; 2) developing skills and abilities in problem solving, critical thinking, leadership, and communication; and 3) fostering an environment where diversity is valued and integrated throughout the institute.

General Information
Ohio State ATI provides outstanding educational opportunities for students interested in careers in agriculture, biotechnology, horticulture, engineering technologies, business, and the environment. Thirty programs of study leading to the Associate of Applied Science, Associate of Science, or Associate of Technical Study prepare students for careers in as little as two years.

An Ohio State ATI education is based on the premise that students learn best when they participate actively in the learning process. Teaching and learning reach beyond the classroom to the laboratories, greenhouses, studios, and farm facilities that complement the Ohio State ATI campus. An experiential learning approach to education lets students learn by doing, complementing traditional classroom instruction.

To help students succeed, Ohio State ATI offers a personalized learning environment in which students receive individual attention from faculty with real-world knowledge and expertise. A student/faculty ratio of 17:1 gives students the opportunity to work side-by-side with faculty who take a personal interest in their success.

In an increasingly competitive job market, experience coupled with technical training makes the difference. Ninety-nine percent of Ohio State ATI graduates find jobs or continue their education in a bachelor’s degree program within four months of graduation.

Internships are an invaluable part of an Ohio State ATI associate of applied science degree. Students complete internships to gain work experience, make professional contacts, earn money, and receive academic credit. Faculty and staff assist students in locating internships that reflect their career goals and interests.

Ohio State ATI is located in a major agricultural center one and one-half miles southeast of Wooster, Ohio, and is easily accessible from any area of the state. The city serves as the Wayne County seat and is home to approximately 26,000 people. In addition to an expanding number of concerts, intramural sports, dances, and other activities held on campus, the surrounding community provides students opportunities to attend theater and cultural events, YMCA programs, movies, and fairs. Wooster is within an hour’s drive of Cleveland, Akron, and Canton, which offer a variety of activities including major league sports, concerts, and shopping.
Established in 1969, Ohio State ATI has a statewide mandate to provide comprehensive agricultural education. The institute is an administrative unit of The Ohio State University College of Food, Agricultural, and Environmental Sciences and maintains a close relationship with the Ohio Agricultural Research and Development Center (OARDC), the Ohio State University Extension (OSUE), the Ohio Department of Education, and the Ohio Board of Regents. These affiliations provide students access to additional resources and opportunities.

The Ohio State University is a member of the Association of American Universities and the National Association of Land-Grant Colleges and State Universities and is accredited by the North Central Association of Schools and Colleges. Ohio State ATI is accredited separately by the North Central Association of Schools and Colleges (phone 312-263-0456, www.ncahigherlearningcommission.org).

Academic Opportunities
Ohio State ATI offers the Associate of Applied Science (AA), the Associate of Science (AS), and the Associate of Technical Study (AT) degrees. All degrees include courses in communication, social sciences, mathematics, and science basic to the technical component of the program.

Associate of Applied Science
The Associate of Applied Science degree program provides students with the technical and management skills to enter the workforce in middle management positions. Each curriculum has minimum requirements that have been established with input from industry advisory committees.

The Associate of Applied Science degree is offered in the following areas (the code following each program will be used on your Application for Admission):

Agricultural Commerce ............ AGCOMMR-AA
Biotechnology .........................BIOTECH-AA
Business Management ...............BUSMGMT-AA
Construction Management..........CNSTMGT-AA
Crop Management and Soil Conservation .......... CRPSOIL-AA
Dairy Cattle Production and Management .......... DYPMGT-AA
Floral Design and Marketing ..........FLDMKT-AA
Greenhouse and Nursery Management .......... GHNRMGT-AA
Horse Production and Management .......... HRSPMGT-AA
Hydraulic Power and Motion Control .......... HYDRPWR-AA
Landscape Horticulture......... LANDHRT-AA
Livestock Production and Management .......... LVBSRSW-AA
Power Equipment ................. POWEREQ-AA
Turfgrass Management .......... TUFGMGT-AA

Associate of Science
The Associate of Science degree program is designed to prepare individuals to transfer to a Bachelor of Science degree program in the College of Food, Agricultural and Environmental Sciences at the Columbus campus of The Ohio State University. Students can complete approximately 50 percent of the requirements for a bachelor’s degree while capitalizing on the experiential learning, small, caring campus environment and other advantages provided by Ohio State ATI.

Associate of Science degree programs can be transferred to various departments at the Columbus campus, including Agricultural Communication, Education and Leadership; Agricultural, Environmental, and Development Economics; Animal Sciences; Food, Agricultural, and Biological Engineering; Food Science and Technology; Horticulture and Crop Sciences; and the School of Environment and Natural Resources.
The Associate of Science degree option is available in the following areas (the code following each program will be used on your Application for Admission):

Agricultural Business .................... AGRBUS-AS
Agricultural Communication........ AGRCOMM-AS
Agricultural Systems Management .............. AGSYSMT-AS
Agriscience Education.................. ASE-AS
Agronomy .................................. AGRONOM-AS
Biochemical Sciences ............... BIOCHSC-AS
Community Leadership ............. COMLDR-AS
Construction Systems Management .................. CONSYSM-AS
Dairy Science ......................... DAIRYSC-AS
Environment and Natural Resources .............. ENVNATR-AS
Food Business Management....... FDBUSMG-AS
Horse Science ...................... HORSESC-AS
Horticultural Science .............. HORTSCI-AS
Livestock Science .................. LVSCI-AS
Renewable Energy ................. RNEWNRG-AS
Sustainable Agriculture ............. SUSTAG-AS

Certificate of Competency
The Certificate of Competency is a program that can be completed in nine months. These programs emphasize technical courses.

Bioenergy ..................................BIOENRG-AS
Hydraulic Service and Repair .... HYDSERV-AS
Sports/Commercial Turf Equipment .............. TURFEQP-AS

Continuing and Professional Education Options
The Ohio State ATI Business Training and Educational Services Program offers opportunities for adults to upgrade their skills to meet the requirements of current technology and to retrain for new positions. The instructional offering consists of credit courses; noncredit workshops, seminars, and certificate programs; and specialized programs contracted with individual companies or associations.

Credit courses Students can enroll on a non-degree basis in any credit course offered at ATI. Non-degree students may enroll full- or part-time, and can choose to audit courses or take courses for a grade.

Certificate programs These programs consist of courses, workshops, and seminars aimed at upgrading an individual’s skills and qualifications to meet the needs of technological change.

- Certificate of Completion given to students completing a course or series of courses in a specific skill area.
- Certificate of Achievement given to students completing a pre-approved series of courses. This series of courses may be a prescribed curriculum designed to meet the employment qualifications for a specific job classification or may be individualized to meet the career goals of the student.

Transitioning to Columbus Campus
Students who have completed at least 30 semester credit hours (may include transfer hours) and have a minimum cumulative GPA of 2.0 at Ohio State ATI are eligible to transition to the Columbus campus.

1 + 3 Program
The professional golf management (PGM) program is a four-year curriculum for aspiring PGA professionals. The objective of the PGM program at Ohio State ATI is to allow students to complete the first year of the Bachelor of Science in Professional Golf Management. After one year, students transition to the Columbus campus to complete the remainder of the program.

Professional Golf Management ..... PGM-PRE-AI

Associate of Technical Study
The Associate of Technical Study degree allows students to create a unique curriculum that focuses on special interests based on individual career goals. An educational plan identifying the courses chosen must be approved before the student earns 30 credits. The approval process begins after enrollment with the student’s advisor.

Undeclared Majors
Students who have not yet decided on a major should enter the following code on their Application for Admission:
Undeclared .................................. ATI-UNDEC
Fees and expenses

The costs for an academic semester or year depend, in part, on the student. Expenses will vary with the individual student’s type of housing, meals, transportation, and other factors. All fees are subject to change.

Application fee .................. $60
Required of every student upon first application to the university. Nonrefundable and not applicable toward any other university fee. Fee for international applicant is $70.

Acceptance fee ................... $100
Required of every degree-seeking student upon first admission to the university. Nonrefundable and not applicable toward any other university fee.

Course fees ...................... variable
A course fee is assessed for any term in which the student is enrolled in the following:

Anml Tec 2201T ....................... $80
Anml Tec 2801T ....................... $50
Anml Tec 2811T ....................... $50
Anml Tec 3101T ....................... $50
Anml Tec 3131T ....................... $30
Anml Tec 3137T ....................... $50
Anml Tec 3141T ....................... $50
Anml Tec 3151T ....................... $300
Anml Tec 3161T ....................... $350
Anml Tec 3171T ....................... $150
Anml Tec 3201T ....................... $50
Bus Tec 1202T ....................... $50
Bus Tec 2206T ....................... $50
Bus Tec 2207T ....................... $50
Bus Tec 2208T ....................... $50
Eng Tech 2016T ..................... $50
Eng Tech 2050T ..................... $50
Eng Tech 2121T ..................... $50
Eng Tech 2240T ..................... $50
Hort Tec 2340T ..................... $50
Hort Tec 2350T ..................... $50
Hort Tec 2360T ..................... $50
Hort Tec 2370T ..................... $50

Housing Activity fee .......... $20/semester
Required of all students living on campus. Nonrefundable and not applicable toward any other university fee.

Housing processing/reservation fees ................. $50/$300/$125
New students pay a non-refundable housing processing fee of $50. All students in campus housing are assessed: a space reservation fee of $300, which is refunded if they complete the conditions of their lease; and a $125 per year non-refundable fee for academic year housing.

Publication fee ...................... $2
Assessed for all students in the College of Food, Agricultural and Environmental Sciences including Ohio State ATI in their first term of enrollment for the academic year.

Safety and Security fee .... $22.50/term
Ohio State ATI students are assessed this fee for safety and security costs on the Wooster campus, even when students are on internship.

Student Orientation, Assessment, & Registration (SOAR) ........ $100
Required of every degree-seeking student upon first enrollment at Ohio State ATI. Nonrefundable and not applicable toward any other university fee.

Student health insurance $1150/semester
Students will be billed for health insurance through the university unless they opt out of insurance at the time of registration.
University fees
The university reserves the right to change fees without notice. Undergraduate students enrolled in any semester or term for 12-18 credit hours will be assessed full fees. Fees for undergraduate students enrolled for 11 or fewer credit hours shall be assessed fees on a per-credit hour basis. Students taking over 18 credit hours pay the full-time tuition plus the per credit hour rate for each additional hour.

Tuition effective Autumn 2013

<table>
<thead>
<tr>
<th>Credit hours</th>
<th>Resident tuition*</th>
<th>Non-resident tuition</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>296.00</td>
<td>951.00</td>
</tr>
<tr>
<td>2</td>
<td>592.00</td>
<td>1,902.00</td>
</tr>
<tr>
<td>3</td>
<td>888.00</td>
<td>2,853.00</td>
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<tr>
<td>4</td>
<td>1,184.00</td>
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<td>7</td>
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<td>8</td>
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<td>9</td>
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<td>11</td>
<td>3,256.00</td>
<td>10,461.00</td>
</tr>
<tr>
<td>12-18</td>
<td>3,552.00</td>
<td>11,412.00</td>
</tr>
</tbody>
</table>

*Qualified Residents
Ohio Law requires male students between the ages of 18 and 26 to be registered with the Selective Service System, unless they are on active duty with the armed forces of the United States (other than the National Guard or Reserves) or legally excluded, to be eligible for state educational assistance programs. Residents who are not registered or have not indicated they do not need to register by the first day of the semester are required to pay the Out-of-State Tuition as required by Ohio law. Students can register with Selective Service in the year they become 18 and must complete registration by 30 days after their 18th birthday. Selective Service registration can be accomplished within a few minutes at www.sss.gov. Students wishing to indicate exempt status can request materials to do so by contacting The Ohio State University Student Service Center, 1st Floor, 281 West Lane Avenue; 614-292-0300.

Approximate costs for Ohio State ATI 2013-2014

<table>
<thead>
<tr>
<th></th>
<th>One semester</th>
<th>Two semesters</th>
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</thead>
<tbody>
<tr>
<td>Ohio Residents</td>
<td></td>
<td></td>
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<tr>
<td>Tuition</td>
<td>$3,552</td>
<td>$7,104</td>
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<tr>
<td>Campus Housing</td>
<td>3,230</td>
<td>6,460</td>
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<tr>
<td>Books and supplies*</td>
<td>624</td>
<td>1,248</td>
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<tr>
<td>Groceries/Meals*</td>
<td>1,620</td>
<td>3,240</td>
</tr>
<tr>
<td>Subtotal**</td>
<td>$9,026</td>
<td>$18,052</td>
</tr>
<tr>
<td>Non-Ohio Residents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition</td>
<td>$11,412</td>
<td>$22,824</td>
</tr>
<tr>
<td>Campus Housing</td>
<td>3,230</td>
<td>6,460</td>
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<tr>
<td>Books and supplies*</td>
<td>624</td>
<td>1,248</td>
</tr>
<tr>
<td>Groceries/Meals*</td>
<td>1,620</td>
<td>3,240</td>
</tr>
<tr>
<td>Subtotal**</td>
<td>$16,886</td>
<td>$33,772</td>
</tr>
</tbody>
</table>

* Costs listed for Book and Supplies and Groceries/Meals are estimated.

** In addition, you will need to allow for expenses such as long distance, phone, transportation, laundry, and health insurance. Students will be billed for health insurance through the university unless they opt out.
Curricular information

Graduation requirements
To obtain a degree at Ohio State ATI a student must:
• earn the minimum number of semester credit hours required with a cumulative point-hour ratio of 2.00 or above;
• satisfactorily complete a prescribed curriculum;
• earn a minimum of 30 credit hours through regular course work at the institute (exclusive of the internship);
• complete an occupational internship with a grade of C (2.00) or better, if included in the degree requirements;
• complete the prescribed hours of practicum with a C (2.00) or better in each semester of practicum enrollment; a maximum of 9 credit hours of practical experience courses (e.g. practicum and internship) will count toward graduation.
• file an application for the degree in accordance with institute deadlines; and
• enroll in the institute during the last semester necessary to complete the degree requirements. This may be waived on petition by the student.

Internship and practicum
Occupational internship is a required course in all Associate of Applied Science programs. It consists of a minimum of one academic semester of employment in the student’s specialized field of study and completion of a major written report. For this course, the student enrolls for credit, pays fees, receives grades, is supervised by Ohio State ATI personnel, and is paid a salary by the employer.

Practicum is a course of supervised practical experience required in most Associate of Applied Science programs. The practicum is designed to develop and improve occupational skills beyond the levels achieved in normal classroom and laboratory activities.

Credit by examination
Ohio State ATI offers the opportunity to earn college credit through satisfactory achievement on a variety of examinations. The credit by examination (EM) program is available to all currently enrolled students for most courses during the semesters they are offered. Students interested in this opportunity should contact the course instructor.

Associate of Applied Science
Each curriculum has minimum requirements (described on pages 8-21) that have been established with input from industry advisory committees.

Associate of Science
The curriculum includes both courses required for the Bachelor of Science degree and selected Ohio State ATI courses. The courses will transfer to fulfill major or minor requirements or may be used as electives. Practical applications may be required through internship and/or practicum. Each curriculum has minimum requirements which are described on pages 22-37.

Associate of Technical Study
In addition to the general graduation requirements, students pursuing the AT degree must meet the following requirements:

General courses
Communication; social science; humanities; computers; mathematics; and biological, chemical and physical sciences........ 28-30 credits

Technical studies courses
Courses chosen in consultation with an advisor.... ..............................................................33 credits

Certificate programs
Certificates are available on both a credit (Certificate of Competency) and noncredit (Certificate of Completion and Certificate of Achievement) basis. For a description of the three certificate options, see page 4.
Associate of Applied Science Degree programs

Agricultural Commerce
The objective of this program is to provide the student with training in a basic business core. The student also chooses a specialty in agriculture or a unique alternative.

Career opportunities
Career opportunities for technical workers in agricultural commerce include customer service, sales, accounting, office management, banking, and computer applications in agricultural businesses.

Curriculum
Agricultural Commerce is the study of business and agriculture. These two areas are combined so that graduates are prepared to enter the business environment of Ohio's number one industry, agriculture.

General courses
AGRCOMM 3130  Oral Expression in Agriculture
BUSTEC 1151T  General Economics
BUSTEC 1201T  Exploring Business
BUSTEC 1202T  Software Applications
ENGLISH 1110.01  First-Year English Composition
GENBIOL 1200T  General Biology
OR
GENBIOL 1250T  General Botany with Applications
GENCHEM 1100T  Introduction to General Chemistry
GENCOMM 1115T  Technical and Business Writing
GENMATH 1141T  Business Mathematics
GENSTDs 1201T  College Orientation
Humanities Elective
Social Science Elective

Technical courses
AEDECON 2105  Managerial Records and Analysis
BUSTEC 2100T  Introduction to Business
*BUSTEC 2191T  Business Internship
BUSTEC 2206T  Introduction to Web Design
BUSTEC 2207T  Problem Solving with Spreadsheets & Databases
BUSTEC 2231T  Fundamentals of Marketing
BUSTEC 2232T  Personal Selling
BUSTEC 2241T  Small Business Management
BUSTEC 2244T  Human Resource Management and Leadership
BUSTEC 2247T  Business Law
BUSTEC 2248T  Introduction to Cooperatives
BUSTEC 2249T  Fundamentals of Business Finance Technology Electives

*The student must earn a grade of “C” or higher in this course to receive an Associate of Applied Science Degree in Agricultural Commerce.

Course descriptions begin on page 42.

Specialty areas
Students will develop a specialty of at least 6 credit hours with the approval of their advisor.

Facilities
A computer lab and the Ohio State ATI Farm Laboratory complement the classrooms.

Applied learning opportunities
Agricultural Commerce students must also complete an industry internship consisting of 420 hours of full-time employment in the field of their study and interest.

Other degree options
Students interested in earning a bachelor’s degree may be interested in the Associate of Science program in Agricultural Business. See curricular information on page 22.
Biotechnology
The objective of this program is to provide students with a working knowledge of the profession by providing experience and expertise using the latest laboratory equipment and critical consideration of current topics in biotechnology.

Career opportunities
Graduates with an Associate of Applied Science degree in Biotechnology are prepared for careers as research/technical assistants in biomedical, pharmaceutical, forensic, bioengineering, agriculture, microbiology and environmental fields working in government, academic and private laboratories.

Curriculum
The Biotechnology program emphasizes techniques in using the state-of-the-art laboratory protocols and equipment for preparing, collecting, recording and analyzing data from research samples. Areas of study include: biochemistry, chromatography, spectroscopy, genetics, recombinant DNA technology and animal tissue culture.

General courses
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 3130 Oral Expression in Agriculture
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
BIOTECH 1201T Exploring Biochemical Sciences and Biotechnology
BUSTEC 1202T Software Applications
CHEM 1110 Elementary Chemistry
COMLDR 3537 Data Analysis in the Applied Sciences
ENGLISH 1110.01 First-Year English Composition
GENSTD 1201T College Orientation
MATH 1148 College Algebra
MUSIC 2250 Music Cultures of the World
PSYCH 1100 General Psychology

Technical courses
BIOTECH 2000T Biotechnology I
BIOTECH 2010T Biotechnology II
BIOTECH 2100T Introductory Biochemistry
BIOTECH 2110T Modern Genetics
BIOTECH 2120T Recombinant DNA Technology
*BIOTECH 2189T Biotechnology Practicum
*BIOTECH 2191T Biotechnology Internship
BUSTEC 2208T Multimedia in Business
MICRBIIO 4000 Basic and Practical Microbiology Technology elective

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Biotechnology.

Course descriptions begin on page 42.

Applied learning opportunities
Students take practicum (supervised, practical work experience) which provides an opportunity to apply skills learned in class.

Biotechnology students must also complete an industry internship consisting of 15 weeks of full-time employment in the field of their study or interest.
Business Management
The objective of this program is to prepare individuals to assume various management positions with business firms involved in retailing, wholesaling, and manufacturing.

Career opportunities
Many opportunities exist in the business world for individuals with good interpersonal skills and the knowledge of accounting, marketing, and computers. With additional on-the-job training and experience, graduates of the business management program could operate their own business.

Curriculum
The curriculum emphasizes management skill development, marketing, accounting, human resource management, business law, and small business operations. Additional areas of study available include advertising, computer technology, real estate dynamics, economics, and international business.

General courses
AGRCOMM 3130 Oral Expression in Agriculture
BUSTEC 1151T General Economics
BUSTEC 1201T Exploring Business
BUSTEC 1202T Software Applications
ENGLISH 1110.01 First-Year English Composition
GENBIOL 1200T General Biology
OR
GENBIOL 1250T General Botany with Applications
GENCHEM 1100T Introduction to General Chemistry
GENCOMM 1115T Technical and Business Writing
GENMATH 1141T Business Mathematics
GENSTDS 1201T College Orientation
Humanities Elective
Social Science Elective

Technical courses
AEDECON 2105 Managerial Records and Analysis
BUSTEC 2100T Introduction to Business
*BUSTEC 2191T Business Internship
BUSTEC 2206T Introduction to Web Design
BUSTEC 2207T Problem Solving with Spreadsheets and Databases
BUSTEC 2231T Fundamentals of Marketing
BUSTEC 2232T Personal Selling
BUSTEC 2241T Small Business Management
BUSTEC 2244T Human Resource Management and Leadership
BUSTEC 2247T Business Law
BUSTEC 2249T Fundamentals of Business Finance
BUSTEC Electives

*The student must earn a grade of “C” or higher in this course to receive an Associate of Applied Science Degree in Business Management.

Course descriptions begin on page 42.

Applied learning opportunities
Business management students must also complete an industry internship consisting of 420 hours of full-time employment in the field of their study or interest.

Other degree options
Students interested in earning a bachelor’s degree may be interested in the Associate of Science degree in Agricultural Business or Food Business Management. See curricular information on pages 22 and 32.
Construction Management

The objective of this program is to help prepare students for management careers in the construction industry, emphasis is primarily on building construction, with an introduction to other sectors of the construction industry provided as well.

Career opportunities

Career opportunities are available with home builders, general contractors, subcontractors, building material retailers, and manufacturers.

Curriculum

The construction management curriculum emphasizes two major content areas: building science and business management.

General courses

AGRCOMM 3130  Oral Expression in Agriculture
BUSTEC 1151T  General Economics
BUSTEC 1202T  Software Applications
ENGLISH 1110.01  First-Year English Composition
ENGTech 1201.02T  Exploring Construction and Agricultural Systems
ENGTech 2150T  Building Science: Service Systems
GENMATH 1145T  Technical Mathematics II
Gensd's 1201T  College Orientation
TECPHYS 2150T  Technical Physics
Humanities Elective
Social Science Elective

Technical courses

AEDECON 2105  Managerial Records and Analysis
BUSTEC 2244T  Human Resource Management and Leadership
BUSTEC 2247T  Business Law
ENGTech 2092T  Problem Solving: Career and Society Applications
ENGTech 2110T  Construction Drawings and Basic Estimating
ENGTech 2120T  Building Science: Methods and Materials
ENGTech 2121T  Drafting and Computer-Aided Design
ENGTech 2160T  Estimating and Scheduling
ENGTech 2170T  Construction Project Management
*ENGTech 2191.01T  Construction Management Internship
ENGTech 2440T  Site Development and Surveying
ENGTech 2600T  Construction Safety and Health
Bustec elective

*The student must earn a grade of “C” or higher in this course to receive an Associate of Applied Science Degree in Construction Management.

Course descriptions begin on page 42.

Facilities

The Ohio State ATI computer lab features industry specific CAD, scheduling, and estimating computer software, which are utilized in technical courses throughout the program. The Ohio State ATI construction laboratory provides space and learning opportunities for students to design, construct, test, and evaluate construction materials and system components.

Applied learning opportunities

Construction Management students must also complete an industry internship consisting of at least 12 weeks of full-time employment in a work experience related to their career interest.

Construction Management students also participate in industry trade shows and construction club (National Association of Home Builders Student Chapter) activities.

Other degree options

Students interested in earning a bachelor’s degree may be interested in the Associate of Science degree in Construction Systems Management. See curricular information on page 29.
Crop Management and Soil Conservation

The objective of this program is to educate students to maximize the quality and quantity of cereal and forage crop yields through the application of scientific principles. Students enrolled in this program may specialize in crop management or soil conservation.

Career opportunities

Graduates are employed as farm managers, machinery operators, and field persons for seed, fertilizer, and chemical companies, and grain elevators. Graduates may be self-employed through custom application of farm chemicals and fertilizers.

Curriculum

Students in the program study grain and oil seed production, forage production, soil science and management, pest management, and machinery management.

General courses

AGRCOMM 3130  Oral Expression in Agriculture  
BUSTEC 1151T  General Economics  
BUSTEC 1202T  Software Applications  
CRPSOIL 1201T  Exploring Agronomy, Sustainable Agriculture, and Crop Management and Soil Conservation  
GENBIOL 1250T  General Botany with Applications  
GENCHEM 1100T  Introduction to General Chemistry  
GENCHEM 1150T  Introduction to Organic Chemistry  
GENCOMM 1115T  Technical and Business Writing  
GENMATH 1140T  Technical Mathematics I  
GENSTDS 1201T  College Orientation  
Social Science Elective

Technical courses

BIOTECH 2218T  General and Applied Entomology  
*CRPSOIL 2191T  Crop and Soil Internship  
CRPSOIL 2265T  Integrated Pest Management  
CRPSOIL 2300T  Introduction to Soil Science  
CRPSOIL 2301T  Introduction to Soil Science Laboratory  
CRPSOIL 2412T  Forage Crops  
CRPSOIL 2580T  Soil Fertility and Fertilizers  
ENGTECH 2050T  Introduction to Geographic Information Systems

Crop Management Specialization only

AEDECON 2105  Managerial Records and Analysis  
CRPSOIL 2189T  Practicum in Crop and Soil Technologies  
CRPSOIL 2411T  Grain and Oilseed Crops  
CRPSOIL 2422T  Principles of Weed Control  
CRPSOIL 3800T  Principles of Farm Business Management  
ENGTECH 2016T  Tillage, Planting, Harvesting, and Storage Equipment

Soil Conservation Specialization only

BUSTEC 2244T  Human Resource Management and Leadership  
CRPSOIL 2228T  Manure Management  
CRPSOIL 2324T  Soil Management  
ENGTECH 2040T  Soil and Water Conservation Systems  
ENGTECH 2121T  Drafting and Computer-Aided Design  
ENR 2100  Introduction to Environmental Science

*The student must earn a grade of “C” or higher in this course to receive an Associate of Applied Science Degree in Crop Management and Soil Conservation.

Course descriptions begin on page 42.

Facilities

Students are involved in field work and related activities at the 1,700-acre Ohio State ATI Farm Laboratory and the 143-acre Land Laboratory.

Applied learning opportunities

The practicum course provides students with supervised, practical work experience, and an opportunity to apply classroom instruction in the field.

An internship provides students with an opportunity to gain industry experience through full-time employment for 10-weeks in the area of their interest.

Other degree options

Students interested in earning a bachelor’s degree may be interested in the Associate of Science program in Agronomy, Agricultural Systems Management or Sustainable Agriculture. See curricular information on pages 24, 26 and 37.
Dairy Cattle Production and Management

The objective of this program is to educate students in techniques of dairy production and management for careers with dairy farms and associated dairy businesses and industries.

Career opportunities

Dairy cattle production and management positions are available in production management, service, sales, and quality control.

A graduate of the dairy cattle production and management program could fill the following positions: herd manager, dairy farm manager, dairy field representative, dairy technician, or sales representative in the dairy industry.

Curriculum

The curriculum includes principles and application of milk production, genetics, reproduction, nutrition and feeding, health, animal selection, and financial management.

General courses

AGRCOMM 3130  Oral Expression in Agriculture
ANMLTEC 1201.07T  Exploring Dairy Careers and Industry
ANMLTEC 3130T  Principles of Animal Nutrition
ANMLTEC 3140T  Animal Anatomy and Physiology
BUSTEC 1151T  General Economics
BUSTEC 1202T  Software Applications
GENBIOL 1200T  General Biology
GENCOMM 1115T  Technical and Business Writing
GENMATH 1140T  Technical Mathematics I
GENSTDS 1201T  College Orientation
Humanities Elective
Social Science Elective

Technical courses

AEDCON 2105  Managerial Records and Analysis
*ANMLTEC 2787.0XT  Applied Dairy Herd Practices and Management
2787.01T  Milking
2787.02T  Health and Reproduction
2787.03T  Nutrition and Feeding
ANMLTEC 2797T  Dairy Industry Seminar and Experience
ANMLTEC 3137T  Dairy Cattle Feeding Management
ANMLTEC 3157T  Dairy Cattle Genetic Improvement
ANMLTEC 3167T  Dairy Cattle Milking and Reproductive Management
ANMLTEC 3177T  Dairy Cattle Health Management
*ANMLTEC 3191.07T  Dairy Industry Internship
ANMLTEC 3207T  Dairy Cattle Evaluation and Herd Records
ANMLTEC 3407T  Dairy Cattle Facilities, Environment, and Equipment
ANMLTEC 3887T  Integrated Dairy Farm Business Management

Technical electives: selected from a list of courses in animal sciences, business, crop and soil, and engineering technologies.

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Dairy Cattle Production and Management.

Course descriptions begin on page 42.

Facilities

Ohio State ATI’s dairy facilities house more than 100 high-producing and genetic award winning registered Holstein, Jersey, and Brown Swiss milking cows in a free-stall barn with a drive-through total mixed ration feeding system. The fully automated double-ten parallel milking parlor is equipped with electronic identification, computerized milk weight recorders, and herd management software.

On-site computer systems house internal herd and financial records and are online with the Dairy Herd Improvement Association’s processing center and breed associations. In addition, feeding and nutrition tracking software and an electronic heat detection system are used in herd management.

Applied learning opportunities

Students take Applied Dairy Herd Practices and Management (supervised, practical work experience), which provides an opportunity to apply and practice skills learned in class at the ATI Dairy Laboratory during their second academic year.

Dairy students must also complete an industry internship consisting of 10 or more weeks of full-time employment in the dairy industry. Internship locations and type of dairy business – production or agri-business – are based upon student field of study or interest.

Other degree options

Students interested in earning a bachelor’s degree may be interested in the Associate of Science program in Dairy Science. See curricular information on page 30.
Floral Design and Marketing
The objective of this program is to educate individuals to assume design and management positions in the retail floral industry.

Career opportunities
Graduates may find job opportunities as floral designers, managers, or wedding consultants. The artistic principles learned in the program also prepare graduates to assume positions as interior plantscape technicians, estate gardeners, or display artists. With additional on-the-job experience, graduates should be able to go into business for themselves.

Curriculum
The curriculum provides the principles of designing traditional and contemporary arrangements as well as specialty designs for weddings, parties, and funerals. The techniques of handling and storing flowers, and decorative uses of plants are emphasized. Principles of floral marketing and business operation are developed as well.

General courses
AGRCOMM 3130 Oral Expression in Agriculture
BUSTEC 1151T General Economics
BUSTEC 1202T Software Applications
GENBIOL 1250T General Botany with Applications
GENCOMM 1115T Technical and Business Writing
GENHUM 1190.02T Humanities as a Window on Cultural Pluralism: Global Arts
GENMATH 1140T Technical Mathematics I
GENMATH 1141T Business Mathematics
GENSTDS 1201T College Orientation
HORTTETC 1201T Exploring Horticulture
Humanities Elective
Social Science Elective

Technical courses
AEDECON 2105 Managerial Records and Analysis
BUSTEC 2231T Fundamentals of Marketing
BUSTEC 2241T Small Business Management
HORTTETC 2130T Flowering and Foliage Plants
*HORTTETC 2189.10T Practicum in Floral Design
*HORTTETC 2190.10T Practical Leadership in Floral Design
*HORTTETC 2191.10T Floral Design and Marketing Internship
HORTTETC 2340T Digital Design Applications I
HORTTETC 2600T Commercial Floral Design
HORTTETC 2620T Retail Flower Shop Operation
HORTTETC 2640T Flowers for Celebrations
HORTTETC 2660T Post Harvest Flower Care
HORTTETC 2680T Contemporary Floral Design
HORTTETC/BUSTEC Elective

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Floral Design and Marketing.

Course descriptions begin on page 42.

Facilities
Facilities for the floral design program include a large floral design studio, flower preparation room, flower shop, and extensive greenhouse and gardens for fresh flower production.

Applied learning opportunities
Students work in The Ohio State ATI Flower Shop, where they have an opportunity to apply skills learned in class.

Floral Design and Marketing students complete an industry internship consisting of 7 weeks of full-time employment in a retail flower shop or related business. In addition, industry leaders provide specialized classroom instruction as participants in the American Institute of Floral Designers Artist-in-Residence program.
Greenhouse and Nursery Management

The objective of this program is to educate individuals for managerial positions in the greenhouse or nursery industries.

Career opportunities

Depending on the specialization, graduates will find job opportunities in greenhouse and/or nursery businesses, garden centers, public horticulture, specialist propagators, and horticultural supply companies. Graduates may fill the following positions: greenhouse and/or nursery grower, manager, technician, and sales.

Curriculum

The curriculum emphasizes production greenhouse and overwintering greenhouse environmental controls and the production, harvesting, handling, and use of floriculture and nursery crops. Pest and pathogen management principles are taught and practiced. In addition to business management and marketing, merchandising and selling plant products are presented.

General courses

AGRCOMM 3130 Oral Expression in Agriculture
BUSTEC 1151T General Economics
BUSTEC 1202T Software Applications
GENBIOL 1250T General Botany with Applications
GENCHEM 1100T Introduction to General Chemistry
GENCHEM 1150T Introduction to Organic Chemistry
GENCOMM 1115T Technical and Business Writing
GENMATH 1140T Technical Mathematics I
GENSSC 1181T Hispanic Culture and Language in the Workplace
GENSTDS 1201T College Orientation
HORTTEC 1201T Exploring Horticulture
Humanities Elective

Technical courses

AEDCON 2105 Managerial Records and Analysis
BIOTECH 2219T Pesticides and Their Use
HORTTEC 2150T Horticultural Root Media

Greenhouse Specialization only

BUSTEC 2241T Small Business Management
HORTTEC 2130T Flowering and Foliage Plants
*HORTTEC 2189.21T Practicum in Greenhouse Management
*HORTTEC 2190.21T Practical Leadership in Greenhouse Management
*HORTTEC 2191.21T Greenhouse Management Internship
HORTTEC 2500T Greenhouse Environment Control
HORTTEC 2520T Greenhouse Perennial Production
HORTTEC 2540T Greenhouse Bedding and Flowering Pot Plant Production
HORTTEC 2740T Propagation of Nursery and Greenhouse Plants
HORTTEC 2760T Plant Health Management

Nursery Specialization only

BUSTEC 2241T Small Business Management
OR
BUSTEC 2244T Human Resource Management and Leadership
HORTTEC 2110T Plant Materials I
HORTTEC 2120T Plant Materials II
*HORTTEC 2189.22T Practicum in Nursery Management
*HORTTEC 2191.22T Nursery Management Internship
HORTTEC 2410T Sustainable Nursery Production and Management
HORTTEC 2420T Garden Center Management
*HORTTEC 2500T Greenhouse Environment Control
*HORTTEC 2740T Propagation of Nursery and Greenhouse Plants
*HORTTEC 2760T Plant Health Management

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Greenhouse and Nursery Management.

Course descriptions begin on page 42.

Facilities

The Ohio State ATI production and overwintering greenhouses, conservatory, and the outdoor nursery and display gardens provide opportunities for practical experience in greenhouse floriculture and nursery production.

Applied learning opportunities

Students take practicum (supervised, practical work experience in campus greenhouses and outdoor nursery) which provides an opportunity to apply skills learned in class.

Students must also complete an industry internship consisting of 14 weeks of full-time employment in the greenhouse or nursery industry.

Other degree options

Students interested in earning a bachelor’s degree may be interested in the Associate of Science program in Horticultural Science. See curricular information on page 34.
Horse Production and Management

The objective of this program is to prepare individuals for employment in the horse industry.

Career opportunities

A variety of opportunities exist in horse training, horse breeding, stable management, and other equine support industries. Graduates are prepared for employment in independent or corporate-owned units. Additional employment opportunities exist in businesses which supply goods and services to horse-related industries.

Horse production majors may find positions as trainers, instructors, breeding farm managers, stallion managers, stable managers, breed association representatives, race track or veterinarian clinic employees, or marketing representatives for feed, tack or equipment companies.

Curriculum

The curriculum includes principles and practical application of training, nutrition, reproduction, genetics, live animal evaluation, health, equine marketing and facility design and management. Business and accounting principles are also presented. Practical application and hands-on experiential learning is emphasized at Ohio State ATI’s horse facilities.

General courses

AGRCOMM 3130  Oral Expression in Agriculture
ANMLTEC 1201.01T  Exploring Equine Careers and Industry
ANMLTEC 3130T  Principles of Animal Nutrition
ANMLTEC 3140T  Animal Anatomy and Physiology
BUSTEC 1151T  General Economics
BUSTEC 1202T  Software Applications
ENGLISH 1110.01  First-Year English Composition
GENBIOL 1200T  General Biology
GENMATH 1140T  Technical Mathematics I
GENSTDS 1201T  College Orientation
Humanities Elective
Social Science Elective

Technical courses

AEECON 2105  Managerial Records and Analysis
*ANMLTEC 2189.01T  Horse Practicum
*ANMLTEC 2190.01T  Leadership in Equine Operations Management
ANMLTEC 2201T  Introduction to Horse Science
ANMLTEC 3101T  Equine Facility Maintenance and Management
ANMLTEC 3111T  Equine Sales Preparation and Marketing
ANMLTEC 3131T  Equine Feeding and Nutrition
ANMLTEC 3151T  Horse Breeding and Selection
ANMLTEC 3171T  Horse Health and Disease
*ANMLTEC 3191.01T  Equine Industry Internship Experience
ANMLTEC 3201T  Horse Judging and Evaluation
BUSTEC 2241T  Small Business Management
ENGTECH 2015T  Agricultural Equipment Operation and Maintenance

Technical Electives (5 credit hours needed)
ANMLTEC 2801T  Horsemanship and Equitation
ANMLTEC 2811T  Schooling and Training the Riding Horse
ANMLTEC 3141T  Racehorse Training and Conditioning
ANMLTEC 3161T  Applied Equine Reproductive Management
CRPSOIL 2412T  Forage Crops

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Horse Production and Management.

Course descriptions begin on page 42.

Applied learning opportunities

Students take practicums (supervised, practical work experience) which provide an opportunity to apply skills learned in class. Supervisory experience can be gained in a required Leadership practicum.

Horse students must also complete an industry internship consisting of 14 weeks of full-time employment in the field of their study or interest.

Other degree options

Students interested in earning a bachelor’s degree may be interested in the Associate of Science program in Horse Science. See curricular information on page 33.
Hydraulic Power and Motion Control

The objective of this degree program is to prepare students to service, design, and sell hydraulic, electrohydraulic, and pneumatic equipment and systems.

Career opportunities

Hydraulic power and motion control is rapidly expanding into numerous segments of industry. Hydraulic power and motion control graduates are employed as service or production technicians, test technicians, applications engineers, market and product engineers, quality control technicians, troubleshooters, and sales representatives.

Curriculum

Areas of study include power transmission, properties and application of hydraulic components, repair and maintenance of fluid power system components, system design and analysis, control circuits, electrohydraulics, instrumentation, and troubleshooting of fluid power systems.

General courses

AGRCOMM 3130 Oral Expression in Agriculture
BUSTEC 1151T General Economics
BUSTEC 1202T Software Applications
ENGLISH 1110.01 First-Year English Composition
ENGTECH 1201.01T Exploring Engineering
TECHNOLOGIES
ENGTECH 2322T Basic Electricity and Electronics
GENCOMM 1115T Technical and Business Writing
GENMATH 1145T Technical Mathematics II
GENSTDS 1201T College Orientation
TECPHYS 1150T Technical Physics
Humanities Elective
Social Science Elective

Technical courses

ENGTECH 2092T Problem Solving: Career and Society Applications
*ENGTECH 2191.02T Hydraulic Power and Motion Control Internship
ENGTECH 2121T Drafting and Computer-Aided Design
*ENGTECH 2214T Fundamentals of Fluid Power and Components
ENGTECH 2224T Fluids, Filtration, and Fluid Conveyance
*ENGTECH 2226T Components of Hydraulic Circuits
ENGTECH 2234T Basic Pneumatic Systems
*ENGTECH 2238T Electrohydraulics and System Design
ENGTECH 2242T Metals and Metal Manufacturing
ENGTECH 2248T Instrumentation and Control Systems
ENGTECH 2312T Engineering Technology Fundamentals
*ENGTECH 2325T Analog and Digital Electronics
ENGTECH 2331T Distributor Management
ENGTECH 2336T Methods of Power Transmission
ENGTECH Elective

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Hydraulic Power and Motion Control.

Course descriptions begin on page 42.

Facilities

Students utilize a state-of-the-art fluid power lab with specialized facilities and equipment in hydraulics, pneumatics, and electronics. Students design, assemble, and test an array of fluid power components and systems in the fluid power lab.

Applied learning opportunities

Hydraulic Power and Motion Control students must complete an industry internship consisting of 12 weeks of full-time employment in the field of their study.

Hydraulic Power and Motion Control students also participate in state and national industry trade shows, meetings, and scholarship programs.
Landscape Horticulture
The objective of this program is to educate individuals for leadership positions within the landscape industry specializing in design, construction, or management.

Career opportunities
Career opportunities exist with landscape companies, tree service companies, municipalities, public gardens, or other large scale landscape operations. Graduates of the landscape program can work as landscape designers; crew leaders in either landscape construction or landscape maintenance; service providers for tree care or lawn care companies; landscape managers for private estates or large commercial properties; and sales people for landscape or associated products.

Curriculum
Landscape Horticulture Technologies has three options of study – Design, Construction, and Management. There is common emphasis on the thorough knowledge of landscape plant materials, their aesthetic and cultural characteristics, as well as applications for plants within the landscape industry. Design students specialize in the graphical representation of landscapes and the functional use of landscape materials to solve client’s needs. Construction students specialize in the proper installation practices used in landscape construction. Management students specialize in the care of plants and the management of landscape maintenance operations.

General courses
AGRCOMM 3130 Oral Expression in Agriculture
BUSTEC 1151T General Economics
BUSTEC 1202T Software Applications
GENBIOL 1250T General Botany with Applications
GENCHEM 1100T Introduction to General Chemistry
GENCOMM 1115T Technical and Business Writing
GENMATH 1140T Technical Mathematics I
GENMATH 1145T Technical Mathematics II
GENSSC 1181T Hispanic Culture and Language in the Workplace
GENSTDS 1201T College Orientation
HORTTEC 1201T Exploring Horticulture
Humanities Elective

Technical courses
CRPSOIL 2300T Introduction to Soil Science
*HORTTEC 2110T Plant Materials I
*HORTTEC 2120T Plant Materials II
*HORTTEC 2191.30T Internship in Landscape Horticulture
*HORTTEC 2300T Sustainable Landscape Practices
*HORTTEC 2310T Landscape Estimating and Bidding
*HORTTEC 2320T Landscape Construction I
*HORTTEC 2760T Plant Health Management

Construction Specialization only
BUSTEC 2207T Problem Solving with Spreadsheets and Databases
BUSTEC 2244T Human Resource Management and Leadership
ENGTECH 2050T Introduction to Geographic Information Systems
ENGTECH 2440T Site Development and Surveying
*HORTTEC 2330T Landscape Construction II
Technical Elective

Design Specialization only
BUSTEC 2208T Multimedia in Business
BUSTEC 2232T Personal Selling
CRPSOIL 2301T Introduction to Soil Science Laboratory
HORTTEC 2340T Digital Design Applications I
*HORTTEC 2350T Digital Design Applications II
*HORTTEC 2360T Landscape Design I
*HORTTEC 2370T Landscape Design II
*HORTTEC 2780T Outdoor Gardening

Management Specialization only
BUSTEC 2207T Problem Solving with Spreadsheets and Databases
BUSTEC 2244T Human Resource Management and Leadership
CRPSOIL 2301T Introduction to Soil Science Laboratory
*HORTTEC 2189.33T Practicum in Landscape Management
*HORTTEC 2380T Introduction to Turfgrass Management & Landscape Irrigation
*HORTTEC 2390T Professional Landscape Management
HORTTEC 2720T Arboriculture

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Landscape Horticulture.

Course descriptions begin on page 42.

Facilities
Students utilize the 50-acre campus, 75-acre Secrest Arboretum, computer lab, and Landscape Design Studio to complement their class work.

Landscape students must also complete an industry internship of full-time employment in their chosen field of study.

Other degree options
Students interested in earning a bachelor’s degree may be interested in the Associate of Science program in Horticultural Science. See curricular information on page 34.
Livestock Production and Management

The objective of this program is to prepare individuals for successful employment in beef, swine, or small ruminant production or related industries.

Career opportunities
Livestock production majors may find positions in the areas of beef, swine, sheep or goat production, related service industries, and sales of related products. A variety of commercial opportunities exist in purebred, commercial or club-animal production. Graduates are also prepared for employment in entry-level positions in agri-businesses such as breed associations, artificial insemination centers, animal research laboratories, feed and pharmaceutical companies and the meat industry.

Curriculum
The curriculum emphasizes the principles and practical application of reproduction, genetics, nutrition, live animal and carcass evaluation, health, facility design, and record use in the efficient management of all phases of production. Business and accounting principles are also presented. Practical application is emphasized at the Ohio State ATI Farm Laboratory which houses beef, swine, sheep, and goats.

General courses
AGRCOMM 3130 Oral Expression in Agriculture
ANMLTEC 1201.02T Exploring Livestock Careers and Industry
ANMLTEC 3130T Principles of Animal Nutrition
ANMLTEC 3140T Animal Anatomy and Physiology
BUSTEC 1151T General Economics
BUSTEC 1202T Software Applications
GENBIOL 1200T General Biology
GENCOMM 1115T Technical and Business Writing
GENMATH 1140T Technical Mathematics I
GENSTDS 1201T College Orientation
Humanities Elective
Social Science Elective

Technical courses
AEDCON 2105 Managerial Records and Analysis
ANMLTEC 3150T Livestock Genetic Improvement
ANMLTEC 3170T Principles of Livestock Health
ANMLTEC 3200T Livestock Selection and Evaluation
ANMLTEC 3800T Principles of Farm Business Management
CRPSOIL 2228T Manure Management
Free Electives

Beef and Small Ruminant Specializations
ANMLTEC 2202T Introduction to Beef and Small Ruminant Production
*ANMLTEC 2510T Beef and Small Ruminant Operations Management
*ANMLTEC 2520T Beef and Small Ruminant Reproductive Management
ANMLTEC 3132T Principles of Ruminant Nutrition

Beef Specialization only
*ANMLTEC 2582T Leadership in Beef Operations Management
*ANMLTEC 2592T Leadership in Beef Reproduction and Marketing
*ANMLTEC 3191.02T Beef Industry Internship
ANMLTEC 3402T Beef Production and Management

Small Ruminant Specialization only
*ANMLTEC 2584T Leadership in Small Ruminant Operation Management
*ANMLTEC 2594T Leadership in Small Ruminant Reproduction and Marketing
*ANMLTEC 3191.04T Small Ruminant Industry Internship
ANMLTEC 3404T Small Ruminant Production and Management

Swine Specialization only
*ANMLTEC 2513T Swine Management Methods I
*ANMLTEC 2583T Swine Management Methods II
ANMLTEC 2603T Swine Production & Management I
ANMLTEC 2613T Swine Production & Management II
ANMLTEC 3133T Principles of Swine Nutrition
*ANMLTEC 3191.03T Swine Industry Internship

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Livestock Production and Management.

Course descriptions begin on page 42.

Facilities
Ohio State ATI’s Farm Laboratory houses a 100 cow beef herd along with 60 sows. Both herds include purebred and commercial animals. The farm also maintains a small herd of goats and a small flock of sheep.

Applied learning opportunities
Students take operations management courses (supervised, practical work experience) which provides an opportunity to apply skills learned in class.

Students also complete an industry internship consisting of 420 hours of employment in the field of their study and interest.

Other degree options
Students interested in earning a bachelor’s degree may be interested in the Associate of Science program in Livestock Science. See curricular information on page 35.
Power Equipment
The objective of this program is to prepare students for careers involving the purchase, utilization, maintenance, repair, and sale of off-road machinery.

Career opportunities
Career opportunities are available with agricultural equipment, construction equipment, and industrial equipment dealerships, manufacturers of mobile equipment, contractors, and fleet operations.

Curriculum
Areas of study include internal combustion engines, agricultural, construction, and industrial equipment, electronics, hydraulics, air conditioning, metal fabrication, power transmission, business management, marketing, and sales.

General courses
AGRCOMM 3130  Oral Expression in Agriculture
BUSTEC 1151T  General Economics
BUSTEC 1202T  Software Applications
ENGLISH 1110.01  First-Year English Composition
ENGETECH 1201.01T  Exploring Engineering Technologies
ENGETECH 2322T  Basic Electricity and Electronics
GENCOMM 1115T  Technical and Business Writing
GENMATH 1145T  Technical Mathematics II
GENSTDS 1201T  College Orientation
TECPHYS 1150T  Technical Physics
Humanities Elective
Social Science Elective

Technical courses
ENGETECH 2092T  Problem Solving: Career and Society Applications
ENGETECH 2191.03T  Power Equipment Internship
ENGETECH 2214T  Fundamentals of Fluid Power and Components
ENGETECH 2224T  Fluids, Filtration, and Fluid Conveyance
ENGETECH 2240T  Welding Technology
ENGETECH 2312T  Engineering Technology Fundamentals
ENGETECH 2314T  Introduction to Power Equipment
*ENGETECH 2324T  Engine Diagnosis and Repair
ENGETECH 2331T  Distributor Management
ENGETECH 2332T  Mobile Heating and Air Conditioning
*ENGETECH 2334T  Vehicle Electrical and Electronic Systems
ENGETECH 2336T  Methods of Power Transmission
ENGETECH 2338T  Diesel Engine Systems
*ENGETECH 2348T  Performance of Mobile Power Units
ENGETECH Elective

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Power Equipment.

Course descriptions begin on page 42.

Facilities
Students utilize a fully equipped power equipment lab. In addition, students also utilize the institute’s campus equipment along with the latest agricultural equipment in their course work.

Applied learning opportunities
Power Equipment students must complete an industry internship consisting of 12 weeks of full-time employment in the field of their study and interest.

Students participate in local and state industry trade shows, meetings, and scholarship programs.
Turfgrass Management

The objective of this program is to educate and prepare individuals for technical and management positions in the golf course and sports turf industries.

Career opportunities

Career opportunities exist with golf courses, sports turf facilities, lawn care services, sod farms, parks, educational and corporate campuses, and other institutional grounds, and other decorative and recreational users of turfgrass. With sufficient on-the-job experience, a graduate of the turfgrass program could fill one of the following positions: golf course superintendent, sports complex field operations manager, lawn care manager, sod farm manager, turf research technician, or sales representative within the turf industry.

Curriculum

The curriculum emphasizes botany, turfgrass science and turfgrass facilities management; weed, insect, and disease management; maintenance of other ornamental plants; irrigation and drainage; pesticide usage; and power equipment maintenance and operation.

General courses

AGRCOMM 3130  Oral Expression in Agriculture
BIOTECH 2218T  General and Applied Entomology
BUSTEC 1151T  General Economics
BUSTEC 1202T  Software Applications
GENBIOL 1250T  General Botany with Applications
GENCHEM 1100T  Introduction to General Chemistry
GENCOMM 1115T  Technical and Business Writing
GENMATH 1140T  Technical Mathematics I
GENSSC 1181T  Hispanic Culture and Language in the Workplace
GENSTDS 1201T  College Orientation
HORTTEC 1201T  Exploring Horticulture
Humanities elective

Technical courses

AEDECON 2105  Managerial Records and Analysis
CRPSOIL 2300T  Introduction to Soil Science
CRPSOIL 2301T  Introduction to Soil Science Laboratory
ENGTECH 2011T  Small Engine Basics
*HORTTEC 2110T  Plant Materials I
*HORTTEC 2191.50T  Turfgrass Management Internship
HORTTEC 2225T  Turf Equipment, Facility and Mechanical Systems Operation and Management
HORTTEC 2230T  Fundamentals of Turfgrass Science and Management
HORTTEC 2240T  Golf Course and Sports Turf Irrigation and Drainage
HORTTEC 2250T  Turfgrass Cultural Systems and Practices
HORTTEC 2260T  Sports Surf Operations Organization and Management
HORTTEC 2270T  Golf Course Organization and Management
HORTTEC 2880T  Principles of Weed Science
HORTTEC 2890T  Plant Diseases of Ornamentals and Turf

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Applied Science Degree in Turfgrass Management.

Course descriptions begin on page 42.

Facilities

Ohio State ATI owns and operates an 18-hole championship golf facility, Hawk’s Nest at Ohio State ATI, which provides students with the opportunity for practical applied experience with turfgrass management. In addition, the Ohio State ATI campus grounds include sports fields, turfgrass plots and a model golf hole.

Applied learning opportunities

Optional: Students can participate in a turf practicum (supervised, practical experience on campus) which provides an opportunity to apply skills learned in class.

Turfgrass students must also complete an industry internship consisting of 15 weeks (based on OSU’s academic calendar) of full-time employment at an approved turfgrass facility.

Other degree options

Students interested in earning a bachelor’s degree may be interested in the Associate of Science program in Horticultural Science. See curricular information on page 34.
Associate of Science Degree programs

Agricultural Business
The objective of the Agricultural Business program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science in Agribusiness and Applied Economics or to prepare for employment in agricultural business.

Career opportunities
Graduates with a BS in Agribusiness and Applied Economics will find careers in management, finance, marketing, resource management, and community or international development.

Curriculum
The curriculum of the agricultural business program emphasizes the application of business and economic principles to agribusiness: firms that produce, process, distribute, and sell agricultural and natural resource products.

General courses
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
BUSTEC 1201T Exploring Business
CHEM 1110 Elementary Chemistry
COMPSTD 2301 Introduction to World Literature
COMPSTD 2370 Introduction to Comparative Religion
ENGLISH 1110.01 First-Year English Composition
GENSTDS 1201T College Orientation
HISTORY 1152 American Civilization since 1877
MATH 1130 College Algebra for Business
MUSIC 2250 Music Cultures of the World
RURLSOC 1500 Introduction to Rural Sociology

Technology courses
AEDECON 2105 Managerial Records and Analysis
AGRCOMM 3130 Oral Expression in Agriculture
BUSTEC 2231T Fundamentals of Marketing
BUSTEC 2232T Personal Selling
BUSTEC 2241T Small Business Management
BUSTEC 2244T Human Resource Management and Leadership
BUSTEC 2249T Fundamentals of Business Finance
MATH 1131 Calculus for Business

Course descriptions begin on page 42.

Other degree options
An Associate of Applied Science degree is available in Agricultural Commerce. See curricular information on page 8.
Agricultural Communication

The objective of the Agricultural Communication program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree program in Agricultural Communication at The Ohio State University.

Career opportunities
Graduates with a Bachelor of Science in Agricultural Communication have many career options. A few of the possibilities include: writers and editors for agricultural publications, advertising and public relations professionals who work with agribusinesses and commodity groups, directors of communication for agricultural organizations, and on-air broadcasters and reporters for agriculture-related radio and television programs.

Curriculum
Agricultural Communication majors must choose an agriculture minor; one should be chosen at ATI. Minor options include: agribusiness, animal science, crop science, equine, horticulture, natural resources, production agriculture, and turfgrass.

General courses
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
BIOLOGY 1114 Bio Sci: Form, Function, Diversity and Ecology
COMPSSTD 2301 Introduction to World Literature
ENGLISH 1110.01 First-Year English Composition
GENCOMM 1201T Exploring Agricultural Communication, Education and Leadership
GENSTDS 1201T College Orientation
HISTORY 1152 American Civilization since 1877
MATH 1148 College Algebra
MUSIC 2250 Music Cultures of the World
PSYCH 1100 Introduction to Psychology
RURLSOC 1500 Introduction to Rural Sociology

Technology courses
AGRCOMM 3130 Oral Expression in Agriculture
CHEM 1110 Elementary Chemistry
COMLDR 2530 Introduction to Agricultural Communication, Education, and Leadership
COMLDR 3530 Foundations of Personal and Professional Leadership

Elective courses
A minimum of 14 transferable elective credits are required including the minor. Students will select a minor in consultation with their advisor.

Course descriptions begin on page 42.
Agricultural Systems Management

The objective of the Agricultural Systems Management program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Agriculture, majoring in Agricultural Systems Management.

Career opportunities

Graduates with a BS majoring in Agricultural Systems Management will have specialized in one of three specializations available within the major: Power and Machinery, Soil and Water, or Facilities Management and Planning. Graduates from this major have a wide array of opportunities based on the specialization selected. Employers include equipment manufacturers, farmstead designers, equipment dealerships, seed producers, grain cooperatives, food distributors, production agriculture, and various agriculture facility construction companies.

Curriculum

The curriculum of the AS Agricultural Systems Management program allows the student to take technical courses for the major along with general education courses required for the Bachelor of Science degree majoring in Agricultural Systems Management.

General courses

AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
OR
ENR 2367 Communicating Environmental and Natural Resources Information
ANMLTEC 2200T Introduction to Animal Sciences
COMPSSTD 2301 Introduction to World Literature
CRPSoIL 2300T Introduction to Soil Science
CRPSoIL 2301T Introduction to Soil Science Laboratory
ENGLISH 1110.01 First-Year English Composition
ENGTECH 1201.02T Exploring Construction and Agricultural Systems Management
GENSTDS 1201T College Orientation
HISTORY 1152 American Civilization since 1877
MATH 1148 College Algebra
MUSIC 2250 Music Cultures of the World
RURLSOC 1500 Introduction to Rural Sociology
TECPHYS 1150T Technical Physics

Technology courses

AEDECON 2105 Managerial Records and Analysis
BUSTEC 2241T Small Business Management
OR
ANMLTEC 3800T Principles of Farm Business Management
ENGTECH 2011T Small Engine Basics
ENGTECH 2040T Soil and Water Conservation Systems
ENGTECH 2120T Building Science: Methods and Materials
ENGTECH 2121T Drafting and Computer-Aided Design
ENGTECH 2191.04T Agricultural Systems Technology Internship
ENGTECH 2240T Welding Technology Technical Electives

Course descriptions begin on page 42.
Agriscience Education

The objective of the Agriscience Education program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree program in Agricultural Education at The Ohio State University.

Career opportunities

Graduates with a Bachelor of Science in Agricultural Education will find careers as educators in schools, extension, and agribusiness.

Curriculum

The curriculum of the Agriscience Education program will focus on the agricultural science/production specialization.

General courses

AEDECON 2001  Principles of Food and Resource Economics
AGRCOMM 2367  Agricultural Issues in Contemporary Society
BIOLOGY 1113  Bio Sci: Energy Transfer and Development
CHEM 1110  Elementary Chemistry
COMPSTD 2301  Introduction to World Literature
ENGLISH 1110.01  First-Year English Composition
GENCOMM 1201T  Exploring Agricultural Communication, Education, and Leadership
GENSTDS 1201T  College Orientation
HISTORY 1152  American Civilization since 1877
MATH 1148  College Algebra
MUSIC 2250  Music Cultures of the World
PSYCH 1100  General Psychology
RURLSOC 1500  Introduction to Rural Sociology

Technology courses

ANMLTEC 2200T  Introduction to Animal Sciences
ANMLTEC 2300T  Introduction to Animal Sciences Laboratory
ANMLTEC 3130T  Principles of Animal Nutrition
ANMLTEC 3131T  Equine Feeding and Nutrition OR
ANMLTEC 3132T  Principles of Ruminant Nutrition OR
ANMLTEC 3133T  Principles of Swine Nutrition OR
ANMLTEC 3137T  Dairy Cattle Feeding and Management
ASE 2189  Early Experience in Agriscience Education
COMLDR 2530  Introduction to Agricultural Communication, Education and Leadership
COMLDR 3530  Foundations of Personal and Professional Leadership
COMLDR 3537  Data Analysis in the Applied Sciences
CRPSOIL 2300T  Introduction to Soil Science
CRPSOIL 2301T  Introduction to Soil Science Laboratory
ENGTECH 2011T  Small Engine Basics
HCS 2200  The Science of Sustainable Plant Production

Course descriptions begin on page 42.
Agronomy
The objective of the agronomy program is to prepare students to complete a Bachelor of Science degree in Sustainable Plant Systems with an Agronomy emphasis or for employment in the crop production and agricultural services industry.

Career opportunities
Graduates with a BS in Sustainable Plant Systems: Agronomy may find careers as independent crop producers; professional agricultural consultants; technical representatives for seed, fertilizer, equipment and agrochemical companies; and other related careers.

Curriculum
The agronomy program curriculum provides students with the opportunity to take technical courses in crop production along with general education courses required for the Bachelor of Science degree in Sustainable Plant Systems with an Agronomy emphasis.

General courses
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1110 Elementary Chemistry
COMPSTD 2301 Introduction to World Literature
CRPSOIL 1201T Exploring Agronomy, Sustainable Agriculture, and Crop Management and Soil Conservation
ENGLISH 1110.01 First-Year English Composition
GENSTDS 1201T College Orientation
HCS 2200 Science of Sustainable Plant Production
HISTORY 1152 American Civilization since 1877
MATH 1148 College Algebra
MUSIC 2250 Music Cultures of the World
RURLSOC 1500 Introduction to Rural Sociology

Technology courses
BIOTECH 2218T General and Applied Entomology
CRPSOIL 2189T Practicum in Crop and Soil Technologies
CRPSOIL 2301T Introduction to Soil Science Laboratory
CRPSOIL 2300T Introduction to Soil Science
CRPSOIL 2411T Grain and Oilseed Crops
CRPSOIL 2412T Forage Crops
CRPSOIL 2422T Principles of Weed Control
CRPSOIL 2580T Soil Fertility and Fertilizers
HCS 2201 Ecology of Managed Plant Systems

Course descriptions begin on page 42.

Other degree options
An Associate of Applied Science degree is available in Crop Management and Soil Conservation. An Associate of Science degree is available in Agricultural Systems Management and Sustainable Agriculture. See curricular information on pages 12, 24 and 37.
Biochemical Sciences

The objective of the Biochemical Sciences program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Biology, Food Science and obtain the prerequisites to apply for veterinary school.

Career opportunities

Graduates with an Associate of Science in Biochemical Sciences can find careers as food science technicians, quality assurance technicians, research/laboratory technicians (plant, animal and environmental).

Graduates with a Bachelor of Science in Food Science can become product development scientists, quality assurance supervisors, plant managers, food processing operations supervisors, food microbiologists, technical sales managers, flavor chemists, analytical laboratory directors, food research scientists, or food biotechnologists.

Graduates with a Bachelor of Science in Biology can find careers in communications, business (pharmaceutical or sales), teaching, research biologists, biomedical or health science researchers, scientific writers, research or product development.

Graduates who further their education in a veterinary medicine program become practicing or research veterinarians.

Curriculum

Biochemical Sciences majors consist of a variety of general courses designed to give students a foundation in the natural sciences. Areas of study include: biology, chemistry, microbiology, mathematics and data analysis.

General courses

AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
BIOTECH 1201T Exploring Biochemical Sciences and Biotechnology
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1210 General Chemistry 1
CHEM 1220 General Chemistry 2
COMPSTD 2301 Introduction to World Literature
ENGLISH 1110.01 First-Year English Composition
GENSTDS 1201T College Orientation
HISTORY 1152 American Civilization since 1877
MATH 1150 Pre-Calculus
MUSIC 2250 Music Cultures of the World
RURLSOC 1500 Introduction to Rural Sociology

Technology courses

CHEM 2510 Organic Chemistry 1
CHEM 2520 Organic Chemistry 2
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves

Biology Specialization only

BIOLOGY 1114 Bio Sci: Form, Function, Diversity and Ecology
MATH 1151 Calculus I
Electives

Food Science Specialization only

AGRCCOM 3130 Oral Expression in Agriculture
COMLDR 3537 Data Analysis in the Applied Sciences
MATH 1151 Calculus I
MICRBIO 4000 Basic and Practical Microbiology

Pre-Veterinary Medicine Specialization only

BIOLOGY 1114 Bio Sci: Form, Function, Diversity and Ecology
MICRBIO 4000 Basic and Practical Microbiology
Electives

Course descriptions begin on page 42.
Community Leadership
The objective of the Community Leadership program at Ohio State ATI is for students to complete the first half of a Bachelor of Science degree program prior to enrolling in the Community Leadership program at The Ohio State University.

Career opportunities
The Community Leadership major is designed to equip students with knowledge and skills needed to exert a leadership influence in a future context. Graduates in the Community and Extension Education specialization as part of the Community Leadership major are prepared to pursue careers as After-School Educators, Extension Professionals, Non-Profit Specialists, Volunteer Trainers, Youth Leaders, and Youth Outreach Coordinators.

Curriculum
The curriculum of the Community Leadership program will focus on a variety of courses designed to give students a broad understanding of community issues and the preparation to continue in the Bachelor of Science degree in Community Leadership at The Ohio State University.

General courses
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1110 Elementary Chemistry
COMPSTD 2301 Introduction to World Literature
ENGLISH 1110.01 First-Year English Composition
GENCOMM 1201T Exploring Agricultural Communication, Education and Leadership
GENSTDS 1201T College Orientation
HISTORY 1152 American Civilization since 1877
MATH 1148 College Algebra
MUSIC 2250 Music Cultures of the World
PSYCH 1100 Introduction to Psychology
RURLSOC 1500 Introduction to Rural Sociology

Technology courses
AGRCOMM 3130 Oral Expression in Agriculture
COMLDR 2530 Introduction to Agricultural Communication, Education, and Leadership
COMLDR 3530 Foundations of Personal and Professional Leadership
COMLDR 3537 Data Analysis in the Applied Sciences

Electives
Community and Extension Education Specialization only
COMLDR 2189 Early Experience in Community and Extension Education

Course descriptions begin on page 42.
Construction Systems Management

The objective of the Construction Systems Management program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Construction Systems Management.

Career opportunities

Graduates with a BS in Construction Systems Management may be employed by contractors and construction supply companies; companies and agencies providing related materials and services; or be self-employed as a contractor, consultant, or owner/operator of a construction business in either the residential, commercial, or heavy highway/infrastructure sectors of the construction industry.

Curriculum

The curriculum of the AS Construction Systems Management program allows the student to complete both technical construction management courses along with general education courses required for the Bachelor of Science degree in Construction Systems Management.

General courses

- AEDECON 2001 Principles of Food and Resource Economics
- AGRCOMM 2367 Agricultural Issues in Contemporary Society
- COMLDR 3537 Data Analysis in the Applied Sciences
- COMPSTD 2301 Introduction to World Literature
- CRPSOIL 2300T Introduction to Soil Science
- CRPSOIL 2301T Introduction to Soil Science Laboratory
- ENGLISH 1110.01 First-Year English Composition
- ENGTECH 1201.02T Exploring Construction and Agricultural Systems Management
- GENSTDS 1201T College Orientation
- HISTORY 1152 American Civilization since 1877
- MATH 1148 College Algebra
- MUSIC 2250 Music Cultures of the World
- RURLSOC 1500 Introduction to Rural Sociology
- TECPHYS 1150T Technical Physics

Technology courses

- AEDECON 2105 Managerial Records and Analysis
- BUSTEC 1202T Software Applications
- ENGTECH 2110T Construction Drawings and Basic Estimating
- ENGTECH 2120T Building Science: Methods and Materials
- ENGTECH 2121T Drafting and Computer-Aided Design
- ENGTECH 2150T Building Science: Service Systems
- ENGTECH 2160T Estimating and Scheduling
- ENGTECH 2170T Construction Project Management
- ENGTECH 2191.01T Construction Management Internship
- ENGTECH 2440T Site Development and Surveying
- ENGTECH 2600T Construction Safety and Health

Course descriptions begin on page 42.

Other degree options

An Associate of Applied Science degree is available in Construction Management. See curricular information on page 11.
**Dairy Science**

The objective of the Dairy Science program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Animal Sciences and to educate students in techniques of dairy production and management for careers with dairy farms and associated businesses and industries.

**Career opportunities**

Graduates with a BS in Animal Sciences will find careers as managers of livestock production units; technical representatives for feed, equipment, pharmaceutical, breeding/genetics and other related companies; research or product development technicians; livestock buyers; and others.

Graduates with only an AS in Dairy Science could fill positions in herd and farm management, field representatives and technicians, or sales representatives in the dairy industry.

**Curriculum**

The curriculum of the Dairy Science program allows the student to emphasize a specialization in dairy science as part of the broader animal science field.

**General courses**

AEDECON 2001  Principles of Food and Resource Economics

AGRCOMM 2367  Agricultural Issues in Contemporary Society

OR

ANIMSCI 2367  Animals in Society

OR

ENR 2367  Communicating Environmental and Natural Resources Information

ANMLTEC 1201.07T  Exploring Dairy Careers and Industry

ANMLTEC 3140T  Animal Anatomy and Physiology

BIOLOGY 1113  Bio Sci: Energy Transfer and Development

CHEM 1110  Elementary Chemistry

OR

CHEM 1210  General Chemistry 1

COMPSTD 2301  Introduction to World Literature

ENGLISH 1110.01  First-Year English Composition

GENSTDS 1201T  College Orientation

HISTORY 1152  American Civilization since 1877

MATH 1148  College Algebra

MUSIC 2250  Music Cultures of the World

RURLSOC 1500  Introduction to Rural Sociology

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Science Degree in Dairy Science.

**Technology courses**

*ANMLTEC 2787.0XT  Applied Dairy Herd Practices and Management

2787.01T  Milking

2787.02T  Health and Reproduction

2787.03T  Nutrition and Feeding

ANMLTEC 3130T  Principles of Animal Nutrition

ANMLTEC 3137T  Dairy Cattle Feeding Management

ANMLTEC 3157T  Dairy Cattle Genetic Improvement

ANMLTEC 3167T  Dairy Cattle Milking and Reproductive Management

ANMLTEC 3177T  Dairy Cattle Health Management

*ANMLTEC 3191.07T  Dairy Industry Internship

ANMLTEC 3207T  Dairy Cattle Evaluation and Herd Records

ANMLTEC 3407T  Dairy Cattle Facilities, Environment, and Equipment

Electives: selected from a list of courses that meet additional BS general education and Animal Sciences major, minor and elective requirements: biology, chemistry, data analysis, animal science, business, engineering, and crop and soil courses.

**Facilities**

Ohio State ATI’s dairy facilities house more than 100 high-producing and genetic award winning registered Holstein, Jersey, and Brown Swiss milking cows in a free-stall barn with a drive-through total mixed ration feeding system. The fully automated double-ten parallel milking parlor is equipped with electronic identification, computerized milk weight recorders, and herd management software.

On-site computer systems house internal herd and financial records and are online with the Dairy Herd Improvement Association’s processing center and breed associations. In addition, feeding and nutrition tracking software and an electronic heat detection system are used in herd management.

**Applied learning opportunities**

Students take Applied Dairy Herd Practices and Management (supervised, practical work experience), which provides an opportunity to apply and practice skills learned in class at the ATI Dairy Laboratory during their second academic year.

Dairy students must also complete an industry internship consisting of 10 or more weeks of full-time employment in the dairy industry. Internship locations and type of dairy business – production or agri-business – are based upon student field of study or interest.

**Other degree options**

An Associate of Applied Science degree is available in Dairy Cattle Production and Management. See curricular information on page 13.
**Environment and Natural Resources**

The objective of the Environment and Natural Resources Science program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Environmental Science; Forest, Fisheries and Wildlife; Natural Resource Management; or Environmental Planning and Decision Making in the School of Natural Resources at The Ohio State University.

**Career opportunities**

Graduates with a BS from the School of Natural Resources will find careers as environmental and ecosystems scientists and consultants, land use management planners and specialists, wildlife and fisheries biologists, environmental health and safety managers, wetland and soil scientists, foresters, environmental policy analysts, outdoor recreation and park administrators, and environmental educators, naturalists, and communicators.

**Curriculum**

The curriculum of the environmental science program consists of a variety of technical and general courses designed to give students a broad understanding of environmental and natural resources issues.

**General courses**

- AEDECON 2001 Principles of Food and Resource Economics
- BIOLOGY 1113 Bio Sci: Energy Transfer and Development
- BIOLOGY 1114 Bio Sci: Form, Function, Diversity and Ecology
- CHEM 1210 General Chemistry 1
- COMPSTD 2301 Introduction to World Literature
- ENGLISH 1110.01 First-Year English Composition
- ENR 2367 Communicating Environmental and Natural Resources Information
- ENVST 1201T Exploring Environmental Science
- HISTORY 1152 American Civilization since 1877
- GENSTDS 1201T College Orientation
- MATH 1148 College Algebra
- MUSIC 2250 Music Cultures of the World
- RURLSOC 1500 Introduction to Rural Sociology

**Technology courses**

- CHEM 1220 General Chemistry 2
- COMLDR 3537 Data Analysis in the Applied Sciences
- CRPSOIL 2300T Introduction to Soil Science Laboratory
- CRPSOIL 2301T Introduction to Soil Science
- ENGTECH 2050T Introduction to Geographic Information Systems
- ENR 2100 Introduction to Environmental Science
- ENR 2300 Society and Natural Resources
- ENR 4000 Environmental and Natural Resources Policy
- Elective

Course descriptions begin on page 42.
Food Business Management
The objective of the Food Business Management program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree program in Food Business Management at The Ohio State University.

Career opportunities
Graduates with a Bachelor of Science in Food Business Management will be prepared for a variety of careers, from commodity purchasing to food product sales and management. From purple ketchup to “smart” water to the growing demand for organic products, new food developments make this a challenging and fast-paced industry.

Curriculum
Ohio State ATI’s Food Business Management program provides a balanced curriculum consisting of technical and general coursework, as well as practical experience in business classes.

General courses
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
BUSTEC 1201T Exploring Business
CHEM 1110 Elementary Chemistry
COMPSSTD 2301 Introduction to World Literature
ENGLISH 1110.01 First-Year English Composition
GENSTDS 1201T College Orientation
HISTORY 1152 American Civilization since 1877
MATH 1130 College Algebra for Business
MICRIBIO 4000 Basic and Practical Microbiology
MUSIC 2250 Music Cultures of the World
RURLSOC 1500 Introduction to Rural Sociology

Technology courses
AEDECON 2105 Managerial Records and Analysis
AGRCOMM 3130 Oral Expression in Agriculture
BUSTEC 2231T Fundamentals of Marketing
BUSTEC 2232T Personal Selling
BUSTEC 2241T Small Business Management
BUSTEC 2244T Human Resource Management and Leadership
BUSTEC 2249T Fundamentals of Business Finance
Elective

Elective courses
Choose from the following:
BUSTEC 2248T Introduction to Cooperatives
COMLDR 3537 Data Analysis in the Applied Sciences
PSYCH 1100 Introduction to Psychology

Course descriptions begin on page 42.
Horse Science
The objective of the Horse Science program at Ohio State ATI is for students to complete the equine minor prior to enrolling in a Bachelor of Science program other than Animal Sciences or to complete approximately the first half of a Bachelor of Science degree in Animal Sciences at The Ohio State University.

Career opportunities
Graduates in Horse Science are prepared for careers in horse training, horse breeding, and equine science industries.

Curriculum
The curriculum of the Horse Science program allows students to complete an associate degree which is transferable to several bachelor’s degree programs offered in the College of Food, Agricultural, and Environmental Sciences at The Ohio State University.

General courses
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
ANMLTEC 1201.01T Exploring Equine Careers and Industry
ANMLTEC 3140T Animal Anatomy and Physiology
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1110 Elementary Chemistry
COMPSSTD 2301 Introduction to World Literature
ENGLISH 1110.01 First-Year English Composition
GENSTDS 1201T College Orientation
HISTORY 1152 American Civilization since 1877
MATH 1148 College Algebra
MUSIC 2250 Music Cultures of the World
RURLSOC 1500 Introduction to Rural Sociology

Technology courses
*ANMLTEC 2189.01T Horse Practicum
ANMLTEC 2201T Introduction to Horse Science
ANMLTEC 3101T Equine Facility Maintenance and Management
ANMLTEC 3111T Equine Sales Preparation and Marketing
ANMLTEC 3130T Principles of Animal Nutrition
ANMLTEC 3131T Equine Feeding and Nutrition
ANMLTEC 3151T Horse Breeding and Selection
ANMLTEC 3161T Applied Equine Reproductive Management
ANMLTEC 3171T Horse Health and Disease
ANMLTEC 3201T Horse Judging Evaluation

Technical Electives: (2 courses)
ANMLTEC 2200T and 2300T Introduction to Animal Sciences and Lab
ANMLTEC 2801T Horsemanship and Equitation
ANMLTEC 2811T Schooling and Training the Riding Horse
ANMLTEC 3150T Livestock Genetic Improvement
*ANMLTEC 3191.01T Equine Industry Internship Experience
MICRBIO 4000 Basic and Practical Microbiology

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Science Degree in Horse Science.

Course descriptions begin on page 42.

Other degree options
An Associate of Applied Science degree is available in Horse Production and Management. See curricular information on page 16.
Horticultural Science

The objective of the Horticultural Science program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Landscape Horticulture, Turfgrass Science, or Crop Science.

Career opportunities
Graduates with a landscape horticulture specialization will find careers in design, sales, management, interiorscape, and grounds management. Turfgrass Science majors may become golf course superintendents, athletic field managers, lawn care specialists, or sod producers. Crop science specialists will find careers in nursery and greenhouse production, management, consulting, or sales and technical support for agribusiness.

Curriculum
The curriculum of the Horticultural Science program consists of a combination of general and technical courses. Selection of courses from a group of transferable electives will allow students to individualize the curriculum.

General courses
- AEDECON 2001 Principles of Food and Resource Economics
- AGRCOMM 2367 Agricultural Issues in Contemporary Society
- BIOLOGY 1113 Bio Sci: Energy Transfer and Development
- CHEM 1110 Elementary Chemistry
- COMPSTD 2301 Introduction to World Literature
- ENGLISH 1110.01 First-Year English Composition
- GENSTDS 1201T College Orientation
- HCS 2200 Science of Sustainable Plant Production
- HISTORY 1152 American Civilization since 1877
- HORTTEC 1201T Exploring Horticulture
- MATH 1148 College Algebra
- MUSIC 2250 Music Cultures of the World
- RURLSOC 1500 Introduction to Rural Sociology

Technical courses
- BIOTECH 2218T General and Applied Entomology
- HCS 2201 Ecology of Managed Plant Systems
- HORTTEC 2110T Plant Materials I
- PLNTPTH 3001 General Plant Pathology Lecture
- PLNTPTH 3002 General Plant Pathology Laboratory

Course descriptions begin on page 42.

Other degree options
Associate of Applied Science degrees are available in Greenhouse and Nursery Management, Landscape Horticulture, and Turfgrass Management. See curricular information on pages 15, 18 and 21.
Livestock Science

The objective of the Livestock Science program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree program in Animal Sciences at The Ohio State University.

Career opportunities

Graduates with a Bachelor of Science in Animal Sciences will find careers as managers of livestock production units; technical representatives for feed, equipment, pharmaceutical, breeding/genetics and other related companies; research or product development technicians; livestock buyers; and others. Practical application is emphasized at the Ohio State ATI farm laboratory.

Curriculum

The curriculum of the Livestock Science program allows the student to choose one of three specializations: beef, swine, and small ruminant.

General courses

AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
OR
ANIMSCI 2367 Animals in Society
OR
ENR 2367 Communicating Environmental and Natural Resources Information
ANMLTEC 1201.02T Exploring Livestock Careers and Industry
ANMLTEC 3140T Animal Anatomy and Physiology
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1110 Elementary Chemistry
OR
CHEM 1210 General Chemistry 1
COMPSTD 2301 Introduction to World Literature
ENGLISH 1110.01 First-Year English Composition
GENSTDS 1201T College Orientation
HISTORY 1152 American Civilization since 1877
MATH 1148 College Algebra
MUSIC 2250 Music Cultures of the World
RURLSOC 1500 Introduction to Rural Sociology

Technical courses

ANMLTEC 2200T Introduction to Animal Sciences
ANMLTEC 2300T Introduction to Animal Sciences Laboratory
ANMLTEC 3130T Principles of Animal Nutrition
ANMLTEC 3150T Livestock Genetic Improvement
ANMLTEC 3170T Principles of Livestock Health
CRPSOIL 2228T Manure Management
Electives

Beef and Small Ruminant Specializations

ANMLTEC 2202T Introduction to Beef and Small Ruminant Production
*ANMLTEC 2510T Beef and Small Ruminant Operations Management
*ANMLTEC 2520T Beef and Small Ruminant Reproductive Management
ANMLTEC 3132T Principles of Ruminant Nutrition

Beef Specialization only
ANMLTEC 3402T Beef Production and Management

Small Ruminant Specialization only
ANMLTEC 3404T Small Ruminant Production and Management

Swine Specialization only
*ANMLTEC 2513T Swine Management Methods I
ANMLTEC 2603T Swine Production & Management I
ANMLTEC 2613T Swine Production & Management II
ANMLTEC 3133T Principles of Swine Nutrition

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Science Degree in Livestock Science.

Course descriptions begin on page 42.

Other degree options

An Associate of Applied Science degree is available in Livestock Production and Management. See curricular information on page 19.
Renewable Energy
The objective of the Renewable Energy program at Ohio State ATI is to prepare students for workforce opportunities in the field of renewable energy, while completing approximately the first half of a Bachelor of Science degree.

Career opportunities
Graduates will find careers as technicians, operators, analysts, and sales representatives in bioenergy, solar, and wind technologies. The industry is constantly evolving – leading to workforce opportunities yet unnamed.

Curriculum
The Renewable Energy curriculum consists of a combination of general and technical courses allowing for two distinct specializations: bioenergy; wind and solar. Instruction includes both principles and practical application.

General courses
AEDECON 2001 Principles of Food and Resource Economics
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
COMPSTD 2301 Introduction to World Literature
ENGLISH 1110.01 First-Year English Composition
ENR 2100 Introduction to Environmental Sciences
ENR 2367 Communicating Environmental and Natural Resources Information
GENSTDS 1201T College Orientation
HISTORY 1152 American Civilization since 1877
MATH 1148 College Algebra
MUSIC 2250 Music Cultures of the World
PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves
RNEWNRG 1201T Exploring Renewable Energy
RURLSOC 1500 Introduction to Rural Sociology

Technology courses
CHEM 1210 General Chemistry 1
RNEWNRG 2010T Introduction to Renewable Energy
RNEWNRG 2040T Renewable Energy Project Planning, Development, and Operation
*RNEWNRG 2189T Renewable Energy Practicum
*RNEWNRG 2191T Renewable Energy Internship

Bioenergy Specialization only
CHEM 1220 General Chemistry 2
MICRBIO 4000 Basic and Practical Microbiology
RNEWNRG 2020T Bioconversion Systems
RNEWNRG 2030T Biomass Feedstock Evaluation and Analysis

Solar and Wind Energy Specialization only
ENGTECH 2150T Building Science: Service Systems
PHYSICS 1201 E&M, Optics, Modern Physics
RNEWNRG 2025T Solar Energy Systems
RNEWNRG 2035T Wind Energy Systems

*The student must earn a grade of “C” or higher in these courses to receive an Associate of Science Degree in Renewable Energy.

Course descriptions begin on page 42.
Sustainable Agriculture
The objective of the Sustainable Agriculture program at Ohio State ATI is to integrate principles of crop and animal management and business to build social, economic, and ecological capital in the agricultural system.

Career opportunities
Graduates find employment through entrepreneurial crop, livestock, and dairy enterprises. Graduates may find employment as farm managers and in the agricultural services industry.

Curriculum
Sustainable Agriculture majors enroll in general education and technical courses developed to enrich student’s understanding of crops, soils, animals, and marketing in the agricultural system.

General courses
AEDECON 2001  Principles of Food and Resource Economics
BIOLOGY 1114  Bio Sci: Form, Function, Diversity, and Ecology
CHEM 1110  Elementary Chemistry
OR
CHEM 1210  General Chemistry 1
COMPSTD 2301  Introduction to World Literature
CRPSOIL 1201T  Exploring Agronomy, Sustainable Agriculture, and Crop Management and Soil Conservation
ENGLISH 1110.01  First-Year English Composition
ENR 2300  Society and Natural Resources
ENR 2367  Communicating Environmental and Natural Resources Information
GENSTDS 1201T  College Orientation
HISTORY 1152  American Civilization since 1877
MATH 1148  College Algebra
MUSIC 2250  Music Cultures of the World
RURLSOC 1500  Introduction to Rural Sociology

Technology courses
AEDECON 2105  Managerial Records and Analysis
ANMLTEC 2200T  Introduction to Animal Sciences
ANMLTEC 2300T  Introduction to Animal Sciences Laboratory
ANMLTEC 2400T  Sustainable Animal Systems and Marketing
CRPSOIL 2200T  Introduction to Sustainable Agriculture
CRPSOIL 2201T  Sustainable Cropping Systems and Marketing
CRPSOIL 2210T  Sustainable Agriculture Methods
CRPSOIL 2300T  Introduction to Soil Science
CRPSOIL 2301T  Introduction to Soil Science Laboratory
CRPSOIL 3800T  Principles of Farm Business Management
OR
ANMLTEC 3800T  (cross-listed course)
ENR 2100  Introduction to Environmental Science Elective

Course descriptions begin on page 42.
**1 + 3 Program**

**Professional Golf Management**

The professional golf management (PGM) program is a four-year curriculum for aspiring PGA professionals. Students in the program are required to provide proof of an 18-hole golf handicap of 10 or better. The objective of the PGM program at Ohio State ATI is to allow students to complete the first year of the Bachelor of Science in Professional Golf Management. After one year, students transition to the Columbus campus to complete the remainder of the program.

**Career opportunities**

Graduates with a BS in Professional Golf Management have diverse career opportunities, including Director of Golf, Head Golf Professional, Director of Instruction, Tournament Director, golf manufacturing sales representative, golf association administrator, golf club repair and golf journalist, as well as positions in golf club research and development, general management, and golf retailing.

**Curriculum**

The PGM curriculum emphasizes the knowledge and skills necessary for success in the golf industry through extensive classroom studies, internship experience, and player development. In addition to business, finance, marketing, turfgrass science and hospitality management classes, the curriculum encompasses specialty classes in swing analysis and swing concepts, tournament operations, golf club repair, club fitting, retail merchandising, golf course design, and coaching golf.

**Facilities**

Ohio State ATI owns and operates an 18-hole championship golf facility, Hawk’s Nest at Ohio State ATI, which provides special playing privileges to PGM students in addition to the practical applied learning experiences students receive within the clubhouse and on the grounds. In addition, the Ohio State ATI campus grounds include a model golf hole for convenient practice between classes.

The following PGM courses are offered on the ATI campus:

**General courses**

- AEDECON 2001 Principles of Food and Resource Economics
- CHEM 1110 Elementary Chemistry
- COMPSTD 2301 Introduction to World Literature
- ENGLISH 1110.01 First-Year English Composition
- GENSTD 1201T College Orientation
- HISTORY 1152 American Civilization since 1877
- HORTTEC 1201T Exploring Horticulture
- MATH 1130 College Algebra for Business
  OR
- MATH 1148 College Algebra
- MUSIC 2250 Music Cultures of the World
- RURLSOC 1500 Introduction to Rural Sociology

**Technology courses**

- HCS 2250 Introduction to Professional Golf Management
- HCS 3488.02 PGM Player Development
- HCS 4191.02 PGM Internship

Course descriptions begin on page 42.

**Applied learning opportunities**

All students majoring in professional golf management are required to complete three internships prior to graduation. Students receive a total of 3 academic credit hours for these work experiences.

**Other degree options**

Students interested in the management and maintenance of golf facilities may be interested in the Associate of Applied Science in Turfgrass Management or the Associate of Science in Horticultural Science. See curricular information on pages 21 and 34.
Certificate Programs

Bioenergy
The increasing demand for energy and renewable energy sources will continue to drive the need for trained bioenergy technicians. This Certificate Program in Bioenergy will prepare students with the skills and knowledge to get started in the industry. It will also serve as a first year requirement towards an Associate of Science degree in the bioenergy program at ATI.

Career opportunities
Because of the dynamic aspects of the industry, graduates may find opportunities with start-up organizations as well as established companies. Graduates can enter the workforce as lab technicians, waste water treatment plant operators, solar array and wind turbine installers, feedstock analysts, and component sales, as well as other indirect jobs that support bioenergy construction and operations.

Gainful Employment Disclosure
The Federal Department of Education requires colleges and universities to disclose certain information for “programs that prepare students for gainful employment in recognized occupations”. We hope the information concerning our defined “Gainful Employment” programs is helpful to our current and future students as they make their academic and career decisions.


Curriculum
Areas of study include a Renewable Energy introductory course, Biomass Feedstock Evaluation and Analysis, Bioconversion Systems and two (2) practicums.

General courses
BIOLOGY 1113  Bio Sci: Energy Transfer and Development
ENGLISH 1110.01  First-Year English Composition
MATH 1148  College Algebra
RURLSOC 1500  Introduction to Rural Sociology

Technical courses
CHEM 1210  General Chemistry 1
RNEWNRG 2010T  Introduction to Renewable Energy
RNEWNRG 2020T  Bioconversion Systems
RNEWNRG 2030T  Biomass Feedstock Evaluation and Analysis
RNEWNRG 2189T  Renewable Energy Practicum

Course descriptions begin on page 42.
Hydraulic Service and Repair

The increasing complexity of equipment and a shortage of qualified maintenance personnel has created an immediate demand for skilled technicians with the ability to maintain, repair and rebuild fluid power components. This Certificate of Competency will prepare individuals with the skills and knowledge to get started in the industry. Students may choose to pursue the Associate of Applied Science degree at a later time.

Career opportunities

Because rebuilding is often more cost effective and quicker than buying new components, many large industrial users and manufacturers seek individuals with the skills to repair or rebuild pumps, valves, motors, and cylinders.

Graduates can enter the work force as a system assembler, component rebuilder, or test technician. Employment opportunities also exist with firms that specialize in the repair or rebuilding of hydraulic components and industrial machinery.

Gainful Employment Disclosure

The Federal Department of Education requires colleges and universities to disclose certain information for “programs that prepare students for gainful employment in recognized occupations”. We hope the information concerning our defined “Gainful Employment” programs is helpful to our current and future students as they make their academic and career decisions.


Curriculum

Areas of study include hydraulic principles of operation, component technology, fluid conveyance, hydraulic component rebuilding, electrical and electronics, and welding metal fabrication.

General courses

ENGTECH 1201.01T Exploring Engineering Technologies
ENGTECH 2322T Basic Electricity and Electronics
GENCOMM 1115T Technical and Business Writing
GENMATH 1140T Technical Mathematics I
GENSTDS 1201T College Orientation
Humanities or Social Science Elective

Technical courses

BUSTEC 1202T Software Applications
ENGTECH 2214T Fundamentals of Fluid Power and Components
ENGTECH 2221T Component Rebuilding
ENGTECH 2224T Fluids, Filtration, and Fluid Conveyance
ENGTECH 2240T Welding Technology
ENGTECH 2312T Engineering Technology Fundamentals
ENGTECH 2336T Methods of Power Transmission
BUSTEC Elective
ENGTECH Elective

Course descriptions begin on page 42.
Sports/Commercial Turf Equipment

The Sports/Commercial Turf Equipment Certificate of Competency program is designed to prepare aspiring turf care specialists with the applied technical skills needed in the field. These skills include the maintenance, adjustment, and repair of commercial turf equipment as well as management of turf care facilities. This program is one of a very few of its type in the country and is attracting the attention of leaders in the turf equipment and sports turf industries, where the demand for qualified employees continues to expand.

Career opportunities

Graduates work with equipment dealers, wholesalers, manufacturers, lawn care companies, landscape firms, nurseries, golf courses, parks, and professional athletic enterprises. Fulfillment of this certificate brings with it a spectrum of employment opportunities such as equipment service manager at a golf course, country club, or park, OEM sales representative, or service technician with a manufacturer, wholesaler, or dealer.

Gainful Employment Disclosure

The Federal Department of Education requires colleges and universities to disclose certain information for “programs that prepare students for gainful employment in recognized occupations”. We hope the information concerning our defined “Gainful Employment” programs is helpful to our current and future students as they make their academic and career decisions.


Curriculum

Areas of study include engine principles of operation, diesel engine service and repair, power transmission, hydraulics, electrical and electronics, welding/metal fabrication, and turfgrass management.

General courses

BUSTEC 1202T  Software Applications
ENGTECH 1201.01T  Exploring Engineering Technologies
ENGTECH 2322T  Basic Electricity and Electronics
GENCOMM 1115T  Technical and Business Writing
GENMATH 1140T  Technical Mathematics I
GENSTDS 1201T  College Orientation
Social Science Elective

Technical courses

ENGTECH 2011T  Small Engine Basics
ENGTECH 2214T  Fundamentals of Fluid Power and Components
ENGTECH 2240T  Welding Technology
ENGTECH 2312T  Engineering Technology Fundamentals
ENGTECH 2336T  Methods of Power Transmission
HORTTEC 2225T  Turf Equipment, Facility and Mechanical Systems Operation and Management
HORTTEC 2230T  Fundamentals of Turfgrass Science and Management

Course descriptions begin on page 42.
Course offerings
The following pages describe courses offered by the Agricultural Technical Institute. The most current information regarding new courses, changes to existing courses, credit hours, sections, days, times, buildings, rooms, and instructors may be found in the semester Master Schedule of Classes.

Explanation of a course listing

<table>
<thead>
<tr>
<th>A</th>
<th>Course number: 3140T</th>
<th>Animal Anatomy and Physiology</th>
<th>U 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>An introductory study of the structure and functions of the various organ systems of domestic animals.</td>
<td>Prereq: GenBiol 1200T (120T) or Biology 1113 (113) recommended. Not open to students with credit for 221T. This course is available for EM credit.</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Au, Sp. 3 cl, 1 2-hr lab.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Course title: Animal Anatomy and Physiology

Instructional level: U—Undergraduate

Credit hours: 4

B Course description:
An introductory study of the structure and functions of the various organ systems of domestic animals.

C Semesters of offering:
Su—Summer; Au—Autumn; Sp—Spring; May—May session

Classroom and laboratory hours: 3 cl, 1 2-hr lab

Course credit is earned through satisfactory completion of course work which may involve classroom, laboratory, field trip attendance, or internship participation.

Prerequisite(s): GenBiol 1200T or Biology 1113 recommended. The course number(s) or other information indicates the preparation or classification required to enroll in the course. If no department name is listed, the number(s) refers to the specific course within the same department.

Repeatability clause: Indicates the maximum number of hours a course may be repeated for credit.

General information clause: Gives general information about the course.

General Courses

General Studies (GENSTDS)

1000T Learning Strategies for Success | U 3
Focus on aiding students to develop self-awareness, positive attitudes, and learning strategies to improve their academic performance. Does not count for credit towards graduation.
Au, Sp. 3 cl. Prereq: Not open to students with credit for 100T.

1201T College Orientation | U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au, Sp. 1 cl. Prereq: Not open to students with credit for 201T or FAES 100.

General Studies: Biology (GENBIOL)

1200T General Biology | U 4
A basic course intended to provide a biological foundation, with supporting chemistry concepts, emphasizing principles and applications of biology.
Au, Sp. 3 cl, 1 2-hr lab. Prereq: Not open to students with credit for 120T or Biology 1113. This course is available for EM credit.

1250T General Botany with Applications | U 4
Introduction to the fundamental structures and processes of plants, including plant anatomy, physiology, morphology, reproduction, and genetics.
Au, Sp. 3 cl, 1 2-hr lab. Prereq: Not open to students with credit for 125T or HCS 300 or PlantBio 300. This course is available for EM credit.

2193T Individual Studies | U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies | U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

General Studies: Chemistry (GENCHEM)

1100T Introduction to General Chemistry | U 3
Develops the basic concepts of atomic structure, bonding theory, molecular structure, chemical reactions, solutions, equilibrium, and acid-base chemistry.
Au, Sp. 3 cl. Prereq: GenMath 1140T (140T). Not open to students with credit for 131T or Chem 1110 (101) or 1210 (121). This course is available for EM credit.

1150T Introduction to Organic Chemistry | U 3
Emphasizes the structure, nomenclature, and physical and chemical properties of organic and biological molecules.
Sp. 3 cl. Prereq: 1100T (131T) or Chem 1110 (101). Not open to students with credit for 132T or Chem 102. This course is available for EM credit.

2193T Individual Studies | U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies | U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.
General Studies: Communication Skills (GENCOMM)

1115T Technical and Business Writing  U 3
Principles of technical and business communication in the global setting with emphasis on practical applications for professional and business environments involving correct usage and documentation in writing, reading, speaking and listening.
Au, Sp. 3 cl. Prereq: ACT score and/or placement test. Not open to students with credit for 113T or 114T or AgrComm 2367 (367). This course is available for EM credit.

1201T Exploring Agricultural Communication, Education and Leadership  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au. 1 cl.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

General Studies: Humanities (GENHUM)

1190.01T Humanities as a Window on Cultural Pluralism: The Arts in Ghana  U 3
An introduction to specific arts and cultural contexts of Ghana, West Africa, leading to a four-week study abroad, IntStds 5797.
Sp. 3 cl. Prereq: Permission of instructor. Concur: IntStds 5797. Not open to students with credit for 190T.

1190.02T Humanities as a Window on Cultural Pluralism: Global Arts  U 3
An introduction to specific visual arts and cultural contexts of four societies: Japan, Ghana, France, USA.
Au. 3 cl. This course is available for EM credit.

1190.03T Humanities as a Window on Cultural Pluralism: US City Arts  U 3
An introduction to visual arts and cultural contexts in American cities.
Au. 3 cl. Prereq: Permission of instructor. This course is available for EM credit.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

General Studies: Mathematics (GENMATH)

1030T Developing Arithmetic and Beginning Algebra Skills  U 3
A foundation course in arithmetic and beginning algebra skills.
Emphasis is on obtaining competencies necessary to be successful in the Technical Mathematics I course.
Au, Sp. 3 cl. Prereq: Not open to students with credit for 1140T (140T) or 103T. This course is available for EM credit.

1140T Technical Mathematics I  U 3
A review of algebra and geometry fundamentals with emphasis on measurement, percent application, two and three-dimensional geometry application, and direct and inverse proportion.
Au, Sp. 3 cl. Prereq: 1030T (103T) with a grade of C- or better or placement test. Not open to students with credit for 141T. This course is available for EM credit.

1141T Business Mathematics  U 3
The mathematics of business and finance: including proportion, the income statement, simple interest, compound interest, annuities, amortization and sinking funds.
Sp. 3 cl. Prereq: 1140T (140T) or placement test. Not open to students with credit for 141T. This course is available for EM credit.

1145T Technical Mathematics II  U 3
A study of technical applications and computational methods involving variation, systems of equations, quadratic equations, graphical solutions to equations, logarithmic and exponential equations, and trigonometry.
Au, Sp. 3 cl. Prereq: 1140T (140T) with a grade of C- or better or placement test. Not open to students with credit for 145T. This course is available for EM credit.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

General Studies: Social Sciences (GENSSC)

1171T Human Relationships in the 21st Century  U 3
An introduction to psychological theories of relationships, including theories of personality, personal development, career development, work relationships, intimate relationships, marriage and family, and parenting in a diverse and changing society.
Au. 3 cl. Prereq: Not open to students with credit for 171T or 172T. This course is available for EM credit.

1181T Hispanic Culture and Language in the Workplace  U 3
Develop an understanding of how various Latino cultures influence workplace issues in order to improve the working environment and learn a basic workplace Spanish vocabulary.
Au, Sp. 3 cl. Prereq: Not open to students with credit for 184T. This course is available for EM credit.
1182T Deaf Culture and American Sign Language  U 3
Survey norms, values, attitudes, traditions, history, media, socialization, and changing technology of deaf culture. Basic American Sign Language vocabulary, syntax and fingerspelling.
Au, Sp. 3 cl. This course is available for EM credit.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

Technical Physics (TECPHYS)
1150T Technical Physics  U 5
Principles and applications of forces, motion, energy, matter, heat, thermodynamics, electricity, mechanical waves, and electromagnetic radiation.
Sp. 4 cl, 1 2-hr lab. Prereq: GenMath 1145T (145T) or Math 1148 (148) with a grade of C- or better. Not open to students with credit for 101T or 102T. This course is available for EM credit.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

Technical Courses

Animal Sciences Technology (ANMLTEC)
1201.01T Exploring Equine Careers and Industry  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au. 1 cl.

1201.02T Exploring Livestock Careers and Industry  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au. 1 cl.

1201.07T Exploring Dairy Careers and Industry  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au. 1 cl.

2100T Companion and Production Animal Appreciation  U 3
Exploration of domestic companion and production animal systems, the interactions between these two systems and each other, the environment, human health, and the economic impact of these animal industries on human behavior.
Au. 3 cl. This course is available for EM credit.

2189.01T Horse Practicum  U 1
Practical experience in supervised equine laboratories with emphasis on developing and improving competencies related to classroom objectives and horse industry standards.
Su, Au. Prereq: A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

2189.02T Practicum in Beef and Small Ruminant Production  U 1-2
Supervised practical experience in beef cattle and small ruminant production at the Ohio State ATI Farm with emphasis on developing and improving beef cattle and small ruminant production skills and competency.
Su, Au, Sp. Prereq: Completion of tractor/mobile equipment safety certification process; permission of instructor. Not open to students with 4 qtr cr hrs or 289.02T. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 4 completions.

2189.07T Practicum in Dairy Cattle Production  U 1-2
Supervised practical experience in dairy cattle production at the Ohio State ATI dairy farm with emphasis on developing and improving dairy cattle production skills and competencies.
Su, Au, Sp, May. Prereq: Permission of instructor. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 4 completions.

2190.01T Leadership in Equine Operations Management  U 1
Practical, supervised leadership experience in equine facility management with emphasis on herd and facility operations and personnel supervision.
Au. Prereq: 2189.01T (289.04T) with a grade of C or better. Not open to students with credit for 210T or above; 2201T (211T); Completion of tractor/mobile equipment safety certification process. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 2 cr hrs.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

2200T Introduction to Animal Sciences  U 3
Introduction to animal agriculture; its purpose, terms, products, problems, and basic management principles.
Au. 3 cl. Prereq: Not open to students with credit for 210T or AnimSci 200. This course is available for EM credit.
2201T Introduction to Horse Science  U 3
Fundamental survey of the development of domestic horses and breeds, terminology, behavior, uses, conformation, management and safe horse handling.
Au. 2 cl, 1 2-hr lab. Prereq: Not open to students with credit for 211T. This course is available for EM credit.

2202T Introduction to Beef and Small Ruminant Production  U 3
Overview of beef cattle, sheep, goat, and other small ruminant species industries with regard to production and marketing; focus on ruminant livestock needs and the opportunities involved in their production.
Au. 2 cl, 1 rec, 1 2-hr lab. Prereq: Not open to students with credit for 222.01T. This course is available for EM credit.

2300T Introduction to Animal Sciences Laboratory  U 1
Laboratory application of basic animal husbandry practices in the various livestock and related industries.
Au. 1 2-hr lab. Prereq or concur: 2200T. Not open to students with credit for 210T or AnimSci 200. This course is available for EM credit.

2400T Sustainable Animal Systems and Marketing  U 3
Introduction to principles, practices, and marketing of animal products in a sustainable management system.
Sp. 3 cl. Prereq: CrpSoil 2200T (220T). This course is available for EM credit.

2510T Beef and Small Ruminant Operations Management  U 1
Practical knowledge and supervised laboratory experiences with emphasis on developing competencies in beef and small ruminant general farm and animal management practices.
Au. 1 rec, 1 3-hr lab. Prereq: Completion of tractor/mobile equipment safety certification process. Not open to students with 3 or more qtr hrs of 289.01T. A grade of C or better required to meet graduation requirements.

2513T Swine Management Methods I  U 1
Supervised laboratory experience in swine production at the Ohio State ATI swine farm with emphasis on developing and improving competency in swine production skills.
Au. Sp. 1 3-hr lab. Prereq: 2200T (222.01T); 2510T and 2520T (3 cr hrs of 289.01T); permission of instructor; completion of tractor/mobile equipment safety certification process. Prereq or concur: 3170T (225T). Not open to students with 3 or more cr hrs of 292.01T. A grade of C or better required to meet graduation requirements.

2520T Beef and Small Ruminant Reproductive Management  U 1
Practical knowledge and supervised laboratory experiences with emphasis on developing competencies in beef and small ruminant reproduction and parturition management practices.
Sp. 1 rec, 1 3-hr lab. Prereq: Completion of tractor/mobile equipment safety certification process. Not open to students with 3 or more cr hrs of 289.01T. A grade of C or better required to meet graduation requirements.

2582T Leadership in Beef Operations Management  U 1
Leadership experience in supervised laboratory experiences with emphasis on developing competencies in personnel management, beef enterprise health and nutrition, and farm management.
Au. 1 rec, 1 3-hr lab. Prereq: 2202T (222.01T); 2510T and 2520T (3 cr hrs of 289.01T); completion of tractor/mobile equipment safety certification process; permission of instructor. Prereq or concur: 3170T (225T). Not available to students with 3 or more cr hrs of 292.01T. A grade of C or better required to meet graduation requirements.

2583T Swine Management Methods II  U 1
Supervised laboratory experience in swine production at the Ohio State ATI swine farm with emphasis on developing and improving leadership skills necessary for swine production and management.
Au. Sp. 1 3-hr lab. Prereq: 2513T (289.02T); Completion of tractor/mobile equipment safety certification process. Not open to students with 4 or more cr hrs of 292.02T. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 4 completions.

2584T Leadership in Small Ruminant Operation Management  U 1
Leadership experience in supervised laboratory experiences. Emphasis on developing competencies in personnel management, small ruminant enterprise health and nutrition, and farm management.
Au. 1 rec, 1 3-hr lab. Prereq: 2200T (222.01T); 2510T and 2520T (3 cr hrs of 289.01T); permission of instructor; completion of tractor/mobile equipment safety certification process. Prereq or concur: 3170T (225T). Not open to students with 3 or more cr hrs of 292.01T. A grade of C or better required to meet graduation requirements.

2592T Leadership in Beef Reproduction and Marketing  U 1
Leadership experience in supervised laboratory experiences with emphasis on developing competencies in personnel management, beef cattle reproduction management, and marketing.
Sp. 1 rec, 1 3-hr lab. Prereq: 2200T (222.01T); 2510T and 2520T (3 cr hrs of 289.01T); permission of instructor; completion of tractor/mobile equipment safety certification process. Prereq or concur: 3150T (245T). Not open to students with 3 or more cr hrs of 292.01T. A grade of C or better required to meet graduation requirements.

2594T Leadership in Small Ruminant Reproduction and Marketing  U 1
Leadership experience in supervised laboratory experiences with emphasis on developing competencies in personnel management, small ruminant enterprise reproduction, and marketing management.
Sp. 1 rec, 1 3-hr lab. Prereq: 2200T (222.01T); 2510T and 2520T (3 cr hrs of 289.01T); permission of instructor; completion of tractor/mobile equipment safety certification process. Prereq or concur: 3150T (245T). Not open to students with 3 or more cr hrs of 292.01T. A grade of C or better required to meet graduation requirements.

2603T Swine Production and Management I  U 3
A study of the basic principles of production and management for contemporary commercial swine production enterprises. 1 to 3 day field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition & fees. 
Au. 2 cl, 1 rec, 1 2-hr lab. Prereq: Not open to students with credit for 222.02T. This course is available for EM credit.

2613T Swine Production and Management II  U 3
An advanced study of the principles of managing a commercial swine enterprise. Coordination of production programs, evaluating economic performance, and a survey of contemporary swine housing and equipment options. 1 to 3 day field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition & fees. 
Sp. 2 cl, 1 2-hr lab. Prereq: 2603T (222.02T), 3140T (221T), 3170T (225T), 3130T (240T). Prereq or concur: 3133T, 3150T (205.01T or 245T). Not open to students with credit for 277T. This course is available for EM credit.
2707T Dairy Cattle Presentation  U 1
Principles and skills practiced in fitting, presenting, and merchandising dairy cattle. Field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition and fees.
Sp of even-numbered years. 3-hr lab. Prereq: Not open to students with credit for 206T. This course is available for EM credit.

2787.01T Applied Dairy Herd Practices and Management - Milking  U 1
Experience in applying, directing, and evaluating dairy herd management procedures and practices at the Ohio State ATI dairy farm; emphasis on milking practices and management.
Au, Sp. Arr. Prereq: 3167T (201T), 3177T (252T), 3207T (201T); Soph standing; permission of instructor; completion of tractor/mobile equipment safety certification process. Prereq or concur: 3407T (201T). Not open to students with credit for 257T. A grade of C or better required to meet graduation requirements.

2787.02T Applied Dairy Herd Practices and Management - Health and Reproduction  U 1
Experience in applying, directing, and evaluating dairy herd management procedures and practices at Ohio State ATI dairy farm; emphasis on health and reproduction practices and management.
Au, Sp. Arr. Prereq: 3167T (203T), 3177T (252T), 3207T (201T); Soph standing; permission of instructor; completion of tractor/mobile equipment safety certification process. Not open to students with credit for 257T. A grade of C or better required to meet graduation requirements.

2787.03T Applied Dairy Herd Practices and Management - Nutrition and Feeding  U 1
Experience in applying, directing, and evaluating dairy herd management procedures and practices at the Ohio State ATI dairy farm; emphasis on nutrition and feeding practices and management.
Au, Sp. Arr. Prereq: 3207T (201T), 3167T (201T and 203T), 3177T (252T); Soph standing; permission of instructor; completion of tractor/mobile equipment safety certification process. Prereq or concur: 3130T (240T). Not open to students with credit for 257T. A grade of C or better required to meet graduation requirements.

2797T Dairy Industry Seminar and Experience  U 1
Current trends, issues, technology, and developments in the dairy industry; emphasis on developing lifelong learning skills through evaluation of science/trade journals, participation in professional meetings, and visits to innovative businesses. 1 to 3 day field trips, including weekends, may be required. Students pay field trip costs of lodging, meals, etc. above Ohio State tuition and fees.
Sp. Arr. Prereq: Permission of instructor. Prereq or concur: GenComm 1115T (111T) or English 1110.01 (110.01). Repeatable to a maximum of 3 cr hrs or 3 completions. This course is graded S/U.

2801T Horsemanship and Equitation  U 3
Intermediate course in equitation with emphasis on continued development of balanced seat riding skills that incorporate natural horsemanship concepts into mounted work. Students should have riding proficiency at walk, trot, and canter.
Au. 1 cl, 2 rec, 2 2-hr labs. Prereq: Permission of instructor. Concur: 2189.01T or 2190.01T. Not open to students with credit for 213T. Repeatable to a maximum of 6 cr hrs. This course is available for EM credit.

2811T Schooling and Training the Riding Horse  U 3
Applied techniques of schooling and training riding horses with emphasis on producing supple, willing and knowledgeable mounts.
Sp. 2 cl. 3 1-hr labs. Prereq: 2201T (211T), 2801T (267T), permission of instructor. Concur: 2189.01T or 2190.01T. Not open to students with credit for 268.01T.

3101T Equine Facility Maintenance and Management  U 2
Principles of equine facility design and maintenance with particular emphasis on the application of skills related to managing an equine facility.
Au. 1 cl, 1 3-hr lab. Prereq: 2201T (211T) and 2189.01T (289.04T). This course is available for EM credit.

3111T Equine Sales Preparation and Marketing  U 3
Study of the basic principles of marketing horses for profit with emphasis on preparation, multi-media tools and pricing strategies.
Au. 2 cl, 1 2-hr lab. Prereq: 2201T (211T) and 3201T (212T). This course is available for EM credit.

3130T Principles of Animal Nutrition  U 2
A study of the nutrients and the basic principles involved in the feeding of domestic animals, including the characteristics/composition of feedstuffs and factors that affect feed utilization.
Au, Sp. 2 cl. Prereq: 2200T (210T) or 3140T (221T). Recommended prereq: GenBiol 1200T (120T) or Biology 1113 (113). Not open to students with credit for 214T or 240T. This course is available for EM credit.

3131T Equine Feeding and Nutrition  U 2
A study of the nutritional needs of equine and of the principles and practices involved in providing balanced rations to different nutritional classes of equine.
Sp. 1 cl, 1 3-hr lab. Prereq: 3130T; GenMath 1140T (140T) or Math 1075 (104) or Math Placement Level L, M, or N. Not open to students with credit for 214T. This course is available for EM credit.

3132T Principles in Ruminant Nutrition  U 2
Principles of beef cattle and small ruminant nutrient requirements and feeding management with emphasis on the critical evaluation and formulation of rations in current management situations.
Sp. 2 cl, 1 rec. Prereq: 2202T (222.01T), 3130T, GenMath 1140T (140T) or Math 1075 (104) or Math Placement Level L, M, or N. Not open to students with credit for 240T. This course is available for EM credit.

3133T Principles of Swine Nutrition  U 2
A study of the basic nutritional requirements of swine, common feedstuffs and ration balancing.
Sp. 2 cl, 1 rec. Prereq: 3130T (240T). This course is available for EM credit.

3137T Dairy Cattle Feeding Management  U 2
Principles of dairy cattle feeding management with emphasis on the critical evaluation and formulation of rations in current management situations.
Au. Sp. 2 3-hr labs. Prereq: GenMath 1140T (140T) or Math 1075 (104) or Math Placement Level L, M, or N. Prereq or concur: 3130T (240T). Not open to students with credit for 254T. This course is available for EM credit.
3140T Animal Anatomy and Physiology  U 4
An introductory study of the structure and functions of the various organ systems of domestic animals.
Au, Sp. 3 cl, 1 2-hr lab. Recommended prereq: GenBiol 1200T (120T) or Biology 1113 (113). Not open to students with credit for 221T. This course is available for EM credit.

3141T Racehorse Training and Conditioning  U 3
The study of the horse as an athlete, including biomechanics, physiological systems response to exercise, applied principles of conditioning and training methods, and the use of current horse rehabilitation therapeutic modalities.
Au. 2 cl, 1 3-hr lab. Prereq: 2201T (211T), 3130T (214T). Recommended prereq: 3140T (221T). Concur: 2189.01T or 2190.01T. Not open to students with credit for 262T. This course is available for EM credit.

3150T Livestock Genetic Improvement  U 3
Principles of inheritance and the genetic improvement of livestock through cellular, qualitative, and population genetics; emphasizing breeding values, selection, and mating systems.
Sp. 3 cl, 2 rec. Prereq: GenBiol 1200T (120T) or Biology 1113 (113); GenMath 1140T (140T) or Math 1075 (104) or Math Placement Level L, M, or N. Not open to students with credit for 205.01T or 245T. This course is available for EM credit.

3151T Horse Breeding and Selection  U 3
Principles of equine breeding management with emphasis on applied equine reproductive physiology, breeding methods, breeding stock management and basic genetics and selection.
Sp. 2 cl, 1 2-hr lab. Prereq: 2201T (211T). Recommended prereq: 3140T (221T) or GenBiol 1200T (120T). Not open to students with credit for 266T. This course is available for EM credit.

3157T Dairy Cattle Genetic Improvement  U 3
Principles of inheritance and the genetic improvement of dairy cattle through cellular, qualitative, and population genetics; emphasizing breeding values, selection, and mating systems.
Sp. 3 cl, 2 rec. Prereq: GenBiol 1200T (120T) or Biology 1113 (113); GenMath 1140T (140T) or Math 1075 (104) or Math Placement Level L, M, or N. Not open to students with credit for 205.03T or 245T. This course is available for EM credit.

3161T Applied Equine Reproductive Management  U 2
Advanced course in equine reproductive management with emphasis on understanding and improving equine infertility; applications of current research; and development of technical skills.
Sp. 1 cl, 1 3-hr lab. Prereq: 2201T (211T). Prereq or concur: 3151T (266T). Concur: 2189.01T or 2190.01T. Not open to students with credit for 269T.

3167T Dairy Cattle Milking and Reproductive Management  U 4
A study of recommended dairy cattle milking and reproductive management practices, based on the anatomy and physiology of the systems.
Au. 3 cl, 1 rec, 1 3-hr lab. Prereq: Not open to students with credit for 201T and 203T. This course is available for EM credit.

3170T Principles of Livestock Health  U 3
A basic introduction to the relationship between animal health and performance. Topics include: immunology, sanitation, disease etiology, and disease prevention, symptoms, and treatment.
Sp. 3 cl. Prereq or concur: 3140T (221T). Not open to students with credit for 225T. This course is available for EM credit.

3171T Horse Health and Disease  U 3
Study of equine disease, lameness and emergency first aid with emphasis on preventative health care and the manager's role with the veterinary professional.
Au. 2 cl, 1 2-hr lab. Prereq: 2201T (211T). Recommended prereq: 3140T (221T). Not open to students with credit for 264T. This course is available for EM credit.

3177T Dairy Cattle Health Management  U 4
A study of immunology and dairy cattle health management, including disease prevention, identification, and treatment of common diseases influencing the performance of dairy cattle.
Sp. 3 cl, 1 3-hr lab. Prereq: Not open to students with credit for 201T, 203T, and 252T. This course is available for EM credit.

3191.01T Equine Industry Internship Experience  U 1-3
Employment in the equine industry structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty; comprehensive report required.
Su, Au, Sp. Arr. Prereq: 2189.01T (289.04T); 2201T (211T), CPHR 2.0 or above; Soph standing, and permission of instructor. Not open to students with credit for 290.04T. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 3 completions.

3191.02T Beef Industry Internship  U 2-3
Employment in the beef industry structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty; comprehensive report required.
Su, Au, Sp. Arr. Prereq: 2202T (222.01T); 2510T and 2520T (2 cr hrs of 289.01T); CPHR 2.0 or above; permission of instructor. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 2 completions.

3191.03T Swine Industry Internship  U 2-3
Employment in swine industry structured to provide varied occupational experiences; supervised by an industry employer & coordinated by faculty; written comprehensive report required.
Su, Au, Sp. Arr. Prereq: 2513T (289.02T); 2603T (222.02T), CPHR 2.0 or above, and permission of instructor. Not open to students with credit for 290.02T. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 3 completions.

3191.04T Small Ruminant Industry Internship  U 2-3
Employment in a small ruminant industry structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty; comprehensive report required.
Su, Au, Sp. Arr. Prereq: 2202T (222.01T); 2510T and 2520T (2 cr hrs of 289.01T); CPHR 2.0 or above; permission of instructor. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 2 completions.

3191.07T Dairy Industry Internship  U 2-3
Employment in the dairy industry structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty; comprehensive report required.
Su, Au, Sp. Arr. Prereq: 3167T (201T and 203T), 3207T (202T), 3177T (252T); CPHR 2.0 or above; permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 3 completions.
3200T Livestock Selection and Evaluation  U 2
Principles of live animal selection and carcass evaluation of livestock.
Sp. 2 rec, 2 2-hr labs. Prereq: 2200T (210T or 2202T (222.01T) or 2603T (222.02T) or 3140T (221T). Not open to students with credit for 223T.

3201T Horse Judging and Evaluation  U 2
Comparative evaluation of horse conformation by breed, assessment of performance in a variety of performance disciplines; development of tools for assessing and placing show horse classes.
Sp. 1 cl, 1 3-hr lab. Prereq: Not open to students with credit for 212T. This course is available for EM credit.

3207T Dairy Cattle Evaluation and Herd Records  U 2
Comparative evaluation of dairy cattle conformation and introduction to herd performance records; emphasis on breed characteristics, functional type, lifetime profitability, and record data collection, analysis, and use.
Au. 2 3-hr labs. Prereq: Not open to students with credit for 201T and 202T. This course is available for EM credit.

3402T Beef Production and Management  U 3
The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of beef cattle in breeding and feeding production programs. 1 to 3 day field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition and fees.
Sp. 2 cl, 1 2-hr lab. Prereq: 2510T (2 cr hrs of 289.01T), 2202T (222.01T), 3130T (240T), 3140T (221T), 3150T (245T), 3170T (225T). Prereq or concur: 2520T, 3132T (240T). Not open to students with credit for 274T. This course is available for EM credit.

3404T Small Ruminant Production and Management  U 3
The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of sheep, goats, and other small ruminants.
Sp. 2 cl, 1 2-hr lab. Prereq: 2510T (2 cr hrs of 289.01T), 2202T (222.01T), 3130T (240T), 3140T (221T), 3150T (245T), 3170T (225T). Prereq or concur: 2520T, 3132T (240T). Not open to students with credit for 274T. This course is available for EM credit.

3407T Dairy Cattle Facilities, Environment, and Equipment  U 3
Design and management of dairy cattle facilities, environment, and associated equipment; emphasizing milking equipment and parlors, animal housing, environmental control, waste management, feeding systems, and utilities. 1 to 3 day field trips, including weekends, may be required. Students pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition & fees.
Au. 2 cl, 2 rec, 1 3-hr lab. Prereq: GenMath 1140T (140T) or Math 1075 (104), or Math placement level M, N, or L. Prereq or concur: 3167T (201T). Not open to students with credit for 201T and 255T. This course is available for EM credit.

3800T Principles of Farm Business Management  U 4
A study of economic and management principles involved in planning, organizing, operating, and administering a farm business; emphasis placed on developing a business plan and problem solving.
Sp. 3 cl, 1 rec, 1 2-hr lab. Prereq: AEDEcon 2105 (BusTec 101T or 102T). Prereq or concur: BusTec 1151T (151T) or AEDEcon 2001 (200). Not open to students with credit for BusTec 240T. This course is available for EM credit. Cross-listed in CrpSoil.

3887T Integrated Dairy Farm Business Management  U 4
A study of dairy farm business management combining business, financial, and animal management principles, practices, and strategies; emphasis placed on developing a business plan and problem solving.
Sp. 2 cl, 1 rec, 2 2-hr lab. Prereq: AEDEcon 2105 (BusTec 101T or 102T); BusTec 1151T (151T) or AEDEcon 2001 (200); Soph standing; minimum of 10 cr hrs in AnntiTec. Not open to students with credit for 201T and 258T. This course is available for EM credit.

Biotechnology (BIOTECH)

1201T Exploring Biochemical Sciences and Biotechnology  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au. 1 cl.

2000T Biotechnology I  U 5
An introduction to the field of biotechnology, including history and basic laboratory applications (safety, data collection, and measurements).
Au. 2 cl, 2 3-hr labs. Prereq or concur: Math 1148 (GenMath 140T) and Chem 1110 (GenChem 131T). Not open to students with credit for 270T or LabBiosc 270T.

2010T Biotechnology II  U 5
Techniques, procedures, methods of sample collection, preparation, analysis, and theory of application and operation for various analytical instruments.
Sp. 2 cl, 2 3-hr labs. Prereq: 2000T (270T or LabBiosc 270T). Not open to students with credit for 271T or LabBiosc 271T.

2100T Introductory Biochemistry  U 3
An introductory course in biochemistry, which covers the structure, function and metabolism of carbohydrates, lipids, nucleic acids, amino acids, proteins and enzymes.
Au. 3 cl, 1 rec. Prereq: Chem 1110 (102) or GenChem 132T. Not open to students with credit for 210T or LabBiosc 210T. This course is available for EM credit.

2110T Modern Genetics  U 3
The study of the three main branches of modern genetics: classical, molecular and evolutionary/population genetics.
Au. 3 cl, 1 rec. Prereq or concur: 2100T (210T or LabBiosc 210T). Not open to students with credit for 280T or LabBiosc 280T.

2120T Recombinant DNA Technology  U 5
A laboratory course in recombinant DNA technology designed as a semester-long experiment: isolate, purify, modify, amplify and sequence DNA.
Sp. 2 cl, 2 3-hr labs. Prereq: 2100T (210T or LabBiosc 210T). Not open to students with credit for 281T or LabBiosc 281T.

†2130T Animal Tissue Culture  U 2
An introductory course in the history, theory, and techniques of maintaining live animal cells in long-term culture. 2 3-hr labs. Prereq: 2100T (210T or LabBiosc 210T). Not open to students with credit for 220T or LabBiosc 220T.

2189T Biotechnology Practicum  U 1
Practical experience in supervised biotechnology laboratories with emphasis on developing and improving competencies related to classroom and career activities.
Su, Au, Sp, Arr. Prereq: Not open to students with 2 credits of 289T or LabBiosc 289T. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 2 cr hrs.
2191T Biotechnology Internship  U 3
Experience of employment in Biotechnology to provide varied
occupational experiences supervised by an employer and
coordinated by faculty.
Su, Au, Sp. Arr. Prereq: GPA 2.00 or above, and permission of
instructor. Not open to students with credit for 290T or
LabBioSc 290T. A grade of C or better is required to meet
graduation requirements.

2193T Individual Studies  U 3
Designed to give an individual student an opportunity to pursue
special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a
maximum of 10 cr hrs or 10 completions. This course is graded
S/U.

2194T Group Studies  U 3
Designed to give groups of students an opportunity to pursue
special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of
10 cr hrs or 10 completions.

2218T General and Applied Entomology  U 3
Classification, identification, life cycles, external/internal
structures, and functions of insects; common insect pests and
their damage; methods of control and their applications.
Au, Sp. 2 cl, 1 3-hr lab. Prereq: Not open to students with
credit for 218T or LabBioSc 218T. This course is available for
EM credit.

2219T Pesticides and their Use  U 3
A study of the classification of pesticides and their mode of
action, physiological effects, persistence in the environment,
benefits, hazards, use, performance, and regulation.
Au, Sp. 3 cl. Prereq: Not open to students with credit for 219T or
LabBioSc 219T. This course is available for EM credit.

Business Technology (BUSTEC)

1141T Personal Financial Management  U 1
Personal financial strategies that will enable individuals to
manage their financial resources.
1 cl. Prereq: Not open to students with credit for 141T. This
course is available for EM credit.

1151T General Economics  U 3
Study of macro and micro-economic principles applicable to
business, agricultural and personal financial decision making.
Su, Au, Sp. 3 cl. Prereq or concur: GenMath 1140T (140T),
Not open to students with credit for 151T or AEDEcon 2001
(200). This course is available for EM credit.

1201T Exploring Business  U 0.5
Promotes student success in college and preparation for a
career; explores personal and career interests, needs, goals,
and the support services available for student success.
Au. 1 cl.

1202T Software Applications  U 1
An overview of basic computer skills and study of the features
and capabilities of presentations, word processing, spreadsheet
and database software as decision management aids.
Au, Sp. 1 2-hr lab. Prereq: Not open to students with credit for
202T. This course is available for EM credit.

2100T Introduction to Business  U 3
Overview of the principles in various areas of business, such as
management, economics, finance, accounting, information
technology, and marketing.
Au, 3 cl. Prereq: Not open to students with credit for 100T.
This course is available for EM credit.

2191T Business Internship  U 3
Experience of employment in a business to provide varied
occupational experience, supervised by an employer, and
coordinated by faculty.
Su, Au, Sp. Arr. Prereq: GPA 2.00 or above, and permission of
instructor. Not open to students with credit for 290.02T or
290.03T. A grade of C or better required to meet graduation
requirements. Repeatable to a maximum of 6 cr hrs.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue
special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a
maximum of 10 cr hrs or 10 completions. This course is graded
S/U.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue
special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of
10 cr hrs or 10 completions.

2206T Introduction to Web Design  U 1
Principles of planning, designing, developing, implementing
and maintaining a web page.
Sp. 1 2-hr lab. Prereq: 1202T (202T). Not open to students
with credit for 206T. This course is available for EM credit.

2207T Problem Solving with Spreadsheets and Databases  U 2
A problem-solving approach to managing typical business
scenarios utilizing spreadsheets and databases.
Sp. 1 cl, 1 2-hr lab. Prereq: 1202T (202T). Not open to students
with credit for 204T and 205T. This course is available for EM credit.

2208T Multimedia in Business  U 2
Surveys the role of multimedia in the global business
environment. Application of multimedia to solve business
problems and effectively present yourself and your business.
Au, Sp. 1 cl, 1 3-hr lab. Prereq : 1202T (202T); AgrComm
3130 (390 or GenComm 112T). This course is available for EM
credit.

2231T Fundamentals of Marketing  U 3
A survey of the field of marketing including functions, policies,
problems, structure, strategies, and opportunities.
Sp. 3 cl. Prereq or concur: 1151T (151T) or AEDEcon 2001
(200). Not open to students with credit for 231T. This course is
available for EM credit.

2232T Personal Selling  U 3
A study of the basic principles and concepts of personal selling
with emphasis on practical application and personal interaction.
Au, Sp. 3 cl. Prereq: Not open to students with credit for 232T.
This course is available for EM credit.

2233T Advertising and Promotion  U 3
A theory of retail advertising and its practical application, with
emphasis on planning, implementation, control, merchandise
projection, and supportive promotional techniques.
Au, 2 cl, 1 2-hr lab. Prereq: Not open to students with credit for
233T. This course is available for EM credit.
2239T Real Estate Dynamics U 2
Aspects of real estate that affect ownership and marketing of real estate as marketable product investment and personal use property.
Sp. 2 cl. Prereq: Not open to students with credit for 239T. This course is available for EM credit.

2241T Small Business Management U 3
A general study of the field of small business focusing on policies, strategies, organization, operation, and problems associated with the operation of an entrepreneurial enterprise.
Au, Sp. 2 cl, 1-2 hr. lab. Prereq: 1151T (151T) or AED Econ 2001 (200); AED Econ 2105 (BusTec 101T or 102T). Not open to students with credit for 241T. This course is available for EM credit.

2244T Human Resource Management and Leadership U 3
A study of human resource, supervisory, and leadership principles and practices that focus on recruitment, training, evaluating, and compensating employees for improved productivity.
Au, Sp. 3 cl. Prereq: Not open to students with credit for 244T and 245T. This course is available for EM credit.

2247T Business Law U 3
A study of legal principles, contracts, negotiable instruments, leases, sales, product liability, and consumer protection.
Au. 3 cl. Prereq: Not open to students with credit for 247T. This course is available for EM credit.

2248T Introduction to Cooperatives U 2
An examination of business organizations including cooperatives and non-cooperatives. Analysis of the role of government in American business, with emphasis on the history, legal basis, organization, and operation of cooperatives.
Sp. 2 cl. Prereq: Not open to students with credit for 248T. This course is available for EM credit.

2249T Fundamentals of Business Finance U 3
A study of basic finance principles, such as financial institutions, time value of money, financial analysis, risk and return, budgeting, and investments.
Sp. 2 cl, 1-2 hr lab. Prereq: AED Econ 2105 (BusTec 101T or 102T). Prereq or concur: 1151T (151T) or AED Econ 2001 (200). Not open to students with credit for 249T. This course is available for EM credit.

2250T Fundamentals of International Business U 3
An overview of international business including the environment, strategies, issues, decisions, and challenges that global businesses encounter.
Sp. 2 cl, 1-2 hr rec. Prereq: 2100T (100T) or 2231T (231T) or 1151T (151T) or AED Econ 2001 (200). This course is available for EM credit.

Crop and Soil Technology (CRPSOIL)

1201T Exploring Agronomy, Sustainable Agriculture, and Crop Management and Soil Conservation U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au. 1 cl.

2189T Practicum in Crop and Soil Technologies U 1
Supervised experiences in field, laboratory, and/or industry work.
Au. Arr. A grade of C or higher required to meet graduation requirements. Repeatable to a maximum of 3 cr hrs.

2191T Crop and Soil Internship U 3
Supervised employed work experience on a crop production farm or related industries.
Su, Au, Sp. Arr. Prereq: Soph standing, and CPHR 2.0 or above, and permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs.

2193T Individual Studies U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

2200T Introduction to Sustainable Agriculture U 2
A study of the farm system as a whole and sustainable management methods for healthy soil, crop, and livestock.
Au, 1 cl, 1-3 hr lab. Prereq: Not open to students with credit for 220T. This course is available for EM credit.

2201T Sustainable Cropping Systems and Marketing U 3
A study of cropping systems and marketing strategies related to sustainable agricultural enterprises.
Au. 2 cl, 1-2 hr lab. Prereq: 2200T (220T). This course is available for EM credit.

2210T Sustainable Agriculture Methods U 1
Applications of sustainable agricultural systems including cropping, animal operations, and other business enterprises.
Au. 1 3-hr lab. Prereq: 2200T (220T). This course is available for EM credit.

2228T Manure Management U 3
A study of the biological, chemical, and physical components of animal manures; methods for safe handling and storage; and land application.
Au. 2 cl, 1 2-hr lab. This course is available for EM credit.

2265T Integrated Pest Management U 2
A review and application of sustainable methods for controlling disease, insect, and weed pests in crops.
Sp. 1 cl, 1-3 hr lab. Prereq or concur: 2411T (260T). Not open to students with credit for 265T. This course is available for EM credit.

2300T Introduction to Soil Science U 3
An introduction to soil physical, chemical, and biological properties related to plant systems, environmental quality, and construction.
Au, Sp. 3 cl. Prereq: Not open to students with credit for 221T. This course is available for EM credit.

2301T Introduction to Soil Science Laboratory U 1
Laboratory analysis of soil physical, chemical, and biological properties related to plant systems, environmental quality, and construction.
Au, Sp. 1 3-hr lab. Prereq or concur: 2300T. Not open to students with credit for 221T. This course is available for EM credit.
2324T Soil Management  U 3
A study of sustainable-use of soil resources related to soil formation, mechanics, and erosion control. 
Au. 2 cl, 1 3-hr lab. Prereq: 2300T and 2301T (221T). Not open to students with credit for 222T, 224T, and 229T. This course is available for EM credit.

2411T Grain and Oilsed Crops  U 3
A study of the cultural practices and production principles for grain and oilseed crops. 
Au. 2 cl, 1 2-hr lab. Prereq: GenBiol 1200T (120T) or 1250T (125T) or Biology 1113 (113). Not open to students with credit for 260T. This course is available for EM credit.

2412T Forage Crops  U 3
A study of grasses, legumes, and forbs used in grassland agriculture for livestock production. 
Sp. 2 cl, 1 3-hr lab. Prereq: Not open to students with credit for 262T. This course is available for EM credit.

2422T Principles of Weed Control  U 3
An introduction to biological, chemical, and mechanical methods for controlling weeds in agronomic cropping systems. 
Sp. 2 cl, 1 2-hr lab. Prereq: 2411T (260T). Not open to students with credit for 260T. This course is available for EM credit.

2580T Soil Fertility and Fertilizers  U 3
A study of plant nutrient cycles, fertilizer recommendations, application of ag-lime, fertilizers, animal manure, and municipal biosolids. 
Sp. 2 cl, 1 2-hr lab. Prereq: 2300T and 2301T (221T). Not open to students with credit for 228T. This course is available for EM credit.

3800T Principles of Farm Business Management  U 4
A study of economic and management principles involved in planning, organizing, operating, and administering a farm business; emphasis placed on developing a business plan and problem solving. 
Sp. 3 cl, 1 rec, 1 2-hr lab. Prereq: AEDEcon 2105 (BusTec 101T or 102T). Prereq or concur: BusTec 1151T (151T) or AEDEcon 2001 (200). Not open to students with credit for BusTec 240T. This course is available for EM credit. Cross-listed in AnmlTec.

Engineering Technology (ENGTECH)

1201.01T Exploring Engineering Technologies  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success. 
Au. 1 cl.

1201.02T Exploring Construction and Agricultural Systems Management  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success. 
Au. 1 cl.

2011T Small Engine Basics  U 4
A study of the theory of operation, service and maintenance and repair of small off-road gasoline and diesel engines. 
Sp. 2 cl, 2 2-hr labs. Prereq: Not open to students with credit for 240T and 247T. This course is available for EM credit.

2015T Agricultural Equipment Operation and Maintenance  U 2
A study of tractors and other agricultural equipment with emphasis on operation, maintenance and adjustment for safe, efficient operation. 
Au. 1 cl, 2 rec, 1 2-hr lab. Prereq: Not open to students with credit for 215.01T or 215.02T. This course is available for EM credit.

2016T Tillage, Planting, Harvesting, and Storage Equipment  U 3
Principles and applications of safely operating, adjusting, and maintaining agricultural equipment and storing crops. 
Au. 2 cl, 3 rec, 1 3-hr lab. Prereq: Not open to students with credit for 216T, 217T, and 231T. Recommended prereq: Completion of tractor/mobile equipment safety certification process. This course is available for EM credit.

2040T Soil and Water Conservation Systems  U 4
Introduction to erosion control, irrigation, drainage, and wetland systems with an emphasis on land surveying and mapping, system selection, and design. 
Sp. 3 cl, 1 3-hr lab. Prereq: CrpSoil 2300T and CrpSoil 2301T (221T). Not open to students with credit for 224T. This course is available for EM credit.

2050T Introduction to Geographic Information Systems  U 3
A study of spatial relationships using global positioning and geographic information systems in urban and rural landscapes. 
Sp. 1 cl, 2 2-hr labs. Prereq: GenMath 1140T (140T). Not open to students with credit for 225T. This course is available for EM credit.

2092T Problem Solving: Career and Society Applications  U 2
A multi-discipline, capstone course with emphasis on the application of problem solving and related topics in career and society settings. 
Au. 2 cl, 1 rec. Prereq: Soph standing. Not open to students with credit for 292T. This course is available for EM credit.

2110T Construction Drawings & Basic Estimating  U 2
Reading and interpretation of various types of construction drawings, as well as an introduction to material quantity calculations and estimate development. 
Au. 2 2-hr labs. Prereq: Eligible to enroll in GenMath 1140T (140T). This course is available for EM credit.

2120T Building Science: Methods & Materials  U 4
A study of materials science and installation methods used in residential and commercial construction. Emphasizes structural and architectural systems, moisture managed designs, air sealing, and thermal design for energy efficient structures. 
Au. 2 1½-hr cl, 1 rec, 1 3-hr lab. Prereq or concur: English 11110.01 (110.01) or GenComm 1111T (111T); GenMath 1145T (145T) or Math Placement Level L, M or N. Not open to students with credit for 256T and 257T. This course is available for EM credit.

2121T Drafting & Computer-Aided Design  U 3
Principles and applications of technical drawing utilizing proper drafting techniques for creating two dimensional, scaled drawings both by hand and by using current computer-aided design software. Basic computer skills required. 
Sp. 2 cl, 1 2-hr lab. Recommended prereq: Previous experience with mechanical drawing, engineering graphics, drafting, or equivalent. Not open to students with credit for 208T and 209T. This course is available for EM credit.
2150T Building Science: Service Systems  U 5
Principles, equipment, and applications of building service systems with emphasis on energy and resource conservation and sustainability. Au. 4 cl, 1 2-hr lab. Prereq: TecPhys 1150T (101T). Not open to students with credit for 254T and 255T. This course is available for EM credit.

2190T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2191T Fundamentals of Fluid Power and Components  U 4
An introduction to the fluid power industry and the principles of fluid power system operation. Characteristics of operation and performance are investigated for pumps, motors, and valves. Au. 3 cl, 1 2-hr lab. Prereq or concur: GenMath 1140T (140T). Not open to students with credit for 262T or 270T. A grade of C or better required to meet graduation requirements for Hydraulic Power and Motion Control. This course is available for EM credit.

2194T Estimating and Scheduling  U 3
Estimating complete projects and developing project schedules for standard construction projects in the residential or commercial sectors of the industry. Sp. 2 cl, 1 2-hr lab. Prereq: 2110T, 2120T (256T and 257T), 2150T (254T and 255T), and 2440T (253T), and Soph standing. Not open to students with credit for 258T. This course is available for EM credit.

2197T Construction Project Management  U 3
Principles and practices of construction project and construction business management. Sp. 1 2-hr cl, 1 2-hr lab. Prereq or concur: 2160T, and Soph standing. Not open to students with credit for 259T. This course is available for EM credit.

2191.01T Construction Management Internship  U 2-3
Construction Management occupational internship, structured to provide occupational experiences; supervised by an industry employer and coordinated by faculty. Su, Au, Sp. Arr. Prereq: 2110T and 2120T (253T, 256T, and 257T), and 2600T, and CPHR 2.0 or above, and permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 2 completions.

2191.02T Hydraulic Power and Motion Control Internship  U 3
Employment in fluid power industries; structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty. Su, Au, Sp. Arr. Prereq: 2224T (274T), 2226T (271T), and 2322T (202T); CPHR 2.0 or above; permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs.

2191.03T Power Equipment Internship  U 3
Employment in power equipment industries; structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty. Su, Au, Sp. Arr. Prereq: 2314T (262T, 270T, or 271T) and 2324T (245T), and CPHR 2.0 or above, and permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs.

2191.04T Agricultural Systems Technology Internship  U 2
Agricultural Systems Technology occupational internship structured to provide occupational experiences; supervised by an industry employer and coordinated by faculty. Su, Au, Sp. Arr. Prereq: CPHR 2.0 or above, and permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses. Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2221T Component Rebuilding  U 2
Supervised laboratory experience with emphasis on developing and improving hydraulic component service competencies related to classroom and career activities. Sp. 2 2-hr labs. Prereq: 2214T (262T or 270T). Prereq or concur: 2224T (274T) and 2336T (273T). Not open to students with credit for 289.03T.

2224T Fluids, Filtration, and Fluid Conveyance  U 2
Characteristics of hydraulic fluids; methods of filtering oils and of conveying pressurized fluids. Sp. 1 cl, 1 2-hr lab. Prereq: 2214T (262T or 270T). Not open to students with credit for 274T. This course is available for EM credit.

2226T Components and Hydraulic Circuits  U 2
A study of advanced hydraulic component topics and of how fluid power components are integrated into a complete system, including performance characteristics and energy efficiency. Sp. 1 cl, 1 2-hr lab. Prereq: 2214T (262T, 270T, or 271T) and GenMath 1145T (145T). Not open to students with credit for 272T. A grade of C or better required to meet graduation requirements for Hydraulic Power and Motion Control. This course is available for EM credit.

2234T Basic Pneumatic Systems  U 2
Principles, operation, maintenance, service, and application of pneumatic components and systems used for control and automation on industrial equipment. Au. 1 cl, 1 3-hr lab. Prereq: GenMath 1145T (145T). Not open to students with credit for 261T. This course is available for EM credit.

2238T Electrohydraulics and System Design  U 3
A study of the interface and design applications of electricity and electronics with fluid power components integrated into a complete system, including performance characteristics and energy efficiency. Au. 2 cl, 1 2-hr lab. Prereq: 2226T (272T). Not open to students with credit for 278T. A grade of C or better required to meet graduation requirements for Hydraulic Power and Motion Control. This course is available for EM credit.

2240T Welding Technology  U 3
A study of basic welding including materials, equipment, and techniques. Au, 1 cl, 2 2-hr labs. Prereq: Not open to students with credit for 250T. This course is available for EM credit.
2242T Metals and Metal Manufacturing  U 2
Introduction to metals and metal manufacturing; including materials, equipment, processes, and products.
Sp. 1 cl, 1 2-hr lab. Prereq: GenMath 1140T (140T). Not open to students with credit for 263T. This course is available for EM credit.

2248T Instrumentation and Control Systems  U 4
Techniques and equipment used for instrumentation of fluid power systems for the purposes of data acquisition and control.
Sp. 3 cl, 1 2-hr lab. Prereq: 2238T (278T). Not open to students with credit for 279T. This course is available for EM credit.

2312T Engineering Technology Fundamentals  U 3
An introduction to basic scientific and engineering concepts commonly encountered by engineering technicians emphasizing calculations, measurements, and instrumentation.
Au. 2 cl, 1 2-hr lab. This course is available for EM credit.

2314T Introduction to Power Equipment  U 3
An introduction to the off-road machinery industries, their past and future, and the application of engineering principles to the associated equipment.
Au. 2 cl, 1 3-hr lab. Prereq: Eligible to enroll in GenMath 1140T (140T). Not open to students with credit for 241T. This course is available for EM credit.

2322T Basic Electricity and Electronics  U 3
Principles of AC and DC electricity and electronics with emphasis on components, operations, and applications.
Sp. 2 cl, 1 2-hr lab. Prereq: GenMath 1140T (140T). Not open to students with credit for 202T. This course is available for EM credit.

2324T Engine Diagnosis and Repair  U 3
An advanced study of multiple cylinder diesel engine diagnostic techniques including repair and rebuilding procedures.
Sp. 1 cl, 1 rec, 2 2-hr labs. Prereq: 2011T (240T) or 2314T (241T). Not open to students with credit for 245T. A grade of C or better required to meet graduation requirements for Power Equipment. This course is available for EM credit.

2325T Analog and Digital Electronics  U 3
An introduction to analog and digital electronics with emphasis on industry applications.
Au. 2 cl, 1 2-hr lab. Prereq: 2322T (202T). Not open to students with credit for 203T. A grade of C or better required to meet graduation requirements for Hydraulic Power and Motion Control. This course is available for EM credit.

2331T Distributor Management  U 2
Organization and operation of distributor marketing of mobile equipment and fluid power components and systems; emphasis on service and parts distribution.
Sp. 2 cl. Prereq: BusTec 1151T (151T). Not open to students with credit for 280T. This course is available for EM credit.

2332T Mobile Heating and Air Conditioning  U 1
Principles, operation, maintenance, service, and repair of mobile heating and air conditioning components and systems.
Au. 1 2-hr lab. Prereq: GenMath 1140T (140T). Not open to students with credit for 243T. This course is available for EM credit.

2334T Vehicle Electrical and Electronic Systems  U 2
A study of electrical and electronic systems utilized in off-road machinery.
Au. 1 cl, 1 2-hr lab. Prereq: 2322T (202T). Prereq or concur: TecPhys 1150T (102T). Not open to students with credit for 205T. A grade of C or better required to meet graduation requirements for Power Equipment. This course is available for EM credit.

2336T Methods of Power Transmission  U 2
Comparison and evaluation of power transmission by mechanical, electrical, and fluidic means.
Au. 1 cl, 1 2-hr lab. Prereq: 2312T and GenMath 1140T (140T). Not open to students with credit for 273T. This course is available for EM credit.

2338T Diesel Engine Systems  U 3
A study of the principles, operation, and service of diesel engine systems with emphasis on fuel systems and engine controls.
Au. 2 cl, 1 3-hr lab. Prereq: 2324T (245T) and TecPhys 1150T (102T). Prereq or concur: 2334T (205T). Not open to students with credit for 248T. This course is available for EM credit.

2348T Performance of Mobile Power Units  U 2
A study of operator comfort and safety, ballast, traction, stability, hitching, engine power ratings, fuel efficiency and other factors affecting the performance and application of mobile power units.
Sp. 1 cl, 1 2-hr lab. Prereq: 2336T (273T), 2338T (248T), TecPhys 1150T (102T); Completion of tractor/mobile equipment safety certification process. Not open to students with credit for 249T. A grade of C or better required to meet graduation requirements for Power Equipment. This course is available for EM credit.

2440T Site Development and Surveying  U 4
Principles of hydrology, soil mechanics, and surveying as applied to residential and commercial construction.
Au. 2 1½-hr cl, 1 3-hr lab. Prereq or concur: 2110T or HortTec 2320T (235T); GenMath 1145T (145T) or Math Placement Level L, M, or N. Not open to students with credit for 253T. This course is available for EM credit.

2600T Construction Safety & Health  U 2
Health and construction safety awareness; focusing on OSHA 30-hour training and certification, OSHA mandated recordkeeping, and corporate health plan development.
Sp. 1 cl, 1 2-hr lab. Prereq: English 1110.01 (110.01) or GenComm 1115T (111T).

Environmental Sciences Technology (ENVSCCT)

1201T Exploring Environmental Sciences  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au. 1 cl.

2191T Environmental Internship  U 3
Experience of employment in Environmental Science to provide varied occupational experience, supervised by an employer, and coordinated by faculty.
Au, Sp. Arr. Prereq: GPA 2.0, and permission of instructor. Not open to students with credit for 290T. A grade of C or better required to meet graduation requirements.
2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

Horticultural Technology (HORTTEC)

1201T Exploring Horticulture  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au. 1 cl.

2110T Plant Materials I  U 3
Introductory course in plant identification including deciduous trees and shrubs common to the midwest covering: identification, morphology, classification, nomenclature and adaptability.
Au, Sp. 1 cl, 2 2-hr lab. Prereq: Not open to students with credit for 243T and 244T. A grade of C or better is required to meet graduation requirements for Landscape Horticulture and Turfgrass Management. This course is available for EM credit.

2120T Plant Materials II  U 3
Introductory course in plant identification including evergreen trees, shrubs, vines and herbaceous plants common to the midwest covering: identification, morphology, classification, nomenclature and adaptability.
Au, Sp. 1 cl, 2 2-hr labs. Prereq: 2110T. Not open to students with credit for 243T and 244T. A grade of C or better is required to meet graduation requirements for Landscape Horticulture and Turfgrass Management. This course is available for EM credit.

2130T Flowering and Foliage Plants  U 3
The identification, culture and use of flowering and foliage plants, including annuals, perennials, bulbs and tropical plants for indoor and outdoor use.
Sp. 2 cl, 1 3-hr lab. Prereq: Not open to students with credit for 245T. This course is available for EM credit.

2150T Horticultural Root Media  U 2
Study of horticultural root media, including functions, texture, structure, ingredients, preparation, pasteurization, pore spaces, water and nutrient holding capacity, pH, irrigation practices and containers.
Sp. 2 cl, 2 2-hr labs. This course is available for EM credit.

2189.10T Practicum in Floral Design  U 1-2
Supervised experiences in floral design and flower shop work.
Au, Sp. Arr. Prereq: 2620T (268T). A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 4 completions.

2189.21T Practicum in Greenhouse Management  U 1
Supervised experiences in greenhouse crop production.
Su, Au, Sp. Arr. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

2189.22T Practicum in Nursery Management  U 1
Supervised experiences in nursery crop production and management.
Su, Au, Sp. Arr. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

2189.30T Practicum in Landscape Horticulture  U 1-2
Supervised experiences in landscape maintenance work.
Su, Au, Sp. Arr. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 4 completions.

2189.33T Practicum in Landscape Management  U 1-2
Supervised experiences in management and landscape maintenance work.
Su, Au, Sp. Arr. Prereq: 2191.30T (290.03T). A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 4 completions.

2189.50T Turfgrass Management Practicum  U 1
Practical experience in supervised horticultural/turfgrass laboratories, with emphasis on developing and improving competencies related to classroom, laboratory and career activities.
Su, Au, Sp. Arr. Prereq: Open to Turfgrass Management majors. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 3 cr hrs.

2190.10T Practical Leadership in Floral Design  U 1-2
Supervised experiences in flower shop leadership and management.
Sp. Arr. Prereq: 2189.10T (264T and 268T). A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 2 cr hrs or 2 completions.

2190.21T Practical Leadership in Greenhouse Management  U 1
Supervised experiences in greenhouse leadership and management.
Au, Sp. Arr. Prereq: 2189.21T. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 2 cr hrs.

2191.10T Floral Design and Marketing Internship  U 1-2
Employment in the floral industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty.
Su, Au, Sp. Arr. Prereq: 1201T and 2620T (264T). A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 4 completions.

2191.21T Greenhouse Management Internship  U 1-3
Employment in the greenhouse industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty.
Su, Au, Sp. Arr. Prereq: 1201T, 2189.21T, and 2500T. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 2 completions.

2191.22T Nursery Management Internship  U 3
Employment in the nursery industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty.
Su, Au, Sp. Arr. Prereq: 1201T and 2189.22T. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs.
2191.30T Internship in Landscape Horticulture  U 3
Employment in the landscape industry structured to provide varied occupational experiences. Supervised by an industry employer and coordinated by faculty. Su, Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 6 cr hrs.

2191.50T Turfgrass Management Internship  U 3
Employment in turfgrass management industry at an approved facility structured to provide varied occupational experiences. Supervised by an industry professional and coordinated by faculty. Su, Au, Sp. Prereq: A grade of C or above in 2225T (289.05T and EngTech 219T), 2230T (223T) and 2250T (225T), and CPHR 2.0 or above. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses. Su, Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses. Su, Au, Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.

2225T Turf Equipment, Facility and Mechanical Systems Operation and Management  U 3
Principles and practices of turf facilities organization and management, equipment maintenance, operation, safety and fleet management. Au. Sp. 2 cl, 1 3-hr lab. Prereq or concur: GenMath 1140T (140T). Not open to students with credit for EngTech 219T. A grade of C or better required to meet graduation requirements for Turfgrass Management.

2230T Fundamentals of Turfgrass Science and Management  U 3
Identification, growth and development characteristics and responses, uses, and fundamental practices essential to the production and management of fine quality turf. Au. 2 cl, 1 2-hr lab. Prereq or concur: GenBiol 1250T (125T) and GenMath 1140T (140T). Not open to students with credit for 223T. A grade of C or better required to meet graduation requirements for Turfgrass Management. This course is available for EM credit.

2240T Golf Course and Sports Turf Irrigation and Drainage  U 3
Principles of design, selection, installation, maintenance, and operation of equipment and materials used in golf course and sports turfgrass irrigation and drainage systems. Sp. 4 cl, 2 3-hr labs. Prereq: GenMath 1140T (140T). Not open to students with credit for EngTech 222T. A grade of C or better required to meet graduation requirements for Turfgrass Management.

2250T Turfgrass Cultural Systems and Practices  U 3
A study of cultural and environmental factors related to maintaining fine turfgrasses with special emphasis on mathematical calculations and materials applications. Sp. 4 cl, 2 3-hr labs. Prereq: 2225T (EngTech 219T), 2230T (223T). Not open to students with credit for 225T. A grade of C or better required to meet graduation requirements for Turfgrass Management.

2260T Sports Turf Operations Organization and Management  U 3
Specialized course in sports turf management including the organization, design, construction, equipment, field surface quality, safety, personnel, finances, renovation, and maintenance of a sports turf facility. Au. 2 cl, 1 3-hr lab. Prereq: 2218T (218T), Prereq or concur: 2880T (272T) or 2890T (274T). A grade of C or better required to meet graduation requirements for Turfgrass Management.

2270T Golf Course Organization and Management  U 3
Specialized course in golf course management including the organization, design, construction, equipment, personnel, finances, and maintenance of the golf course. Au. 2 cl, 1 3-hr lab. Prereq: 2191.50T (290.05T), BioTech 2218T (218T). Prereq or concur: 2880T (272T) or 2890T (274T). Not open to students with credit for 227T. A grade of C or better required to meet graduation requirements for Turfgrass Management.

2300T Sustainable Landscape Practices  U 1
Study of sustainability as it applies to the landscape industry with emphasis on practices that promote ecologically responsible design and management. Sp. 1 cl. Prereq: Not open to students with credit for 234T. A grade of C or better required to meet graduation requirements for Landscape Horticulture. This course is available for EM credit.

2310T Landscape Estimating and Bidding  U 1
A course in reading construction details and landscape maintenance specifications to create estimates and formulate bids. Sp. 2 cl. Prereq: GenMath 1140T (140T). Prereq or concur: BusTec 2207T (204T). Not open to students with credit for 237T. A grade of C or better required to meet graduation requirements for Landscape Horticulture. This course is available for EM credit.

2320T Landscape Construction I  U 3
Common techniques for building and installing various landscape plantings, features, and structures. Applying systems required for project planning within a budget. Sp. 2 cl, 1 3-hr lab. Prereq: GenMath 1140T (140T). Not open to students with credit for 237T. A grade of C or better required to meet graduation requirements for Landscape Horticulture. This course is available for EM credit.

2330T Landscape Construction II  U 2
The second of a two course sequence dealing with the actual physical construction of selected landscape features, project planning, and management. Construction Specialization. Au. 2 3-hr labs. Prereq: 2320T (237T). Recommended prereq: 2191.30T (290.03T). Not open to students with credit for 236T. A grade of C or better required to meet graduation requirements for Landscape Horticulture.
2340T Digital Design Applications I U 1
Introductory digital photography and image editing course emphasizing composition, lighting, and exposure. Digital correction and editing with emphasis on horticultural marketing and portfolio development.
Au. 2 3-hr labs. Prereq: Not open to students with credit for 270T. This course is available for EM credit.

2350T Digital Design Applications II U 1
Introduction to digital design software used to enhance and create landscape designs in both the 2-dimensional, 3-dimensional and photo-realistic format.
Sp. 2 2-hr labs. Prereq: BusTec 1202T (202T). Not open to students with credit for 271T. A grade of C or better required to meet graduation requirements in Landscape Horticulture Design Specialization. This course is available for EM credit.

2360T Landscape Design I U 3
An introduction to landscape drafting, design and planning emphasizing proper planning procedures and considerations, drafting techniques and design representation.
Au. 1 cl, 2 3-hr labs. Prereq or concur: 2120T (244T). Not open to students with credit for 231T. A grade of C or better required to meet graduation requirements for Landscape Horticulture Design Specialization.

2370T Landscape Design II U 4
Advanced development of design skills: master planning, perspectives, functional usage and further development of graphical skills. Sustainable and ecological design, erosion and specialty situations included.
Sp. 2 cl, 2 3-hr labs. Prereq: 2360T. Recommended prereq: 2350T. Not open to students with credit for 233T. A grade of C or better required to meet graduation requirements for Landscape Horticulture Design Specialization.

2380T Introduction to Turfgrass Management and Landscape Irrigation U 4
An introduction to establishment and maintenance practices for turfgrass. Design, installation, and maintenance of irrigation systems for various landscape situations.
Au. 2 cl, 2 3-hr labs. Prereq: GenMath 1140T (140T). Recommended prereq: GenBiol 1250T (125T). Not open to students with credit for 223T and EngTech 222T. A grade of C or better required to meet graduation requirements in Landscape Horticulture Management Specialization. This course is available for EM credit.

2390T Professional Landscape Management U 3
The study of horticultural practices within professional landscape management for commercial and residential landscapes.
Sp. 2 cl, 1 3-hr lab. Prereq: 2380T (223T and EngTech 222T). Not open to students with credit for 238T. A grade of C or better required to meet graduation requirements in Landscape Horticulture Management Specialization. This course is available for EM credit.

2410T Sustainable Nursery Management and Production U 4
Principles of sustainable nursery management, marketing and production operations with an emphasis on nursery facilities and practices necessary to produce field grown and container nursery stock.
Sp. 2 cl, 2 3-hr labs. Prereq: 2120T; and GenBiol 1250T (125T) or Biology 1113 (113). Not open to students with credit for 241T and 242T.

2420T Garden Center Management U 2
Principles of retail garden center management including sales, marketing, advertising, personnel management, customer relations and management of product lines, stock and displays.
Sp. 2 cl, 2 2-hr labs. Prereq: 2120T. Not open to students with credit for 248T.

2500T Greenhouse Environment Control U 4
Principles and practices of sustainable greenhouse operation and management. Topics include glazings, frames, heating, cooling, energy conservation, nutrition, irrigation, light, plant growth and operations management.
Au. 3 cl, 1 3-hr lab. Prereq: Not open to students with credit for 251T. A grade of C or better required to meet graduation requirements in Greenhouse and Nursery Management Nursery Specialization. This course is available for EM credit.

2520T Greenhouse Perennial Production U 3
Principles and practices of greenhouse perennial plant production, including propagation, vernalization, photoperiodic treatments, production techniques, integrated pest and plant health management, and post-harvest marketing.
Au. 2 cl, 1 3-hr lab. Prereq: 2500T (251T). Not open to students with credit for 255T. This course is available for EM credit.

2540T Greenhouse Bedding and Flowering Pot Plant Production U 4
Principles and practices of greenhouse bedding and flowering pot plant production, including propagation, transplanting, nutrition, environmental requirements, height control, harvesting, pests, pathogens and post-harvest marketing.
Sp. 3 cl, 1 3-hr lab. Prereq: 2500T (251T), 2520T (255T). Not open to students with credit for 253T and 254T.

2600T Commercial Floral Design U 4
A basic course introducing the elements and principles of floral design as they relate to the construction of saleable flower arrangements and corsages.
Au. 2 cl, 2 3-hr labs. Prereq: Not open to students with credit for 262T and 264T. This course is available for EM credit.

2620T Retail Flower Shop Operation U 2
Principles and practices of management and operation of a retail flower shop with emphasis on purchasing, pricing, merchandising, selling, delivery and wire services.
Sp. 2 cl, 2 3-hr labs. Prereq: 2600T (262T and 264T). Not open to students with credit for 268T. This course is available for EM credit.

2640T Flowers for Celebrations U 4
A specialized course dealing with consulting, planning, organizing and creating floral designs and decor for wedding ceremonies and receptions, parties, and celebrations of life.
Au. 2 cl, 2 3-hr labs. Prereq: 2600T (262T and 264T). Not open to students with credit for 265T and 269T.

2660T Post-Harvest Flower Care U 2
Principles and practices of post-harvest flower care from producer to consumer with emphasis on identification and proper care and handling at the retail level.
Sp. 2 cl. Prereq: 2640T. Concurs: 2680T. Not open to students with credit for 263T. This course is available for EM credit.

2680T Contemporary Floral Design U 3
An advanced course emphasizing the artistic nature of floral design with a global perspective of contemporary styles, techniques and trends.
Sp. 1 cl, 2 3-hr labs. Prereq: 2640T. Concurs: 2660T. Not open to students with credit for 267T.
2720T Arboriculture  U 3
Principles of proper tree culture, management and care emphasizing planting, maintenance, evaluation, and diagnosis and care of tree problems.
Au. 2 cl, 1 3-hr lab. Prereq: 2120T (244T) or 2245T (249T); GenBiol 1250T (125T) or Biology 1113 (113). Not open to students with credit for 278T.

2740T Propagation of Nursery and Greenhouse Plants  U 4
Principles, techniques, skills, materials, and facilities used to propagate herbaceous and woody plants with emphasis on commercial propagation methods.
Sp. 2 cl, 2 3-hr labs. Prereq: GenBiol 1250T (125T) or Biology 1113 (113). Not open to students with credit for 246T. A grade of C or better required to meet graduation requirements for Greenhouse and Nursery Management Nursery Specialization.

2760T Plant Health Management  U 3
The care of woody and herbaceous ornamental plants including landscape sustainability and holistic management practices.
Au, Sp. 2 cl, 1 3-hr lab. Prereq: 2110T or 2130T; GenBiol 1250T (125T). Not open to students with credit for 2890T (274T or 275T) and BioTech 2218T (218T or LabBioSci 218T).
A grade of C or better required to meet graduation requirements for Greenhouse and Nursery Management Nursery Specialization and Landscape Horticulture. This course is available for EM credit.

2780T Outdoor Gardening  U 2
Fundamentals of basic gardening with emphasis on planning and maintaining specialty and theme gardens.
Au. 1 cl. 1 3-hr lab. Not open to students with credit for 276T.
A grade of C or better required to meet graduation requirements for Landscape Horticulture Design Specialization.

2880T Principles of Weed Science  U 3
A study of weed classification, ecology, plant competition, herbicide formulation, properties and uses of herbicides and weed management in horticultural crops.
Au. 2 cl. 1 2-hr lab. Prereq: GenBiol 1250T (125T). Prereq or concur: GenChem 1100T (131T). Not open to students with credit for 272T or CrpSoil 2422T (266T).
A grade of C or better required to meet graduation requirements for Turfgrass Management. This course is available for EM credit.

2890T Plant Diseases of Ornamentals and Turf  U 3
Principles and practices in diagnosing and treating plant diseases on woody ornamentals and turf.
Sp. 2 cl. 1 2-hr lab. Prereq: 2110T (243T) or 2130T (245T) or 2230T (223T) or 2245T (249T); GenBiol 1250T (125T). Not open to students with credit for 274T. A grade of C or better required to meet graduation requirements for Turfgrass Management. This course is available for EM credit.

Renewable Energy (RNEWNRG)

1201T Exploring Renewable Energy  U 0.5
Promotes student success in college and preparation for a career; explores personal and career interests, needs, goals, and the support services available for student success.
Au. 1 cl.

2010T Introduction to Renewable Energy  U 3
An introduction to conventional and alternative sources of energy, including conservation, economic and environmental issues. Practical applications of energy principles and concepts will be emphasized.
Au. 3 cl. This course is available for EM credit.

2020T Bioconversion Systems  U 3
An introduction to fermentation systems utilized in the bioenergy process, including the scientific and technical background of fermentation processes. Practical applications to operating these systems will be emphasized through hands-on lab and site experiences.
Sp. 2 cl. 1 3-hr lab. Prereq: 2010T. This course is available for EM credit.

2025T Solar Energy Systems  U 3
This course encompasses solar energy systems including the underlying principles and concepts, system components, common system configurations, siting, design, environmental considerations, economic analysis and grid integration.
Sp. 2 cl, 1 2-hr lab. Prereq: 2010T. This course is available for EM credit.

2030T Biomass Feedstock Evaluation and Analysis  U 3
An introduction to feedstock evaluation and analysis needed for bioenergy production, outlining the bioenergy biomass preparation through hands-on laboratory experience.
Au, Sp. 2 cl, 1 3-hr lab. Prereq: 2010T. This course is available for EM credit.

2035T Wind Energy Systems  U 3
This course encompasses wind energy systems including the underlying principles and concepts, system components, common system configurations, siting, design, environmental considerations, economic analysis and grid integration.
Au. 2 cl, 1 2-hr lab. Prereq: 2010T. This course is available for EM credit.

2040T Renewable Energy Project Planning, Development, and Operation  U 3
This capstone course encompasses the integration of renewable systems to meet customer energy demands, as well as project management, finance and customer interaction.
Sp. 2 cl, 1 3-hr lab. Prereq: A grade of C- or above in 2030T or 2035T.

2189T Renewable Energy Practicum  U 1-2
Practical experience in supervised renewable energy laboratories with emphasis on developing and improving competencies related to classroom and career activities.
Su, Au, Sp. Arr. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 2 completions.

2191T Renewable Energy Internship  U 2
Experience of employment in Renewable Energy field, to provide varied occupational experience, supervised by an employer, and coordinated by faculty.
Su, Au, Sp. Arr. Prereq: GPA 2.00 or above and permission of technology coordinator. A grade of C or better required to meet graduation requirements.

2193T Individual Studies  U 1-3
Designed to give an individual student an opportunity to pursue special studies not offered in other courses.
Au. Sp. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions. This course is graded S/U.

2194T Group Studies  U 1-3
Designed to give groups of students an opportunity to pursue special studies not offered in other courses.
Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs or 10 completions.
Associate of Science Courses

Agricultural Communication (AGRCOMM)

2367 Agricultural Issues in Contemporary Society  U 3
This course helps students develop a critical understanding of agricultural, environmental and related issues facing the United States and the world while improving their writing skills. This is a second writing course. Au, Sp. 2 cl, 1 2-hr lab. Prereq: First writing course. Not open to students with credit for 367. GE writing and comm: level 2 and diversity soc div in the US course.

3130 Oral Expression in Agriculture  U 3
An introductory public speaking course that will analyze the communication process and prepare students enrolled to write and deliver speeches for various occasions and purposes. Au, Sp. 3 cl, 1-hr lab. Not open to students with credit for 390.

Agricultural, Environmental, and Development Economics (AEDECON)

2001 Principles of Food and Resource Economics  U 3
Microeconomic principles applied to allocation issues in the production, distribution, and consumption of food and natural resource use. Au, Sp. 3 cl. Not open to students with credit for 2001H (200H) or Econ 2001 (200). This course is available for EM credit. GE soc sci human, nat, and econ resources course. SS Admis Cond course.

2105 Managerial Records and Analysis  U 3
Nature and need for business records, analysis and interpretation of essential records from manager/owner viewpoint; their use in small business practices. Au, Sp. 3 cl, 1-hr lab. Prereq: 2001 (200) or 2001H (200H) or Econ 2001 (200) or 2001H (200H). Not open to students with credit for 412 or AcctMIS 2200 (211) or 2300 (212).

Agriscience Education (ASE)

2189 Early Experience in Agriscience Education  U 1
The early experience program is designed to help students explore careers and gain experience in Agriscience Education. Sp. Arr. Not open to students with credit for AEE 280.

Animal Science (ANIMSCI)

2367 Animals in Society  U 3
Introduction to the historical, social, cultural, economic and legal frameworks within which current human-animal relationships have evolved. Sp. 2 cl, 1 2-hr lab. Prereq: English 110 or 111, or equiv. Not open to students with credit for 240. GE writing and comm: level 2 and soc sci indivs and groups course.

Biology (BIOLOGY)

1113 Biological Sciences: Energy Transfer and Development  U 4
Exploration of biology and biological principles; evolution and the origin of life, cellular structure and function, bioenergetics, and genetics. A broad introduction to biology comprises both Biology 1113 and 1114. Au, Sp. 3 cl, 1 3-hr lab. Prereq: Math 1130 (130), 1148, 1150, or above, or Math Placement Level L or M. Prereq or concur: Chem 1110 (101), 1210 (121), 1610, or 1910H (201H), or permission of course coordinator. Not open to students with credit for 113. This course is available for EM credit. GE nat sci bio course. NS Admis Cond course.

1114 Biological Sciences: Form, Function, Diversity, and Ecology  U 4
Exploration of biology and biological principles; evolution and speciation, diversity in structure, function, behavior, and ecology among prokaryotes and eukaryotes. A broad introduction to biology comprises both Biology 1113 and 1114. Sp. 3 cl, 1 3-hr lab. Prereq: Math 1130 (130), 1148, or 1150 or above, or Math Placement Level L or M. Prereq or concur: Chem 1110 (101), 1210 (121), 1610, or 1910H (201H), or permission of course coordinator. Not open to students with credit for 114. This course is available for EM credit. GE nat sci bio course. NS Admis Cond course.

Chemistry (CHEM)

1110 Elementary Chemistry  U 5
Introductory course for non-science majors, including dimensional analysis, atomic structure, bonding, chemical reactions, states of matter, solutions, chemical equilibrium, acids and bases, along with topics in organic and biological chemistry. Au, Sp. 3 cl, 1 rec, 1 3-hr lab. Prereq: Eligibility to enroll in Math 1116 (116). Not open to students with credit for 1210 (121), 1250, 1610 (161), 1910H (201H), or 102. This course is available for EM credit. GE nat sci phys course (BA in ASC only). NS Admis Cond course.

1210 General Chemistry I  U 5
First course for science majors, covering dimensional analysis, atomic structure, the mole, stoichiometry, chemical reactions, states of matter, solutions, chemical equilibrium, acids and bases, along with topics in organic and biological chemistry. Au, Sp. 3 cl, 1 rec, 1 3-hr lab. Prereq: One unit of high school chemistry, and Math Placement Level L or M; or a grade of C- or above in Math 1130 (130), 1131 (131), 1148 (148), 1150 (150), or above. Not open to students with credit for 1250, 1610 (162), 1910H (202H), 122, or 125. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.

1220 General Chemistry II  U 5
Continuation of 1210 for science majors, covering solutions, kinetics, chemical equilibrium, solubility and ionic equilibria, qualitative analysis, thermodynamics, electrochemistry, descriptive chemistry, coordination compounds, and nuclear chemistry. Sp. 3 cl, 1 rec, 1 3-hr lab. Prereq: 1210, 1215, 1250, 1610 (162), 1910H (202H), or 122, and Math Placement Level L or M; or a grade of C- or above in Math 1130 (130), 1131 (131), 1148 (148), or 1150 (150), or above. Not open to students with credit for 1620 (163), 1920H (203H), or 123. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.
2510 Organic Chemistry I  U 4
Introduction to structure, nomenclature, physical properties, preparation and reactions of alkanes, alkenes, alkynes, alcohols, ethers, epoxides, aldehydes and ketones. Other topics include stereochemistry, acids, bases, and reaction mechanisms. Au. 3 cl, 1 rec. Prereq: 1220 (123), 1620 or 1920H (203H). Not open to students with credit for 252.

2520 Organic Chemistry II  U 4
Continuation from 2510, including aromatic systems, carboxylic acids, carboxylic acid derivatives, amines, carbon-carbon bond-forming reactions, polymers, carbohydrates and amino acids. Sp. 3 cl, 1 rec. Prereq: 2510, 2610 (252) or 2910H (252H). Not open to students with credit for 2620 (253) or 2920H.

Community Leadership (COMLDR)

2189 Early Experience in Community and Extension Education  U 1
The early experience program is designed to help students explore careers and gain experience in Community and Extension Education. Sp. Arr. Not open to students with credit for AEE 280.

2530 Introduction to Agricultural Communication, Education, and Leadership  U 2
Creating an awareness and understanding of the agricultural communication, education and leadership profession. The class will provide a basis for educating, communicating, and leading by synthesizing theoretical knowledge with practical application. Sp. 2 cl. Not open to students with credit for AEE 230 or AgrComm 200.

3530 Foundations of Personal and Professional Leadership  U 3
Leadership theories, principles, and concepts. Research-based theories, methods of social scientific inquiry, individual strengths, personal leadership philosophy and vision, concepts of diversity and ethics, and professional development plan. Au. 2 ½-hr cl. Not open to students with credit for AEE 342.

3537 Data Analysis in the Applied Sciences  U 3
The purpose of this course is to develop an overview and basic understanding of descriptive and inferential statistics. Au. 2 ½-hr cl, 1 2-hr lab. Prereq: Math 1130 (130) or 1148 (148). Not open to students with credit for AEE 387. GE data only course. MA Admis Cond course.

Comparative Studies (COMPSTD)

2301 Introduction to World Literature  U 3
Analysis of oral and written literatures of diverse cultures and historical periods. Au. Sp. 3cl. Prereq: English 1110 (110), or equiv. Not open to students with credit for 273. GE lit and diversity global studies course.

2370 Introduction to Comparative Religion  U 3
Introduction to the academic study of religion through comparison among major traditions (Judaism, Christianity, Islam, Hinduism, Buddhism, etc.) and smaller communities. Au. Sp. 3 cl. Prereq: English 1110 (110) or equiv. Not open to students with credit for 270 or 2370H (270H). GE cultures and ideas and diversity global studies course.

English (ENGLISH)

1109 Writing & Reading  U 4
Provides intensive practice in integrating academic reading and writing. Credit may not count toward graduation in some degree programs. Au. Sp. 4 cl. Prereq: English Placement Test score of 6. Not open to students with credit for 1101.01 (110.01), 1101.01H (110.01H), 1110.02 (110.02), 1110.02H (110.02H), 052, 060, or 110.03, or equiv.

1110.01 First-Year English Composition  U 3
Practice in the fundamentals of expository writing, as illustrated in the student’s own writing & in the essays of professional writers. May be available as a service learning course with five hours community service required at the Lima campus only. Au. Sp. 3 cl. Prereq: EduTL1902 (108.01) or 1902.04 (108.01), or English Placement Level 4. Not open to students with credit for 1109 (109.01 or 109.02), 1110.01H (110.01H), 1110.02 (110.02), 1110.02H (110.02H), 1110.03 (110.03), 1167H (167H ), 110.01, or equiv. This course is available for EM credit. GE writing and comm course: level 1.

1110.03 First-Year English Composition  U 3
Intensive practice in fundamentals of expository writing illustrated in the student’s own writing and essays of professional writers; offered in a small class setting and linked with an individual tutoring component in its concurrent course, 1193. Au. Sp. 3 cl. Prereq: 1109 or English Placement Level 5 (Placement Level 4 allowed if student requests service). Concur: 1193. Not open to students with credit for 1110.01 (110.01), 1110.01H (110.01H), 1110.02 (110.02), 1110.02H (110.02H), 1110.03, 1167H (167H), 110.03, or equiv. This course is available for EM credit only through the AP program. GE writing and comm course: level 1.

1193 Individual Studies  U 1-4
Intensive practice in fundamentals of expository writing. Au. Sp. Prereq: Permission of Director of First-Year Writing. Concur: 1110.03. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

Environment and Natural Resources (ENR)

2100 Introduction to Environmental Science  U 3
Introduction to environmental science, the ecological foundation of Introduction to environmental science, the ecological foundation of environmental systems, the ecological impacts of environmental degradation by humans, and strategies for sustainable management of environment and natural resources. Au. 3 cl. Not open to students with credit for 201. GE nat sci bio course.

2300 Society and Natural Resources  U 3
Introduction to interactions between humans, natural resources, and ecosystems from a social science perspective. Sp. 2 ½-hr cl. Prereq: Not open to students with credit for 203. GE soc sci human, nat, and econ resources course.
2367 Communicating Environmental and Natural Resources Information  U 3
Concepts, skills development, and practice in accessing and communicating information about the environment and natural resources to varied audiences; emphasis on written and oral communication.
Sp. 2 cl, 1-hr lab. Prereq: English 1110 (110) or 111. Not open to students with credit for 367 or LArc 367. GE writing and comm course: level 2.

4000 Environmental and Natural Resources Policy  U 3
Conceptual and historic development, implementation, and evaluation of environmental and natural resource policy. Sp. 2 1½-hr cl. Prereq: 2100 (201) and 2300 (203). Not open to students with credit for 400. GE soc sci orgs and polities course.

History (HISTORY)
1152 American Civilization since 1877  U 3
The political, constitutional, social and economic development of the United States from the end of Reconstruction to the present.
Au. Sp. 2 ½-hr cl. Prereq or concur: English 1110.xx. Not open to students with credit for 1150, 2002, or 152. GE historical study course.

Horticulture and Crop Science (HCS)
2200 Science of Sustainable Plant Production  U 3
Study of the cultivation, environmental, genetic, and social/cultural factors which influence the sustainable production of plants for food, fiber, ornamental and recreational uses.
Sp. 2 1½-hr cl. Not open to students with credit for 200. This course is available for EM credit. GE nat sci bio course.

2201 Ecology of Managed Plant Systems  U 4
Origin, diversification, and biogeography of plants inhabiting managed landscapes.
Sp. 3 cl, 1 2-hr lab. GE nat sci bio course.

2250 Introduction to Professional Golf Management  U 2
Acquaints students with the PGA program, including program facilities and resources, components of the PGA/PGM Program, golf history, PGA Constitution, Career Enhancement, Golf Operations, and Customer Relations.
Sp. 1 cl, 1 rec. Not open to students with credit for 250 or 350.04.

3488.02 PGM Player Development  U 1
Focus on assisting students who have not passed the PGA of America's Playing Ability Test. Encompasses golf skills evaluation, mental approach, development of a corrective action plan and re-evaluation of skills progress.
Au. 1 3-hr lab. Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

4191.02 PGM Internship  U 1
Real world job experience at golf courses, clubs, or resorts. Students are mentored by the on-site PGA professional and must complete specified written Work Experience Activities. Must be enrolled while on internship.
Su. Arr. Prereq: 2250 (250), and enrollment in Pre-Professional or Professional Golf Management majors. Repeatable to a maximum of 5 completions.

Mathematics (MATH)
1050 Precollege Mathematics I  U 5
Fractions and decimals, basic algebra, graphing lines, factoring, systems of equations. Credit for this course will not count toward graduation in any degree program.
Au. Sp. 5 cl. Prereq: 1040 (40) or 50, or Math Placement Level T, or permission of department. Not open to students with credit for any Math course above 1050 (50). This course is available for EM credit.

1075 Precollege Mathematics II  U 4
Algebraic, rational, and logarithmic expressions; functions and graphs; quadratic equations; absolute value; inequalities; and applications.
Au. Sp. 3 cl, 1 rec. Prereq: 1074 or 075, or a grade of C- or above in 1050, or Math Skills Assessment Level R or S. Not open to students with credit for any Math course above 1075, except for 1116; or for any quarter-system class above 075, except for 116. Credit for this course will not count toward graduation in any degree program. This course is available for EM credit. GE quant reason basic computation course.

1130 College Algebra for Business  U 4
Algebraic, exponential, and logarithmic functions. Matrix algebra. Applications to business.
Sp. 4 cl. Prereq: A grade of C- or above in 1075, or credit for 104, or Math Placement Level M or N. Not open to students with credit for 1131 (131), or for any Math course numbered 1149 (150) or above. This course is available for EM credit. GE quant reason math and logical anly course.

1131 Calculus for Business  U 5
Survey of calculus of one and several variables; applications to business.
Au. 5 cl. Prereq: A grade of C- or above in 1130, 1144, 1148, or 1150, or credit for 130, 148, or 150, or Math Placement Level L. Not open to students with credit for 1151 (151) or above, or 1134 (132). This course is available for EM credit. GE quant reason math and logical anly course.

1148 College Algebra  U 4
Functions: polynomial, rational, radical, exponential, and logarithmic. Introduction to right-angle trigonometry. Applications.
Au. Sp. 4 cl. Prereq: A grade of C- or above in 1075, or credit for 104 or 148, or Math Placement Level N, or permission of department. Not open to students with credit for 1144, or for Math courses numbered 1150 (150) or above. This course is available for EM credit. GE quant reason math and logical anly course.

1149 Trigonometry  U 3
Trigonometric functions and their properties. Vectors, polar coordinates and complex numbers.
Sp. 3 cl. Prereq: A grade of C- or above in 1148, or permission of department. Not open to students with credit for 1144, or for any Math course numbered 1150 (150) or above. This course is available for EM credit. GE quant reason math and logical anly course.

1150 Precalculus  U 5
Functions: polynomial, rational, radical, exponential, logarithmic, trigonometric, and inverse trigonometric. Applications.
Au. 5 cl. Prereq: Math Placement Level M. Not open to students with credit for 1144, 1148, or for 1149 or above, or for any quarter Math course numbered 150 or above. This course is available for EM credit. GE quant reason math and logical anly course.
Calculus I  U 5
Differential and integral calculus of one real variable.
Sp. 5 cl. Prereq: A grade of C- or above in 1148 and 1149, or in 1144, 1150, or 150, or Math Placement Level L. Not open to students with credit for 1152 or 152.xx, or above. This course is available for EM credit. GE quant reason math and logical anly course.

Microbiology (MICRBI0)

4000 Basic and Practical Microbiology  U 4
Provides an understanding of microorganisms and their interaction with the human experience.
Sp. 3 cl. 1 3-hr lab. Prereq: 3 cr hrs in Biology. Not open to students with credit for Microbiol 509. GE nat sci bio course.

Music (MUSIC)

2250 Music Cultures of the World  U 3
A survey of musical cultures outside the Western European tradition of the fine arts.
Au. Sp. 2 1½-hr cl, 1 rec. Prereq: Not open to students with credit for 250. GE VPA and diversity global studies course. VSP Admis Cond course.

Physics (PHYSICS)

1200 Mechanics, Kinematics, Fluids, Waves  U 5
Algebra-based introduction to classical physics: Newtons laws, fluids, waves.
Sp. 2 cl. 2 rec. 1 3-hr lab. Prereq: A grade of C- or above in Math 1148 (148), or Math Placement Level M. Not open to students with credit for 111. This course is available for EM credit. GE nat sci phys course. NS Admis Cond course.

1201 E&M, Optics, Modern Physics  U 5
Algebra-based introduction to electricity and magnetism, simple optics, overview of modern physics including special relativity and quantum mechanics.
Au. 2 cl, 2 rec. 1 3-hr lab. Prereq: 1200 (111). Not open to students with credit for 112. This course is available for EM credit. NS Admis Cond course. GE nat sci physical course.

Plant Pathology (PLNTPTH)

3001 General Plant Pathology Lecture  U 3
An introduction to plant diseases caused by fungi, bacteria, viruses, nematodes and parasitic higher plants. Video-linked to Wooster.
Au. 3 cl. Prereq: Biology 1101 (101), 1113 (113), 1115H (115H), or Entmlgy 1101 (Entomol 101). Not open to students with credit for 401 or 6001.

3002 General Plant Pathology Lab  U 2
The lab portion of general plant pathology. Lab work will include experiments involving fungi, bacteria, viruses, nematodes and parasitic higher plants. Video-linked to Wooster.
Au. 2 1½-hr labs. Prereq: Biology 1101 (101), 1113 (113), 1115H (115H), or Entmlgy 1101 (Entomol 101). Concur: 3001 (401). Not open to students with credit for 6001 or 401.

Psychology (PSYCH)

1100 Introduction to Psychology  U 3
A prerequisite to advanced courses; a broad survey of psychological science. Application of the scientific method to the empirical study of behavior with emphasis on individual and cultural differences.
Au, Sp. 2 1½-hr cl. Prereq: Not open to students with credit for 100, 100H, or 100E. This course is available for EM credit. GE soc sci indivs and groups and diversity soc div in the US course.

Rural Sociology (RURLSOC)

1500 Introduction to Rural Sociology  U 3
Principles of society, major social institutions, and social change; emphasizes social changes in rural life, rural organizations, population, and family living.
Au. Sp. 3 cl. Prereq: Not open to students with credit for 105, Social 101, or 201. GE soc sci orgs and polities and diversity soc div in the US course. SS Admis Cond course.
Faculty and staff

Administration
James Kinder, PhD, Interim Director
Steven M. Neal, PhD, Associate Director
Rhonda Billman, MS, Assistant Director

Faculty
Michael D. Amstutz, PhD, The Ohio State University, Associate Professor
John Arnold, MS, The Ohio State University, Associate Professor
Joel S. Beil, PhD, Kent State University, Assistant Professor
Nathan Crook, PhD, Bowling Green State University, Assistant Professor
Laura Dester, PhD, The Ohio State University, Associate Professor
D. Elder, PhD, The Ohio State University, Associate Professor
Jonathon Flad, PhD, Stanford University, Associate Professor
Carri A. Gerber, PhD, Cleveland State University, Associate Professor
Wesley A. Greene, PhD, Cornell University, Associate Professor
Kimberly Hostetler, MS, The Ohio State University, Associate Professor
Thomas Janini, PhD, Kent State University, Associate Professor and Chair, Division of Arts, Science and Business Technologies
Subbu Kumarapapp, PhD, Michigan State University, Assistant Professor
Teresa E. Lanker, MEd, University of Illinois, Assistant Professor and Chair, Division of Horticultural Technologies
F. Paul Lee, MS, Mississippi State University, Assistant Professor
Daniel Linden, PhD, Kansas State University, Assistant Professor
Robert W. McMahon, PhD, Iowa State University, Associate Professor
Steven M. Neal, PhD, University of Nebraska, Professor
Robert M. Rupp, MS, University of Akron, Assistant Professor
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### University Calendar – Subject to change

#### Autumn Semester 2013

- **August 17-20**: Welcome Days (Sat. – Tues.)
- **August 21**: Classes begin (Wed.)
- **September 2**: Labor Day – no classes, offices closed (Mon.)
- **November 11**: Veterans’ Day – no classes, offices closed (Mon.)
- **November 27-29**: Thanksgiving Break – no classes (Wed. – Fri.), offices closed (Thurs. – Fri.)
- **December 3**: Last day of regularly scheduled classes (Tues.)
- **December 5-11**: Final examinations (Thurs. – Wed.)
- **December 15**: Autumn commencement (Sun.) – Columbus Campus
- **December 24**: President’s Day observed – offices closed (Tues.)
- **December 25**: Christmas – offices closed (Wed.)

#### Spring Semester 2014

- **January 6**: Classes begin (Mon.)
- **January 20**: Martin Luther King Day – no classes, offices closed (Mon.)
- **March 10-14**: Spring Break (Mon. – Fri.)
- **April 21**: Last day of regularly scheduled classes (Mon.)
- **April 23-29**: Final examinations (Wed. – Tues.)
- **May 3**: ATI commencement (Sat.) – Fisher Auditorium, OARDC
- **May 4**: Spring commencement (Sun.) – Columbus Campus

#### May Session/Summer Term 2014

- **May 5**: May Session begins (Mon.)
- **May 26**: Memorial Day – no classes, offices closed (Mon.)
- **May 30**: May Session ends
- **June 16**: Summer Session begins (Mon.)
- **July 4**: Independence Day – no classes, offices closed (Fri.)
- **August 1**: Last day of regularly scheduled classes (Fri.)
- **August 4-6**: Final examinations (Mon.-Wed.)
- **August 10**: Summer commencement (Sun.) – Columbus Campus

#### Autumn Semester 2014

- **August 23-26**: Welcome Days (Sat. – Tues.)
- **August 27**: Classes begin (Wed.)
- **September 1**: Labor Day – no classes, offices closed (Mon.)
- **November 11**: Veterans’ Day – no classes, offices closed (Mon.)
- **November 26-28**: Thanksgiving Break – no classes (Wed. – Fri.), offices closed (Thurs. – Fri.)
- **December 9**: Last day of regularly scheduled classes (Tues.)
- **December 11-17**: Final examinations (Thurs. – Wed.)
- **December 21**: Autumn commencement (Sun.) – Columbus Campus
- **December 24**: President’s Day observed – offices closed (Wed.)
- **December 25**: Christmas – offices closed (Thurs.)

### Phone numbers and web sites

#### The Ohio State University
- **Agricultural Technical Institute**
  - 1328 Dover Road
  - Wooster, OH 44691-4000
  - (330) 287-1331
  - (800) 647-8283 (Ohio only)
  - www.ati.osu.edu
  - E-mail: ati@osu.edu

- **Admissions**
  - 330-287-1327

- **Academic Records**
  - 330-287-1303

- **Fees & Deposits**
  - 330-287-1264

- **Financial Aid**
  - 330-287-1214
  - http://ati.osu.edu/financial_aid/

- **Residence Life**
  - 330-287-7504
  - http://www.housing.osu.edu/ati.asp

- **Student Success Services**
  - 330-287-1340

- **Business Training/Educational Svs**
  - 1625 Wilson Road
  - Wooster, OH 44691
  - 330-287-7511
  - www.shislercenter.ohio-state.edu/nbteshome.asp

- **Columbus campus Office of Undergraduate Admissions**
  - Student Academic Services Building
  - 281 West Lane Avenue
  - Columbus, OH 43210
  - 614-292-3980
  - http://undergrad.osu.edu/

#### College of Food, Agricultural, and Environmental Sciences
- 614-292-6891
- www.cfaes.ohio-state.edu

- **Student Service Center**
  - 614-292-0300
  - http://ssc.osu.edu/

- **Office for Disability Services**
  - 614-292-3307
  - www.ods.ohio-state.edu

- **Office of Veterans Affairs**
  - 614-247-VETS (8387)
  - http://hr.osu.edu/vet/

- **Master Schedule of Classes**
  - www.buckeyelink.osu.edu