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.

Affirmative Action, Equal Employment Opportunity and Non-Discrimination/Harassment Policy

The Ohio State University is committed to building a diverse faculty and staff for employment and promotion to ensure the highest quality workforce, to reflect human diversity, and to improve opportunities for minorities and women. The university embraces human diversity and is committed to equal employment opportunity, affirmative action, and eliminating discrimination. This commitment is both a moral imperative consistent with an intellectual community that celebrates individual differences and diversity, as well as a matter of law.

Discrimination against any individual based upon protected status, which is defined as age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

For more information or questions regarding University Policy Number 1.10, contact The Ohio State University Office of Human Resources, 1590 N. High St., Suite 300, Columbus, Ohio 43201-2190; 614-292-1050.

Campuses

Columbus
Lima
Mansfield
Marion
Newark
Wooster
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, horticulture, business, engineering technologies, and the environment. Twenty-five 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/full-time faculty ratio of 19:1 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. Fifty-one percent of Ohio State ATI graduates report they had secured employment before 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), Ohio State University Extension (OSUE), and the Ohio Department of Higher Education. These affiliations provide students access to additional resources and opportunities.

The Ohio State University is a member of the Association of American Universities, the National Association of Land-Grant Colleges and State Universities, and the Higher Learning Commission (phone 800-621-7440, www.hlcommission.org).
**Academic Opportunities**

Ohio State ATI offers the Associate of Applied Science, the Associate of Science, and the Associate of Technical Study degrees. All degrees include courses in communication, social sciences, mathematics, and science basic to the technical component of the program. (The code following each program will be used on your Application for Admission)

**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:

- Business Management: BUSMGT-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

The Associate of Science degree option is available in the following areas:

- Agribusiness: AGRIBUS-AS
- Agricultural Communication: AGRCOMM-AS
- Agricultural Systems Management: AGSYSMT-AS
- Agriscience Education: ASE-AS
- Agronomy: AGRONOM-AS
- Animal Sciences: ANIMSC-AS
- Biochemical Sciences: BIOCHSC-AS
- Community Leadership: COMLDR-AS
- Construction Systems Management: CONSYSM-AS
- Environment and Natural Resources: ENVNATR-AS
- Food Business Management: FDBUSMG-AS
- Horticultural Science: HORTSCI-AS
- Sustainable Agriculture: SUSTAG-AS

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.

The 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.

**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

**Certificate of Competency**

The Certificate of Competency is a program that can be completed within a year. These programs emphasize technical courses.

- Hydraulic Service and Repair: HYDSERV-CR
- Turfgrass Equipment Manager: TURFEQP-CR
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 post-high school (may include transfer hours) and have a minimum cumulative college GPA of 2.0 are eligible to transition to the Columbus campus.

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:
- BIOLOGY 1101 $80
- BIOLOGY 1113, 1114 $50
- BIOTECH 2218T $50
- CHEM 1110, 1210, 1220 $50
- GENBIOL 1200T, 1250T $50
- PHYSICS 1200 $50

Distance education fee $100

Housing space reservation and academic-year fees $350/$125
All students in campus housing are assessed a space reservation fee of $350 ($300 of which is refunded if they complete the conditions of their lease) and a $125 per year non-refundable fee for academic year housing.

Housing – ATI Hall Council Program fee $20/semester
Required of all students living on campus.

Orientation Day $50
Required of every degree-seeking student upon first enrollment at Ohio State ATI. Nonrefundable and not applicable toward any other university fee.

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 health insurance $1683/semester
Students will be billed for health insurance through the university unless they opt out of insurance at the time of registration.

Fees and expenses
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.
## 2021-2022 Per Semester Tuition

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<th>Credit hours</th>
<th>Resident tuition*</th>
<th>Non-resident tuition**</th>
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<td>1</td>
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<td>6</td>
<td>2,127.06</td>
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<td>12-18</td>
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*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 who 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 Buckeye Link at 614-292-0300.

**Non-resident tuition is reduced for students enrolled in a degree/certificate program and taking all distance learning classes.

### 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.

### Approximate costs for CFAES Wooster 2021-2022

All figures are rounded to the nearest dollar.

<table>
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<tr>
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<th>One Semester</th>
<th>Two Semesters</th>
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<td><strong>Ohio Residents</strong></td>
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<td>Learning Technology</td>
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<td>Campus Housing</td>
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<td>Academic-year housing</td>
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<td>125</td>
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<td>Meal Plan (Carmen 2)</td>
<td>897</td>
<td>1,794</td>
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<td>Miscellaneous fees*</td>
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<tr>
<td>Books and supplies**</td>
<td>506</td>
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<tr>
<td>Misc/Personal**</td>
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<td><strong>Totals</strong></td>
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<td>$23,634</td>
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<table>
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<td><strong>Non-Ohio Residents</strong></td>
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<tr>
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<td>98</td>
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<tr>
<td>Campus Housing</td>
<td>3,771</td>
<td>7,542</td>
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</tr>
<tr>
<td>Books and supplies**</td>
<td>506</td>
<td>1,012</td>
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<tr>
<td>Misc/Personal**</td>
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<tr>
<td><strong>Totals</strong></td>
<td>$23,832</td>
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</table>

* Safety/Security, Publication, and Housing Hall Council Program fees

** Costs listed are estimated. Miscellaneous/Personal expenses consist of transportation, clothing, laundry, phone, etc.
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 grade of 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 7-19) 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 20-37.

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

General Education
English composition; social science or humanities; mathematics; natural sciences; and applied Gen. Ed. ........................................... minimum 30 credits

Technical Studies courses
Courses chosen in consultation with an advisor..... ..........................................................................................30-35 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 pages 3 and 4.
Associate of Applied Science Degree programs

Business Management
The objective of this program is to prepare individuals to assume various positions such as sales, customer service, as well as entry level management with businesses involved in retailing, wholesaling, manufacturing, and/or agriculture.

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, computer technology, human resource management, business law, and small business operations. By choosing a specialization in either General Business or Agricultural Business, the students have the opportunity to gain more knowledge about a specific industry. General Business students gain more in-depth understanding of the business world by taking classes such as Fundamentals of International Business and Foundations of Personal and Professional Leadership. Agricultural Business students choose a specialty in agriculture where they take a minimum of six credit hours of classes within their chosen area.

Core courses
- AGRCOMM 3130 Oral Expression in Agriculture
- AEDECON 2105 Managerial Records and Analysis
- BUSTEC 1151T General Economics
- BUSTEC 1201T Exploring Business
- BUSTEC 1202T Software Applications
- BUSTEC 2191T Business Internship
- 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
- ENGLISH 1110.01 First-Year English Composition
- GENBIO 1200T General Botany with Applications
- GENBIO 1250T General Botany with Applications
- GENBIO 2115T Technical and Business Writing
- GENBIOL 1100T Introduction to General Chemistry
- GENCHEM 1200T General Chemistry
- GENCOMM 1100T Introduction to General Chemistry
- GENMATH 1141T Business Mathematics
- GENSTDS 1201.01T College Orientation

Specialization courses
- Agricultural Business
  - Additional Natural or Applied Science
  - AEDECON 3141 Agricultural Cooperatives
- General Business
  - Humanities Elective

*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 40.

Applied learning opportunities
Business management students must also complete an industry internship consisting of 450 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 Agribusiness or Food Business Management.
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.

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

Applied learning opportunities
Construction Management students must also complete an industry internship consisting of at least 450 hours of full-time employment in a work experience related to their career interest.

Construction Management students also take advantage of opportunities to attend industry conferences as well as volunteering with the local Habitat for Humanity.

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

General Education
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 3130 Oral Expression in Agriculture
BUSTEC 1202T Software Applications
BUSTEC 2244T Human Resource Management and Leadership
BUSTEC 2247T Business Law
ENGLISH 1110.01 First-Year English Composition
ENGTECH 1201.02T Exploring Construction Careers and Industry
ENGTECH 2121T Drafting and Computer-Aided Design
ENGTECH 2310T Building Science: Electrical and Lighting Systems
ENGTECH 2345T Building Science: Mechanical Systems
GENCOMM 2115T Technical and Business Writing
GENSTDS 1201.01T College Orientation
TECPHYS 1150T Technical Physics

Technical Studies
AEDECON 2105 Managerial Records and Analysis
ENGTECH 2110T Construction Drawings and Basic Estimating
ENGTECH 2120T Building Science: Methods and Materials
ENGTECH 2160T Estimating and Scheduling
ENGTECH 2170T Construction Project Management Internship
ENGTECH 2191.01T Construction Management Internship
ENGTECH 2440T Site Development and Surveying
ENGTECH 2600T Construction Safety and Health
BUSTEC elective (from approved list)

*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 40.

Other degree options
Students interested in earning a bachelor’s degree may be interested in the Associate of Science degree in Construction Systems Management.
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.

Core courses

- AEDECON 2001: Principles of Food and Resource Economics
- CRPSOIL 1201T: Exploring Agronomy, Sustainable Agriculture, and Crop Management and Soil Conservation
- CRPSOIL 2191T: Crop and Soil Internship
- CRPSOIL 2300T: Introduction to Soil Science Laboratory
- CRPSOIL 2412T: Technology and Field Management of Forage Crops
- CRPSOIL 2422T: Weed Control Technology
- CRPSOIL 2580T: Soil Fertility and Fertilizers
- ENGLISH 1110.01: First-Year English Composition
- GENCHEM 1100T: Introduction to General Chemistry
- GENSTDS 1201.01T: College Orientation
- HCS 2201: Ecology of Managed Plant Systems
- Technical electives (from approved list)

Specialization courses

Crop Management

- AEDECON 2105: Managerial Records and Analysis
- BIOTECH 2219T: Pesticides and Their Use
- CRPSOIL 2189T: Practicum in Crop and Soil Technologies
- CRPSOIL 2265T: Integrated Pest Management
- CRPSOIL 2280T: Applied Precision Agriculture
- CRPSOIL 3800T: Principles of Farm Business Mgmt.
- ENGTECH 2016T: Tillage, Planting, Harvesting, and Storage Equipment
- GENMATH 1141T: Business Mathematics
- HCS 3100: Introduction to Agronomy
- Applied Gen Ed elective (from approved list)

Soil Conservation

- AGRCOMM 3130: Oral Expression in Agriculture
- BUSTEC 1202T: Software Applications
- CRPSOIL 2228T: Manure Management
- CRPSOIL 2324T: Soil Management
- CRPSOIL 2324T: Soil and Water Conservation Systems
- ENGTECH 2040T: Introduction to Geographic Information Systems
- ENGTECH 2050T: Drafting and Computer-Aided Design
- ENGTECH 2121T: Construction Safety and Health
- ENGTECH 2600T: Intro to Environmental Science
- ENGMATH 1145T: Technical Mathematics
- *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 40.

Facilities

Students are involved in field work and related activities at the 1,700-acre Grace Drake Learning 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 450 hours 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 programs in Agricultural Systems Management, Agronomy, or Sustainable Agriculture.
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 Education

AEDECON 2001  Principles of Food and Resource Economics
AEDECON 2105  Managerial Records and Analysis Exploring Dairy Careers and Industry
ANMLTEC 1201.07T  Exploring Dairy Careers and Industry
ANMLTEC 3140T  Animal Anatomy and Physiology
ANMLTEC 3157T  Dairy Cattle Genetic Improvement
CRPSOIL 2300T  Introduction to Soil Science
ENGLISH 1110.01  First-Year English Composition
GENBIOL 1200T  General Biology
GENSSC 1181T  Hispanic Culture and Language in the Workplace
GENSTDS 1201.01T  College Orientation
GENMATH 1141T  Business Mathematics
or 1145T  Technical Mathematics
Applied Gen Ed elective (from approved list)

Technical Studies

*ANMLTEC 2787T  Appl. Dairy Herd Practices and Mgt.
ANMLTEC 2797T  Dairy Industry Seminar and Experience
ANMLTEC 3137T  Dairy Cattle Feeding Management
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 Herb Records
ANMLTEC 3407T  Dairy Cattle Facilities, Environment, and Equipment
ANMLTEC 3800T  Principles of Farm Business Management
or 3887T  Integrated Dairy Farm Business Management
Technical electives (from approved list)

*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 40.

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 health and reproduction monitoring 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 a minimum of 300 hours 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.

Opportunities are available for students to participate in a variety of activities like the national award-winning dairy cattle judging team, Dairy Challenge, and the Ohio State ATI Dairy Club.

In addition, part-time jobs are available on many of the 200 dairy farms in the local county (Wayne County) while attending Ohio State ATI.

Other degree options

Students interested in earning a bachelor’s degree may be interested in the Associate of Science program in Animal Sciences – Dairy Specialization.
**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 Education**
- AEDECON 2105 Managerial Records and Analysis
- AGRCOMM 3130 Oral Expression in Agriculture
- BUSTEC 1151T General Economics
- BUSTEC 2232T Personal Selling
- BUSTEC 2244T Human Resource Management and Leadership
- ENGLISH 1110.01 First-Year English Composition
- GENBIO 1250T General Botany with Applications
- GENHUM 1190.02T Humanities as a Window on Cultural Pluralism: Global Arts
- GENMATH 1141T Business Mathematics
- GENSTDS 1201.01T College Orientation
- HORTTEC 1201T Exploring Horticulture
- PSYCH 1100 Introduction to Psychology
- or RURLSOC 1500 Introduction to Rural Sociology

**Technical Studies**
- BUSTEC 1202T Software Applications
- BUSTEC 2231T Fundamentals of Marketing
- BUSTEC 2241T Small Business Management
- BUSTEC 2110T Plant Materials I
- HORTTEC 2189.10T Practicum in Floral Design
- HORTTEC 2190.10T Practical Leadership in Floral Design
* HORTTEC 2199.10T Floral Design and Marketing Internship
- HORTTEC 2140T Horticultural Photography
- HORTTEC 2600T Commercial Floral Design
- HORTTEC 2620T Retail Flower Shop Operation
- HORTTEC 2640T Flowers for Celebrations
- HORTTEC 2660T Post Harvest Flower Care
- HORTTEC 2680T Contemporary Floral Design

*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 40.

**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 as a part of their practicum experiences, where they have an opportunity to apply skills learned in class. Practicum activities include designing arrangements, processing incoming flower shipments, creating in-store and window displays, stocking the floral display cooler, assisting customers, developing design concepts and marketing materials for weekly flower specials, and creating decorations for special events. Students also work as a team to transform the flower shop into a holiday showroom for an annual Christmas sale of student-designed floral décor.

Floral Design and Marketing students complete an industry internship consisting of 300 hours 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, vegetable 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.

Facilities

The Ohio State ATI production and overwintering greenhouses, conservatory, and the outdoor nursery and display gardens provide opportunities for practical experience in greenhouse and nursery production. In addition, facilities at OARDC and Secrest arboretum are used.

Core courses

- AEDECON 2001 Principles of Food and Resource Economics
- AGRCOMM 3130 Oral Expression in Agriculture
- BUSTEC 1202T Software Applications
- BUSTEC 2231T Fundamentals of Marketing
- ENGLISH 1110.01 First-Year English Composition
- GENBIOL 1250T General Botany with Applications
- GENCHEM 1100T Introduction to General Chemistry
- GENSSC 1181T Hispanic Culture and Language in the Workplace
- GENSTDS 1201.01T College Orientation
- HORTTEC 1201T Exploring Horticulture
- HORTTEC 2189.21T Practicum in Greenhouse Management
- HORTTEC 2190.21T Practical Leadership in Greenhouse Management
- HORTTEC 2500T Greenhouse Environment Control

Specialization courses

- BIOTECH 2218T General and Applied Entomology
- BIOTECH 2219T Pesticides and Their Use
- GENMATH 1141T Business Mathematics
- HORTTEC 2110T Plant Materials I
- HORTTEC 2191.21T Greenhouse Management Internship
- HORTTEC 2520T Greenhouse Perennial Production
- HORTTEC 2540T Greenhouse Production of Annuals
- HORTTEC 2560T Greenhouse Vegetable Production
- HORTTEC 2740T Plant Propagation
- HORTTEC 2890T Plant Diseases of Ornamentals and Turf

Greenhouse Engineering Technology

- ENGETECH 2312T Engineering Tech Fundamentals
- ENGETECH 2322T Basic Electricity and Electronics
- ENGETECH 2325T Analog and Digital Electronics
- GENMATH 1145T Technical Mathematics
- *HORTTEC 2191.23T Greenhouse Engineering Technology Internship
- HORTTEC 2520T or 2560T Greenhouse Perennial Production
- HORTTEC 3550T Components of Greenhouse Technologies
- HORTTEC 3560T Integrated Greenhouse Climate Control
- TECPHYS 1150T Technical Physics

* 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 40.

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 450 hours 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.
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 are emphasized at Ohio State ATI’s horse facilities.

General Education
AEDECON 2001 Principles of Food and Resource Economics
AEDECON 2105 Managerial Records and Analysis
AGRCOMM 3130 Oral Expression in Agriculture
ANMLTEC 1201.01T Exploring Equine Careers and Industry
ANMLTEC 3140T Animal Anatomy and Physiology
ENGLISH 1110.01 First-Year English Composition
GENBIOL 1200T General Biology
GENMATH 1141T Business Mathematics
or 1145T Technical Mathematics
GENSSC 1181T Hispanic Culture and Language in the Workplace
GENSTDTS 1201.01T College Orientation
Applied Gen Ed Elective (from approved list)
Business Elective (BUSTEC 2232T, 2241T, or 2244T)

Technical Studies
*ANMLTEC 2189.01T Horse Practicum
*ANMLTEC 2190.01T Leadership in Equine Operations Management
ANMLTEC 2201T Introduction to Horse Science
ANMLTEC 2800T Basic Horsemanship
or 2801T**
ANMLTEC 3101.01T Equine Marketing
ANMLTEC 3101.02T Equine Facility Management
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
ENGTECH 2015T Agricultural Equipment Operation and Maintenance

Technical Electives (2-3 credit hours needed**) ANMLTEC 2801T Horse Practicum
ANMLTEC 2811T Schooling and Training the Riding Horse
ANMLTEC 3161T Applied Equine Reproductive Management
BUSTEC 2232T Personal Selling
CRPSOIL 2412T Technology and Field Management of 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.

**If ANMLTEC 2800T (2 cr) is taken, 3 technical elective credits are required. If ANMLTEC 2801T (3 cr) is taken, 2 technical elective credits are required.

Course descriptions begin on page 40.

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 450 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 program in Animal Sciences – Horse specialization.
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 Education

AGRCOMM 3130 Oral Expression in Agriculture
BUSTEC 1151T General Economics
BUSTEC 1202T Software Applications
ENGLISH 1110.01 First-Year English Composition
ENGTech 2092T Problem Solving: Career and Society Applications
ENGTech 1201.01T Exploring Engineering Technologies
ENGTech 2121T Drafting and Computer-Aided Design
ENGTech 2322T Basic Electricity and Electronics
ENGTech 2331T Distributor Management
GENCOMM 2115T Technical and Business Writing
GENMATH 1145T Technical Mathematics
GENSTDS 1201.01T College Orientation
TECPHYS 1150T Technical Physics
Soc Sci or Arts/Hum Elective (from approved list)

Technical Studies

*ENGTech 2191.02T Hydraulic Power and Motion Control Internship
*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 2336T Methods of Power Transmission

*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 40.

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 450 hours 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 prepare individuals to enter the workforce at any landscape company. Students learn sustainable techniques that develop responsibility as tomorrow’s land stewards.

Career opportunities
Career opportunities exist with landscape businesses, recreational organizations such as amusement parks, and large organizations with grounds to be managed and maintained. Graduates may fill positions such as designer, landscape crew leader, account manager, landscape manager, or horticulturist.

Curriculum
The Landscape Horticulture program provides students a broad introduction to all areas of landscaping, including design, management, construction, and pest control. Students will practice their skills not only on the Ohio State ATI grounds, but will work with outside clients as well. Basic classes in plant identification, landscape design, and landscape construction lead to more advanced classes in weed science as well as pest identification and control.

Ohio State ATI’s Landscape Horticulture program is one of only 18 two-year programs in the nation to be accredited by the Professional Landcare Network (PLANET), the national trade association for landscape professionals.

Facilities
Landscape students have access to outstanding facilities at Ohio State ATI:
• The adjacent 122-acre Secrest Arboretum
• 11 specialty gardens
• Ohio State ATI campus grounds
• Landscape laboratory with digital design software
• Landscape Construction and Construction building

General Education
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Technical Studies
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<td>*HORTTEC 2230T</td>
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<td>*HORTTEC 2320T</td>
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<td>HORTTEC 2360T</td>
<td>Landscape Design</td>
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<td>*HORTTEC 2880T</td>
<td>Principles of Weed Science and Turf</td>
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<td>*HORTTEC 2890T</td>
<td>Plant Diseases of Ornamentals and Turf</td>
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*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 40.

Applied learning opportunities
Landscape students must also complete an industry internship of 450 hours 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.
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 Grace Drake Learning Laboratory which houses beef, swine, and goats.

Facilities

Ohio State ATI's Grace Drake Learning Laboratory houses a 100 cow beef herd along with a small herd of swine. The beef herd includes purebred and commercial animals. The farm also maintains a small herd of goats and has access to the sheep flock at the Ohio Agricultural Research and Development Center.

Applied learning opportunities

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

Students also complete an industry internship consisting of 450 hours of employment in the field of their study and interest.

Core courses

- AEDECON 2001 Principles of Food and Resource Economics
- AEDECON 2105 Managerial Records and Analysis
- AGRCOMM 3130 Oral Expression in Agriculture
- ANMLTEC 1201.02T Exploring Livestock Careers and Industry
- ANMLTEC 3140T Animal Anatomy and Physiology
- 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
- ENGLISH 1110.01 First-Year English Composition
- GENBIOL 1200T General Biology
- GENMATH 1141T Business Mathematics or 1145T Technical Mathematics
- GENSTD 1201.01T College Orientation
- Applied Gen Ed Elective (from approved list)
- Technical Electives (from approved list)

Specialization courses

**Beef**
- ANMLTEC 2202T Introduction to Beef and Small Ruminant Production
- *ANMLTEC 2510.02T Food Animal Resource Management I – Beef
- *ANMLTEC 2582.02T Food Animal Resource Management II – Beef
- ANMLTEC 3132T Ruminant Feeds and Feeding
- *ANMLTEC 3191.02T Beef Industry Internship
- ANMLTEC 3402T Beef Production and Management

**Small Ruminant**
- ANMLTEC 2202T Introduction to Beef and Small Ruminant Production
- *ANMLTEC 2510.04T Food Animal Resource Management I – Small Ruminants
- *ANMLTEC 2582.04T Food Animal Resource Management II – Small Ruminants
- ANMLTEC 3132T Ruminant Feeds and Feeding
- *ANMLTEC 3191.04T Small Ruminant Industry Internship
- ANMLTEC 3404T Small Ruminant Production and Management

**Swine**
- *ANMLTEC 2510.03T Food Animal Resource Management I – Swine
- *ANMLTEC 2582.03T Food Animal Resource Management II – Swine
- ANMLTEC 2603T Swine Production & Management I
- ANMLTEC 3133T Swine Production & Management II
- *ANMLTEC 3191.03T Swine Industry Internship
- ANMLTEC 3403T Swine Production & Management II

*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 40.

Other degree options

Students interested in earning a bachelor’s degree may be interested in the Associate of Science programs in Animal Sciences – Beef specialization, Small Ruminant specialization, or Swine specialization.
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 Education

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Technical Studies

*ENGTECH 2191.03T Power Equipment Internship
ENGTECH 2214T Fundamentals of Fluid Power and Components
ENGTECH 2240T Fluids, Filtration, and Fluid Conveyance
ENGTECH 2240T Welding Technology
ENGTECH 2312T Engineering Technology Fundamentals
ENGTECH 2314T Introduction to Power Equipment
*ENGTECH 2324T Engine Diagnosis and Repair
ENGTECH 2332T Mobile Heating and Air Conditioning
*ENGTECH 2334T Vehicle Electrical and Electronic Systems
ENGTECH 2336T Methods of Power Transmission
ENGTECH 2338T Diesel Engine Systems
*ENGTECH 2348T Performance of Mobile Power Units

*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 40.

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 450 hours 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 Education
AEDECON 2001 Principles of Food and Resource Economics
AEDECON 2105 Managerial Records and Analysis
AGRCOMM 3130 Oral Expression in Agriculture
BIOTECH 2218T General and Applied Entomology
BUSTEC 1202T Software Applications
CRPSOIL 2300T Introduction to Soil Science
CRPSOIL 2301T Introduction to Soil Science Lab
ENGLISH 1110.01 First-Year English Composition
GENBIOL 1250T General Botany with Applications
GENCHEM 1100T Introduction to General Chemistry
GENMATH 1141T Business Mathematics
GENSSC 1181T Hispanic Culture and Language in the Workplace
GENSTD 1201.01T College Orientation
HORTTEC 1201T Exploring Horticulture

Technical Studies
HORTTEC 2110T Small Engine Basics
HORTTEC 2191.50T Turf Management Internship
HORTTEC 2225T Turf Equipment Operation and Maintenance
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 Turf Operations Organization and Management
or 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 40.

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 450 hours (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.
Associate of Science Degree programs

Agribusiness

The objective of the Agribusiness program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science in Agriculture, majoring 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 agribusiness program emphasizes the application of business and economic principles to agribusiness; firms that produce, process, distribute, and sell agricultural and natural resource products.

General Education

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<tr>
<td>AGRCOMM 2367</td>
<td>Agricultural Issues in Contemporary Society</td>
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<tr>
<td>AGRCOMM 3130</td>
<td>Oral Expression in Agriculture</td>
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<tr>
<td>BIOLOGY 1101</td>
<td>Introductory Biology</td>
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<td>BUSTEC 1201T</td>
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<td>CHEM 1110</td>
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<tr>
<td>COMPSTD 2301</td>
<td>Introduction to World Literature</td>
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<tr>
<td>or RELSTDS 2370</td>
<td>Introduction to Comparative Religion</td>
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<tr>
<td>ENGLISH 1110.01</td>
<td>First-Year English Composition</td>
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<tr>
<td>GENSTDS 1201.01T</td>
<td>College Orientation</td>
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<tr>
<td>HISTORY 1152</td>
<td>American Civilization since 1877</td>
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<tr>
<td>MATH 1130</td>
<td>College Algebra for Business</td>
</tr>
<tr>
<td>MUSIC 2250</td>
<td>Music Cultures of the World</td>
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<tr>
<td>RURLSOC 1500</td>
<td>Introduction to Rural Sociology</td>
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Major courses

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<th>Course Code</th>
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<tbody>
<tr>
<td>AEDECON 2105</td>
<td>Managerial Records and Analysis</td>
</tr>
<tr>
<td>AEDECON 3105</td>
<td>Principles of Agribusiness and Food Supply Chains</td>
</tr>
<tr>
<td>BUSTEC 2231T</td>
<td>Fundamentals of Marketing</td>
</tr>
<tr>
<td>BUSTEC 2232T</td>
<td>Personal Selling</td>
</tr>
<tr>
<td>BUSTEC 2241T</td>
<td>Small Business Management</td>
</tr>
<tr>
<td>BUSTEC 2244T</td>
<td>Human Resource Management and Leadership</td>
</tr>
<tr>
<td>BUSTEC 2249T</td>
<td>Fundamentals of Business Finance</td>
</tr>
</tbody>
</table>

Electives (from approved list)

Course descriptions begin on page 40.

Other degree options

An Associate of Applied Science degree is available in Business Management.
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 in Agriculture, majoring 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 Ohio State ATI. Minor options include: agribusiness, animal science, crop science, equine, horticulture, natural resources, production agriculture, and turfgrass.

General Education
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
AGRCOMM 3130 Oral Expression in Agriculture
BIOLOGY 1101 Introductory Biology
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 1201.01T 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

Major courses
AGRCOMM 2531 Introduction to Agricultural Communication Practices
COMLDR 3530 Foundations of Personal and Professional Leadership
COMLDR 3537 Data Analysis in the Applied Sciences
PSYCH 1100 Introduction to Psychology

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

Course descriptions begin on page 40.
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 Agricultural Systems Management Associate of Science 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 Education

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<tr>
<th>Course Code</th>
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<tbody>
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<td>AEDECON 2001</td>
<td>Principles of Food and Resource Economics</td>
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<tr>
<td>AGRCOMM 2367</td>
<td>Agricultural Issues in Contemporary Society</td>
</tr>
<tr>
<td>or ENR 2367</td>
<td>Communicating Environmental and Natural Resources Information</td>
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<tr>
<td>CRPSOIL 2301</td>
<td>Introduction to Soil Science</td>
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<tr>
<td>AGRCOMM 3130</td>
<td>Oral Expression in Agriculture</td>
</tr>
<tr>
<td>ANIMSCI 2200.01</td>
<td>Introductory Animal Sciences</td>
</tr>
<tr>
<td>CRPSOIL 2300T</td>
<td>Introduction to Soil Science</td>
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<tr>
<td>ENGLISH 1110.01</td>
<td>First-Year English Composition</td>
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<tr>
<td>ENGTECH 1201.03T</td>
<td>Exploring Agricultural Systems Management</td>
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<td>GENSTDS 1201.01T</td>
<td>College Orientation</td>
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<td>MATH 1148</td>
<td>College Algebra</td>
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<tr>
<td>RURLSOC 1500</td>
<td>Introduction to Rural Sociology</td>
</tr>
<tr>
<td>TECPHYS 1150T</td>
<td>Technical Physics</td>
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<tr>
<td>Arts/Hum electives (from approved list)</td>
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Major courses

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<tr>
<td>AEDECON 2105</td>
<td>Managerial Records and Analysis</td>
</tr>
<tr>
<td>ANMLTEC 2200.02T</td>
<td>Introduction to Animal Sciences Lab</td>
</tr>
<tr>
<td>BUSTEC 2241T</td>
<td>Small Business Management</td>
</tr>
<tr>
<td>or ANMLTEC 3800T</td>
<td>Principles of Farm Business Mgmt.</td>
</tr>
<tr>
<td>CRPSOIL 2228T</td>
<td>Manure Management</td>
</tr>
<tr>
<td>CRPSOIL 2301T</td>
<td>Introduction to Soil Science Lab</td>
</tr>
<tr>
<td>ENGTECH 2040T</td>
<td>Soil and Water Conservation Systems</td>
</tr>
<tr>
<td>ENGTECH 2120T</td>
<td>Building Science: Methods and Materials</td>
</tr>
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<td>ENGTECH 2191.04T</td>
<td>Agricultural Systems Technology Internship</td>
</tr>
<tr>
<td>ENGTECH 2240T</td>
<td>Welding Technology</td>
</tr>
<tr>
<td>Technical Elective (from approved list)</td>
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</tbody>
</table>

Course descriptions begin on page 40.

Applied learning opportunities

Students must also complete an industry internship consisting of 300 hours of full-time employment. Internship locations are based upon student field of study or interest.

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 Agronomy and Sustainable Agriculture.
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 in Agriculture, majoring in Agriscience Education at The Ohio State University.

Career opportunities
Graduates with a Bachelor of Science in Agriscience 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. There is an additional GPA requirement in the bachelor degree program that must be met following transition to the Columbus campus.

General Education
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<tr>
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<tr>
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<td>Agricultural Issues in Contemporary Society</td>
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<tr>
<td>BIOLOGY 1101</td>
<td>Introductory Biology</td>
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<tr>
<td>ENGLISH 1110.01</td>
<td>First-Year English Composition</td>
</tr>
<tr>
<td>GENCOMM 1201T</td>
<td>Exploring Agricultural Communication, Education, and Leadership</td>
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<tr>
<td>GENSTDS 1201.01T</td>
<td>College Orientation</td>
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<tr>
<td>HISTORY 1152</td>
<td>American Civilization since 1877</td>
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<td>MATH 1148</td>
<td>College Algebra</td>
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<td>MUSIC 2250</td>
<td>Music Cultures of the World</td>
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<tr>
<td>PSYCH 1100</td>
<td>General Psychology</td>
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<td>RURLSOC 1500</td>
<td>Introduction to Rural Sociology</td>
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Major courses
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<th>Course Title</th>
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<tbody>
<tr>
<td>AGRCOMM 3130</td>
<td>Oral Expression in Agriculture</td>
</tr>
<tr>
<td>ANIMSCI 2200.01</td>
<td>Introductory Animal Sciences</td>
</tr>
<tr>
<td>ANMLTEC 2200.02T</td>
<td>Introduction to Animal Sciences Lab</td>
</tr>
<tr>
<td>ASE 2189</td>
<td>Early Experience in Agriscience Education</td>
</tr>
<tr>
<td>COMLDR 2530</td>
<td>Introduction to Agricultural Communication, Education and Leadership</td>
</tr>
<tr>
<td>COMLDR 3530</td>
<td>Foundations of Personal and Professional Leadership</td>
</tr>
<tr>
<td>COMLDR 3537</td>
<td>Data Analysis in the Applied Sciences</td>
</tr>
<tr>
<td>ENGETECH 2240T</td>
<td>Welding Technology</td>
</tr>
<tr>
<td>HCS 2201</td>
<td>Ecology of Managed Plant Systems</td>
</tr>
<tr>
<td>MEATSCI 3110</td>
<td>Introductory Meat Science</td>
</tr>
</tbody>
</table>

Course descriptions begin on page 40.
Agronomy
The objective of the agronomy program is to prepare students to complete a Bachelor of Science in Agriculture, majoring 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 Education
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
or ENR 2367 Communicating Environmental and Natural Resources Information
or AGRCOMM 3130 Oral Expression in Agriculture
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1110 Elementary Chemistry
or CHEM 1210 General Chemistry I
CRPSOIL 1201T Exploring Agronomy, Sustainable Agriculture, and Crop Mgmt. and Soil Conservation
ENGLISH 1110.01 First-Year English Composition
GENSTDS 1201.01T College Orientation
HCS 2201 Ecology of Managed Plant Systems
HCS 2202 Form and Function in Cultivated Plants
MATH 1148 College Algebra
RURLSOC 1500 Introduction to Rural Sociology
Arts/Hum electives (from approved list)

Major courses
BIOTECH 2218T General and Applied Entomology
CRPSOIL 2189T Practicum in Crop and Soil Technologies
CRPSOIL 2300T Introduction to Soil Science
CRPSOIL 2301T Introduction to Soil Science Laboratory
CRPSOIL 2324T Soil Management
CRPSOIL 2580T Soil Fertility and Fertilizers
HCS 3100 Introduction to Agronomy
Technical Electives (from approved list)

Course descriptions begin on page 40.

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.
Animal Sciences
Animal Health Specialization
The objective of the Animal Sciences – Animal Health program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Agriculture majoring in Animal Sciences (Animal Biosciences) at The Ohio State University with a focus on animal health careers and/or academic preparation for professional degrees or graduate work.

The Animal Health Specialization is specifically designed to provide: 1) opportunities for students to receive instruction and experience in multiple animal species, 2) an educational track for students interested in animal medicine to receive instruction in and experience with large animal production methods, and 3) an opportunity for students interested in food animal medicine to apply to veterinary school to The Ohio State University College of Veterinary Medicine through the Veterinary Early Commitment Program.

Career opportunities
Graduates with a Bachelor of Science in Animal Sciences will find careers as technical representatives for pharmaceutical, animal health, feed, breeding/genetics, equipment, and other related companies; research or product development technicians; quality assurance, public health, animal welfare, inspection, and laboratory technicians; managers of livestock production units; and others.

Graduates may also apply to veterinary school (or other professional schools) for careers in production medicine, veterinary research, public health, toxicology, pharmacology, nutrition, animal welfare, and other veterinary specialties.

Curriculum
The curriculum of the Animal Sciences program allows the student to choose one of six specializations: animal health, beef, dairy, horse, swine, or small ruminant. The Animal Health specialization provides a broader approach to course selection and career goals within the Animal Sciences major as required courses can be selected from various species specific classes and additional opportunities are available for animal, business, and internship elective courses.

General Education
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<tbody>
<tr>
<td>AEDECON 2001</td>
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<tr>
<td>AGRCOMM 3130</td>
<td>Oral Expression in Agriculture</td>
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<tr>
<td>ANIMSCI 2200.01</td>
<td>Introductory Animal Sciences</td>
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<tr>
<td>ANMLTEC 1201.08T</td>
<td>Exploring Animal Health Careers</td>
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<tr>
<td>ANMLTEC 3140T</td>
<td>Animal Anatomy and Physiology</td>
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<tr>
<td>BIOLOGY 1113</td>
<td>Bio Sci: Energy Transfer and Development</td>
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<td>BIOLOGY 1114</td>
<td>Bio Sci: Form, Function, Diversity, and Ecology</td>
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Major courses
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<tr>
<td>ANMLTEC 2200.02T</td>
<td>Introduction to Animal Sciences Laboratory</td>
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<tr>
<td>ANMLTEC 3131T*</td>
<td>Equine Feeding and Nutrition</td>
</tr>
<tr>
<td>or 3132T</td>
<td>Ruminant Feeds and Feeding</td>
</tr>
<tr>
<td>or 3133T</td>
<td>Practical Swine Feeding</td>
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<tr>
<td>or 3137T</td>
<td>Dairy Cattle Feeding Management</td>
</tr>
<tr>
<td>ANMLTEC 3150T</td>
<td>Livestock Genetic Improvement</td>
</tr>
<tr>
<td>or 3157T*</td>
<td>Dairy Cattle Genetic Improvement</td>
</tr>
<tr>
<td>ANMLTEC 3170T</td>
<td>Principles of Livestock Health</td>
</tr>
<tr>
<td>or 3171T*</td>
<td>Horse Health and Disease</td>
</tr>
<tr>
<td>or 3177T*</td>
<td>Dairy Cattle Health Management</td>
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<tr>
<td>Technical Electives (from approved list)</td>
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</table>

* Equine courses are not eligible to fulfill requirements for the Veterinary Early Commitment Program (VECP); pre-VECP students should take ANMLTEC 3150T and 3170T for introductory animal genetics and health, respectively.

Course descriptions begin on page 40.
Animal Sciences
Beef Specialization
The objective of the Animal Sciences – Beef program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science in Agriculture, majoring 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 Grace Drake Learning Laboratory.

Curriculum
The curriculum of the Animal Sciences program allows the student to choose one of six specializations: animal health, beef, dairy, horse, swine, or small ruminant.

General Education
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 3130 Oral Expression in Agriculture
ANMLTEC 1201.02T Exploring Livestock Careers and Industry
ANIMSCI 2200.01 Introductory Animal Sciences
ANMLTEC 3140T Animal Anatomy and Physiology
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1110 General Chemistry 1 or 1210 Elementary Chemistry
COMPSSTD 2301 Introduction to World Literature or RELSTDS 2370 Intro. to Comparative Religion
ENGLISH 1110.01 First-Year English Composition or GENSTDS 1201.01T College Orientation
HISTORY 1152 American Civilization since 1877 or MUSIC 2250 Music Cultures of the World
MATH 1148 College Algebra
RURLSOC 1500 Introduction to Rural Sociology

Major courses
ANMLTEC 2200.02T Introduction to Animal Sciences Laboratory
ANMLTEC 2202T Introduction to Beef and Small Ruminant Production
*ANMLTEC 2510.02T Food Animal Resource Management I – Beef
*ANMLTEC 2582.02T Food Animal Resource Management II - Beef
ANMLTEC 3132T Ruminant Feeds and Feeding
ANMLTEC 3150T Livestock Genetic Improvement
ANMLTEC 3170T Principles of Livestock Health
ANMLTEC 3402T Beef Production and Management
CRPSOIL 2228T Manure Management
CRPSOIL 2412T Technology and Field Management of Forage Crops

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

Course descriptions begin on page 40.

Other degree options
An Associate of Applied Science degree is available in Livestock Production and Management.
Animal Sciences
Dairy Specialization

The objective of the Animal Sciences – Dairy specialization program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Agriculture, majoring 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 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.

Graduates with an Associate of Science in Animal Sciences – Dairy Specialization could fill positions in herd and farm management, field representatives and technicians, or sales representatives in the dairy industry.

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

General Education
- AEDECON 2001 Principles of Food and Resource Economics
- AGRCOMM 3130 Oral Expression in Agriculture
- ANMLTEC 1201.07T Exploring Dairy Careers and Industry
- ANIMSCI 2200.01 Introductory Animal Sciences
- ANMLTEC 3140T Animal Anatomy and Physiology
- BIOLOGY 1113 Bio Sci: Energy Transfer and Development
- CHEM 1110 General Chemistry 1
- or 1210 General Chemistry 1
- or COMPSTD 2301 Intro to World Literature
- or RELSTDS 2370 Intro. to Comparative Religion
- ENGLISH 1110.01 First-Year English Composition
- GENSTDS 1201.01T College Orientation
- HISTORY 1152 American Civilization since 1877
- or MUSIC 2250 Music Cultures of the World
- MATH 1148 College Algebra
- RURLSOC 1500 Introduction to Rural Sociology

Major courses
- *ANMLTEC 2787T Applied Dairy Herd Practices & Management
- ANMLTEC 3137T Dairy Cattle Feeding Management
- ANMLTEC 3157T Dairy Cattle Genetic Improvement
- ANMLTEC 3167T Dairy Cattle Milking & Reproductive Management
- ANMLTEC 3177T Dairy Cattle Health Management
- ANMLTEC 3207T Dairy Cattle Evaluation and Herd Records
- ANMLTEC 3407T Dairy Cattle Facilities, Environment and Equipment
- ANMLTEC 3887T Integrated Dairy Farm Business Management

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

Course descriptions begin on page 40.

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 health and reproduction monitoring 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 a minimum of 300 hours of full-time employment in the dairy industry. Internship locations and type of dairy business – production or agribusiness – are based upon student field of study or interest.

Opportunities are also available for students to participate in a variety of activities like the national award-winning dairy cattle judging team, Dairy Challenge, and the Ohio State ATI Dairy Club.

In addition, part-time jobs are available on many of the over 200 dairy farms in the local county (Wayne) while attending Ohio State ATI.

Other degree options
An Associate of Applied Science degree is available in Dairy Cattle Production and Management.
Animal Sciences

Horse Specialization

The objective of the Animal Sciences – Horse 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 in Agriculture, majoring in Animal Sciences at The Ohio State University.

Career opportunities

Graduates in Animal Sciences – Horse specialization are prepared for careers in horse training, horse breeding, and equine science industries.

Curriculum

The curriculum of the Animal Sciences – Horse program allows students to complete an Associate of Science 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 Education

AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 3130 Oral Expression in Agriculture Industry
ANMLTEC 1201.01T Exploring Equine Careers and Industry
ANIMSCI 2200.01 Introductory Animal Sciences
ANMLTEC 3140T Animal Anatomy and Physiology
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1110 General Chemistry 1
or 1210 General Chemistry
COMPSTD 2301 Intro to World Literature
or RELSTD 2370 Intro. to Comparative Religion
ENGLISH 1110.01 First-Year English Composition
GENSTDS 1201.01T College Orientation
HISTORY 1152 American Civilization since 1877
or MUSIC 2250 Music Cultures of the World
MATH 1148 College Algebra
RURLSOC 1500 Introduction to Rural Sociology

Major courses

*ANMLTEC 2189.01T Horse Practicum
ANMLTEC 2201T Introduction to Horse Science
ANMLTEC 2800T Basic Horsemanship
or ANMLTEC 2801T Horsemanship and Equitation
ANMLTEC 3101.01T Equine Marketing
ANMLTEC 3101.02T Equine Facility Management
ANMLTEC 3131T Equine Feeding & Nutrition
ANMLTEC 3151T Horse Breeding & Selection
ANMLTEC 3161T Applied Equine Reproductive Mgt.
ANMLTEC 3171T Horse Health and Disease
Technical Electives (from approved list)

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

Course descriptions begin on page 40.

Other degree options

An Associate of Applied Science degree is available in Horse Production and Management.
Animal Sciences
Small Ruminant Specialization
The objective of the Animal Sciences – Small Ruminant program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science in Agriculture, majoring 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 Grace Drake Learning Laboratory.

Curriculum
The curriculum of the Animal Sciences program allows the student to choose one of six specializations: animal health, beef, dairy, horse, swine, or small ruminant.

General Education
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 3130 Oral Expression in Agriculture
ANMLTEC 1201.02T Exploring Livestock Careers and Industry
ANIMSCI 2200.01 Introductory Animal Sciences
ANMLTEC 3140T Animal Anatomy and Physiology
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1110 Elementary Chemistry
or 1210 General Chemistry 1
COMPSTD 2301 Intro to World Literature
or RELSTDS 2370 Intro. to Comparative Religion
ENGLISH 1110.01 First-Year English Composition
or GENSTDS 1201.01T College Orientation
HISTORY 1152 American Civilization since 1877
or MUSIC 2250 Music Cultures of the World
MATH 1148 College Algebra
RURLSOC 1500 Introduction to Rural Sociology

Major courses
ANMLTEC 2200.02T Introduction to Animal Sciences Laboratory
ANMLTEC 2202T Introduction to Beef and Small Ruminant Production
*ANMLTEC 2510.04T Food Animal Resource Management I – Small Ruminants
*ANMLTEC 2582.04T Food Animal Resource Management II – Small Ruminants
ANMLTEC 3132T Ruminant Feeds and Feeding
ANMLTEC 3150T Livestock Genetic Improvement
ANMLTEC 3170T Principles of Livestock Health
ANMLTEC 3404T Small Ruminant Production and Management
CRPSOIL 2228T Manure Management
CRPSOIL 2412T Technology and Field Management of Forage Crops

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

Course descriptions begin on page 40.

Other degree options
An Associate of Applied Science degree is available in Livestock Production and Management.
Animal Sciences
Swine Specialization
The objective of the Animal Sciences – Swine program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science in Agriculture, majoring 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 Grace Drake Learning Laboratory.

Curriculum
The curriculum of the Animal Sciences program allows the student to choose one of six specializations: animal health, beef, dairy, horse, swine, or small ruminant.

General Education
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 3130 Oral Expression in Agriculture
ANMLTEC 1201.02T Exploring Livestock Careers and Industry
ANIMSCI 2200.01 Introductory Animal Sciences
ANMLTEC 3140T Animal Anatomy and Physiology
BIOLOGY 1113 Bio Sci: Energy Transfer and Development
CHEM 1110 or 1210 Elementary Chemistry or General Chemistry 1
COMPSTD 2301 or RELSTDS 2370 Introduction to World Literature or Intro. to Comparative Religion
ENGLISH 1110.01 First-Year English Composition
GENSTDS 1201.01T College Orientation
HISTORY 1152 American Civilization since 1877
or MUSIC 2250 Music Cultures of the World
MATH 1148 College Algebra
RURLSOC 1500 Introduction to Rural Sociology

Major courses
ANMLTEC 2200.02T Introduction to Animal Sciences Laboratory
*ANMLTEC 2510.03T Food Animal Resource Management I – Swine
*ANMLTEC 2582.03T Food Animal Resource Management II - Swine
ANMLTEC 2603T Food Animal Resource Management I
ANMLTEC 3133T Livestock Genetic Improvement
ANMLTEC 3170T Principles of Livestock Health
ANMLTEC 3403T Swine Production & Management II
CRPSOIL 2228T Manure Management
Transferable Elective (consult with advisor for options)

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

Course descriptions begin on page 40.

Other degree options
An Associate of Applied Science degree is available in Livestock Production and Management.
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, majoring in Biology or 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.

Core courses
- AEDECON 2001 Principles of Food and Resource Economics
- 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
- CHEM 2510 Organic Chemistry 1
- ENGLISH 1110.01 First-Year English Composition
- GENSTD 1201.01T College Orientation
- MICRIBIO 4000.01 Basic and Practical Microbiology
- RURLSOC 1500 Introduction to Rural Sociology
- Arts/Hum Electives (from approved list)

Specialization courses
Biology
- AGRCOMM 2367 Agricultural Issues in Contemporary Society
- BIOLOGY 1114 Bio Sci: Form, Function, Diversity and Ecology
- CHEM 2520 Organic Chemistry 2
- MATH 1151 Calculus I

Food Science
- AGRCOMM 2367 Agricultural Issues in Contemporary Society
- CHEM 2520 Organic Chemistry 2
- MATH 1150 Pre-Calculus
- MATH 1151 Calculus I
- PHYSICS 1200 Mechanics, Kinematics, Fluids, Waves

Pre-Veterinary Medicine
- AGRCOMM 3130 Oral Expression in Agriculture
- ANMLTEC 3140T Animal Anatomy and Physiology
- BIOLOGY 1114 Bio Sci: Form, Function, Diversity and Ecology
- MATH 1150 Pre-Calculus
- Electives

Course descriptions begin on page 40.
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 in Agriculture, majoring 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.

Core courses
- AEDECON 2001: Principles of Food and Resource Economics
- AGRCOMM 2367: Agricultural Issues in Contemporary Society
- AGRCOMM 3130: Oral Expression in Agriculture
- BIOLOGY 1101: Introductory Biology
- CHEM 1110: Elementary Chemistry
- 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
- COMPSTD 2301: Introduction to World Literature
- ENGLISH 1110.01: First-Year English Composition
- GENCOMM 1201T: Exploring Agricultural Communication, Education and Leadership
- GENSTDS 1201.01T: 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

Electives (from approved list)

Specialization courses
Community and Extension Education
- COMLDR 2189: Early Experience in Community and Extension Education

Leadership
- BUSTEC 2232T: Personal Selling
- BUSTEC 2244T: Human Resources Management and Leadership

Course descriptions begin on page 40.
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 in Agriculture, majoring in Construction Systems Management.

Career opportunities
Graduates with a Bachelor of Science 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 Construction Systems Management Associate of Science 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 Education
AEDECON 2001 Principles of Food and Resource Economics
AGRCOMM 2367 Agricultural Issues in Contemporary Society
or ENR 2367 Communicating Environmental and Natural Resources Information
AGRCOMM 3130 Oral Expression in Agriculture
COMLDR 3537 Data Analysis in the Applied Sciences
CRPSOIL 2300T Introduction to Soil Science
CRPSOIL 2301T Introduction to Soil Science Lab
ENGLISH 1110.01 First-Year English Composition
ENGTECH 1201.02T Exploring Construction Careers and Industry
GENSTDS 1201.01T College Orientation
MATH 1148 College Algebra
RURLSOC 1500 Introduction to Rural Sociology
TECPHYS 1150T Technical Physics
Art/Hum electives (from approved list)

Major courses
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 2160T Estimating and Scheduling
ENGTECH 2170T Construction Project Management
ENGTECH 2191.01T Construction Management Internship
ENGTECH 2310T Building Science: Electrical and Lighting Systems
ENGTECH 2345T Building Science: Mechanical Systems
ENGTECH 2440T Site Development and Surveying
ENGTECH 2600T Construction Safety and Health

Course descriptions begin on page 40.

Other degree options
An Associate of Applied Science degree is available in Construction Management.
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, majoring in Environmental Science; Forest, Fisheries and Wildlife; Natural Resource Management; or Environmental Planning and Decision Making in the School of Environment and Natural Resources at The Ohio State University.

Career opportunities
Graduates with a Bachelor of Science degree from the School of Environment and 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 Environment and Natural Resources program consists of a variety of technical and general courses designed to give students a broad understanding of environmental and natural resources issues.

Core courses
- AEDECON 2001 Principles of Food and Resource Economics
- COMLDR 3537 Data Analysis in the Applied Sciences
- ENGLISH 1110.01 First-Year English Composition
- ENGETECH 2050T Introduction to Geographic Information Systems
- ENR 2100 Introduction to Environmental Science
- ENR 2300 Society and Natural Resources
- ENR 2367 Communicating Environmental and Natural Resources Information
- ENVSC 1201T Exploring Environmental Science
- GENSTDS 1201.01T College Orientation
- RURLSOC 1500 Introduction to Rural Sociology

Art/Hum electives (from approved list)

Specialization courses
Environmental Science
- BIOLOGY 1113 Bio Sci: Energy Transfer and Development
- BIOLOGY 1114 Bio Sci: Form, Function, Diversity and Ecology
- CHEM 1210 General Chemistry 1
- CRPSOIL 2300T Introduction to Soil Science
- CRPSOIL 2301T Introduction to Soil Science Lab
- MATH 1151 Calculus I

Elective

Natural Resource Management
- BIOLOGY 1113* Bio Sci: Energy Transfer and Development
- or 1114* Bio Sci: Form, Function, Diversity and Ecology
- CHEM 1110 Elementary Chemistry
- MATH 1148 College Algebra

Electives

* NRM and EED majors take 1113; EPDM majors take 1114

Course descriptions begin on page 40.
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 in Agriculture, majoring in Food Business Management at The Ohio State University, or to prepare for employment in the food and agricultural industry.

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 Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>AEDECON 2001</td>
<td>Principles of Food and Resource Economics</td>
</tr>
<tr>
<td>AGRCOMM 2367</td>
<td>Agricultural Issues in Contemporary Society</td>
</tr>
<tr>
<td>or ENR 2367</td>
<td>Communicating Environmental and Natural Resources Information</td>
</tr>
<tr>
<td>BIOLOGY 1101</td>
<td>Introductory Biology</td>
</tr>
<tr>
<td>or 1113</td>
<td>Bio Sci: Energy Transfer and Development</td>
</tr>
<tr>
<td>BUSTEC 1201T</td>
<td>Exploring Business</td>
</tr>
<tr>
<td>CHEM 1110</td>
<td>Elementary Chemistry</td>
</tr>
<tr>
<td>COMPSTD 2301</td>
<td>Introduction to World Literature</td>
</tr>
<tr>
<td>or RELSTDS 2370</td>
<td>Intro. to Comparative Religion</td>
</tr>
<tr>
<td>ENGLISH 1110.01</td>
<td>First-Year English Composition</td>
</tr>
<tr>
<td>GENSTDS 1201.01T</td>
<td>College Orientation</td>
</tr>
<tr>
<td>HISTORY 1152</td>
<td>American Civilization since 1877</td>
</tr>
<tr>
<td>MATH 1148</td>
<td>College Algebra</td>
</tr>
<tr>
<td>MICRBIO 4000.01</td>
<td>Basic and Practical Microbiology</td>
</tr>
<tr>
<td>MUSIC 2250</td>
<td>Music Cultures of the World</td>
</tr>
<tr>
<td>RURLSOC 1500</td>
<td>Introduction to Rural Sociology</td>
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</tbody>
</table>

Major courses

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>AEDECON 2105</td>
<td>Managerial Records and Analysis</td>
</tr>
<tr>
<td>AGRCOMM 3130</td>
<td>Oral Expression in Agriculture</td>
</tr>
<tr>
<td>BUSTEC 2231T</td>
<td>Fundamentals of Marketing</td>
</tr>
<tr>
<td>BUSTEC 2232T</td>
<td>Personal Selling</td>
</tr>
<tr>
<td>BUSTEC 2241T</td>
<td>Small Business Management</td>
</tr>
<tr>
<td>BUSTEC 2244T</td>
<td>Human Resource Management and Leadership</td>
</tr>
<tr>
<td>BUSTEC 2249T</td>
<td>Fundamentals of Business Finance</td>
</tr>
</tbody>
</table>

Course descriptions begin on page 40.
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 in Agriculture, with a focus 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 Education
- 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 1201.01T: College Orientation
- HISTORY 1152: American Civilization since 1877
- HCS 2201: Ecology of Managed Plant Systems
- HCS 2202: Form and Function in Cultivated Plants
- HORTTEC 1201T: Exploring Horticulture
- MATH 1148: College Algebra
- MUSIC 2250: Music Cultures of the World
- RURLSOC 1500: Introduction to Rural Sociology

Major courses
- BIOTECH 2218T: General and applied Entomology
- CRPSOIL 2300T: Introduction to Soil Science
- CRPSOIL 2301T: Introduction to Soil Science Lab
- HORTTEC 2110T: Plant Materials I
- PLNTPTH 3001: General Plant Pathology Lecture
- PLNTPTH 3002: General Plant Pathology Laboratory

Electives

Course descriptions begin on page 40.

Other degree options
Associate of Applied Science degrees are available in Greenhouse and Nursery Management, Landscape Horticulture, and Turfgrass Management.
Sustainable Agriculture

The objective of the Sustainable Agriculture program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree, majoring in Natural Resource Management – Sustainable Agriculture in the School of Environment and Natural Resources. This program integrates 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 Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEDECON 2001</td>
<td>Principles of Food and Resource Economics</td>
<td></td>
</tr>
<tr>
<td>BIOLOGY 1114</td>
<td>Bio Sci: Form, Function, Diversity, and Ecology</td>
<td></td>
</tr>
<tr>
<td>CHEM 1110 or 1210</td>
<td>General Chemistry 1</td>
<td></td>
</tr>
<tr>
<td>CRPSOIL 1201T</td>
<td>Exploring Agronomy, Sustainable Agriculture, and Soil Conservation</td>
<td></td>
</tr>
<tr>
<td>ENGLISH 1110.01</td>
<td>First-Year English Composition</td>
<td></td>
</tr>
<tr>
<td>ENR 2300</td>
<td>Society and Natural Resources</td>
<td></td>
</tr>
<tr>
<td>ENR 2367</td>
<td>Communicating Environmental and Natural Resources Information</td>
<td></td>
</tr>
<tr>
<td>GENSTD 1201.01T</td>
<td>College Orientation</td>
<td></td>
</tr>
<tr>
<td>HCS 2201 or 2202</td>
<td>Ecology of Managed Plant Systems Form and Function of Cultivated Plants College Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 1148</td>
<td>College Algebra</td>
<td></td>
</tr>
<tr>
<td>RURLSOC 1500</td>
<td>Introduction to Rural Sociology</td>
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</tr>
</tbody>
</table>

Art/Hum Electives (from approved list)

Major courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEDECON 2105</td>
<td>Managerial Records and Analysis</td>
</tr>
<tr>
<td>ANIMSCI 2200.01</td>
<td>Introductory Animal Sciences</td>
</tr>
<tr>
<td>BIOTECH 2218T</td>
<td>General and Applied Entomology</td>
</tr>
<tr>
<td>BUSTEC 2241T</td>
<td>Small Business Management</td>
</tr>
<tr>
<td>CRPSOIL 2210T</td>
<td>Sustainable Agriculture Methods</td>
</tr>
<tr>
<td>CRPSOIL 2300T</td>
<td>Introduction to Soil Science</td>
</tr>
<tr>
<td>CRPSOIL 2301T</td>
<td>Introduction to Soil Science Laboratory</td>
</tr>
<tr>
<td>ENR 3100</td>
<td>Introduction to Sustainable Agriculture</td>
</tr>
</tbody>
</table>

Elective

Course descriptions begin on page 40.

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 Agronomy.
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 degree, majoring 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 Bachelor of Science 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 Ohio State ATI campus:

General Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEDECON 2001</td>
<td>Principles of Food and Resource Economics</td>
</tr>
<tr>
<td>CHEM 1110</td>
<td>Elementary Chemistry</td>
</tr>
<tr>
<td>COMPSTD 2301</td>
<td>Introduction to World Literature</td>
</tr>
<tr>
<td>ENGLISH 1110.01</td>
<td>First-Year English Composition</td>
</tr>
<tr>
<td>GENSTDS 1201.01T</td>
<td>College Orientation</td>
</tr>
<tr>
<td>HISTORY 1152</td>
<td>American Civilization since 1877</td>
</tr>
<tr>
<td>HORTTEC 1201T</td>
<td>Exploring Horticulture</td>
</tr>
<tr>
<td>MATH 1130</td>
<td>College Algebra for Business</td>
</tr>
<tr>
<td>or 1148</td>
<td>College Algebra</td>
</tr>
<tr>
<td>MUSIC 2250</td>
<td>Music Cultures of the World</td>
</tr>
<tr>
<td>RURLSOC 1500</td>
<td>Introduction to Rural Sociology</td>
</tr>
</tbody>
</table>

Major courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCS 2250</td>
<td>Introduction to Professional Golf Management</td>
</tr>
<tr>
<td>HCS 3488.02</td>
<td>PGM Player Development</td>
</tr>
<tr>
<td>HCS 4191.02</td>
<td>PGM Internship</td>
</tr>
</tbody>
</table>

Course descriptions begin on page 40.

Applied learning opportunities

All students majoring in professional golf management are required to complete five internships prior to graduation. Students receive a total of 5 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.
Certificate Programs

Hydraulic Service and Repair

The increasing complexity of equipment and a shortage of qualified maintenance personnel have 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.

Curriculum

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

General Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BUSTEC 1202T</td>
<td>Software Applications</td>
</tr>
<tr>
<td>ENGTECH 1201.01T</td>
<td>Exploring Engineering Technologies</td>
</tr>
<tr>
<td>ENGTECH 2322T</td>
<td>Basic Electricity and Electronics</td>
</tr>
<tr>
<td>ENGLISH 1110.01T</td>
<td>First-Year English Composition</td>
</tr>
<tr>
<td>or AGRCOMM 3130</td>
<td>Oral Expression in Agriculture</td>
</tr>
<tr>
<td>GENSTDS 1201.01T</td>
<td>College Orientation</td>
</tr>
<tr>
<td>Free Elective</td>
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</tbody>
</table>

Students must be eligible to enroll in GENMATH 1141T or 1145T to complete the certificate requirements. If not eligible, students will need to successfully complete remedial mathematics courses depending on math placement level.

Technical Studies

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ENGTECH 2214T</td>
<td>Fundamentals of Fluid Power and Components</td>
</tr>
<tr>
<td>ENGTECH 2221T</td>
<td>Component Rebuilding</td>
</tr>
<tr>
<td>ENGTECH 2224T</td>
<td>Fluids, Filtration, and Fluid Conveyance</td>
</tr>
<tr>
<td>ENGTECH 2240T</td>
<td>Welding Technology</td>
</tr>
<tr>
<td>ENGTECH 2312T</td>
<td>Engineering Technology</td>
</tr>
<tr>
<td>ENGTECH 2336T</td>
<td>Methods of Power Transmission</td>
</tr>
<tr>
<td>BUSTEC elective (from approved list)</td>
<td></td>
</tr>
<tr>
<td>ENGTECH elective (from approved list)</td>
<td></td>
</tr>
</tbody>
</table>

Course descriptions begin on page 40.
**Turfgrass Equipment Manager**

The Turfgrass Equipment Manager 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 wide 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.

**Curriculum**

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

**General Education**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRCOMM 3130</td>
<td>Oral Expression in Agriculture</td>
</tr>
<tr>
<td>BUSTEC 1202T</td>
<td>Software Applications</td>
</tr>
<tr>
<td>ENGTECH 2322T</td>
<td>Basic Electricity and Electronics</td>
</tr>
<tr>
<td>GENBIOL 1250T</td>
<td>General Botany with Applications</td>
</tr>
<tr>
<td>GENSTDS 1201.01T</td>
<td>College Orientation</td>
</tr>
<tr>
<td>HORTTEC 1201T</td>
<td>Exploring Horticulture</td>
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Students must be eligible to enroll in GENMATH 1141T or 1145T to complete the certificate requirements. If not eligible, students will need to successfully complete remedial mathematics courses depending on math placement level.

**Technical Studies**

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<td>ENGTECH 2214T</td>
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<td>HORTTEC 2191.55T</td>
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**Course descriptions** begin on page 40.
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

A Course number: 3140T
A dagger (†) denotes that the course will not be offered this year. An asterisk (*) indicates that the course is offered every other year.

B Course title: Animal Anatomy and Physiology

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 (113) recommended. Not open to students with credit for 221T. This course is available for EM credit.

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.

1201.08T Exploring Animal Health Careers U 0.5
Promotes an overview of the unique requirements of the Animal Health specialization, promotes student success in college, and explores personal and career interests, needs, goals, in the field of Animal Health.

Au. 1 cl.

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, Sp. Arr. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 or hrs.

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. Arr. Prereq: Permission of instructor. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 or 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, Arr. Prereq: 2189.01T (289.04T) with a grade of C 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 or hrs or 10 completions. This course is graded S/U.

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

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

2200.02T Introduction to Animal Sciences Laboratory U 1
Laboratory application of basic animal husbandry practices in the various livestock and related industries.

Au, Sp. 1 2-hr lab. Prereq: Permission of instructor. Repeatable to a maximum of 10 or hrs or 10 completions.

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.

2510.02T Food Animal Resource Management I – Beef U 1
Supervised practical experience in beef production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving beef production and management skills and competency.

Au, Sp. 1 rec, 1 3-hr lab. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

2510.03T Food Animal Resource Management I – Swine U 1
Supervised practical experience in swine production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving swine production and management skills and competency.

Au, Sp. 1 rec, 1 3-hr lab. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

2510.04T Food Animal Resource Management I – Small Ruminants U 1
Supervised practical experience in small ruminant production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving small ruminant production and management skills and competency.

Au, Sp. 1 rec, 1 3-hr lab. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.
2582.02T Food Animal Resource Management II – Beef U 1
Supervised practical experience in beef production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving leadership characteristics, beef production and management skills and competency. Au, Sp. 1 rec, 1 3-hr lab. Prereq: 2510.03T. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

2582.03T Food Animal Resource Management II – Swine U 1
Supervised practical experience in swine production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving leadership characteristics, swine production and management skills and competency. Au, Sp. 1 rec, 1 3-hr lab. Prereq: 2510.03T. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

2582.04T Food Animal Resource Management II – Small Ruminants U 1
Supervised practical experience in small ruminant production and management at the Grace Drake Learning Laboratory with emphasis on developing and improving leadership characteristics, small ruminant production and management skills and competency. Au, Sp. 1 rec, 1 3-hr lab. Prereq: 2510.04T. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

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 and 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.

2800T Basic Horsemanship U 2
Study of equine behavior, applied safe horse handling techniques, and an introduction into basic training and handling methodologies. Au. 2 2-hr labs. Prereq or concur: 2201T. Not open to students with credit for 266T or 2811T. This course is available for EM credit.

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. Au. 2 cl, 1 3-hr lab, 1 2-hr lab. Concur: 2189.01T and GenMath 1040T or Math 1105 or Math 1113 or Math placement level R or higher. This course is available for EM credit.

3101.01T Equine Marketing U 1
Students will gain experience in sale prepping horses and develop an understanding of equine sales industry practices. Students will develop promotional materials including ads and videos. AU. 2 2-hr labs. Prereq: 2201T and 2189.01T.

3101.02T Equine Facility Management U 3
This course explores equine facility design, management, and business planning. Students will locate and use resources to develop a business plan and manage an event. The event is typically on a Saturday. Sp. 2 cl, 1 2-hr lab. Prereq: 2201T and 2189.01T. This course is available for EM credit.

3131T Equine Feeding and Nutrition U 3
A study of the nutritional needs of equids and of the principles and practices involved in providing balanced rations to different nutritional classes of equids. Au, 2 cl, 1 3-hr lab. Prereq: 2201T or AnimSci 2200.01; GenMath 1040T or Math 1075 or Math placement level R or higher. This course is available for EM credit.

3132T Ruminant Feeds and Feeding U 3
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 2-hr lab. Prereq: 2220T or AnimSci 2200.01; GenMath 1040T or Math 1075 or Math placement level R or higher. This course is available for EM credit.

3133T Practical Swine Feeding U 3
A study of the basic nutritional requirements and feeding management of swine, with an emphasis on evaluation and formulation of common feedstuffs and ration balancing. Sp. 3 cl, 1 2-hr lab. Prereq: GenSci 1040T or Math 1075 or Math placement level R or higher. This course is available for EM credit.

3137T Dairy Cattle Feeding Management U 3
Principles of dairy cattle feeding management with emphasis on the critical evaluation and formulation of rations in current management situations. Sp. 2 cl, 1 3-hr lab. Prereq: GenMath 1040T or Math 1075 or Math placement level R or higher. This course is available for EM credit.

3140T Animal Anatomy and Physiology U 4
This subject will introduce the principles of animal body structure (anatomy) and function (physiology) as relevant for students of animal sciences and technology. This includes an introduction to anatomical nomenclature, cells and tissues and body systems. Au, Sp. 3 cl, 1 2-hr lab. Prereq or concur: GenBiol 1200T or Biology 1113 or 1114; or permission of instructor. This course is available for EM credit.

3150T Livestock Genetic Improvement U 3
Principles of inheritance and the genetic improvement of livestock through cellular, qualitative, and population genetics; emphasizing breeding values, selection, and mating systems. Sp. 3 cl, 2 rec. Prereq: GenBiol 1200T or Biology 1113; GenMath 1040T or Math 1050 or Math placement level R or higher. This course is available for EM credit.

3151T Horse Breeding and Selection U 3
Principles of equine breeding management with emphasis on applied equine reproductive physiology, breeding methods, breeding stock management and basic genetics and selection. Sp. 2 cl, 1 2-hr lab. Prereq: 2220T (211T). Recommended prereq: 3140T (221T) or GenBiol 1200T (120T). Not open to students with credit for 266T. This course is available for EM credit.

Due to COVID-19, the master schedule of courses and semester of offering for some courses could vary from what is listed above.
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 or Biology 1113; GenMath 1040T or Math 1050 or Math placement level R or higher. This course is available for EM credit.

3161T Applied Equine Reproductive Management U 2
Course is available for EM credit. Su, Au, Sp. Arr. Prereq: 2607T (201T and 203T), 3207T (202T), 3177T (250T or 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.

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: 2202T or 2603T or AnimSci 2200.01. This course is available for EM credit.

3171T Horse Health and Disease U 3
Study of equine disease, lameness and emergency first aid with emphasis on preventative health care and the manager's role with the veterinary professional.
Sp. 2 cl, 1 2-hr lab. Prereq: 2201T or AnimSci 2200.01. This course is available for EM credit.

3177T Dairy Cattle Health Management U 4
A study of immunology and dairy cattle health management, including disease prevention, identification, and treatment of common diseases influencing the performance of dairy cattle.
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, 2510.02T; 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 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 and coordinated by faculty; written comprehensive report required.
Su, Au, Sp. Arr. Prereq: 2603T, 2510.03T; CPHR 2.0 or above; 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, 2510.04T; 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 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 (250T or 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.
Au. 2 rec, 2 2-hr labs. Prereq: 2202T or 2603T or 3140T or AnimSci 2200.01.

3201T Horse Judging and Evaluation U 2
Comparative evaluation of horse conformation by breed, assessment of performance in a variety of performance disciplines; development of tools for assessing and placing show horse classes.
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 4
The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of beef cattle in breeding and feeding production programs. 1 to 3 day field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition and fees.
Su, Au, Sp. Arr. Prereq: 2603T and 2510.02T. Recommended prereq: 2582.02T, 3130T, 3132T, 3140T, 3150T, and 3170T.

3403T Swine Production and Management II U 4
An advanced study of the principles of managing a commercial swine enterprise. Coordination of production programs, evaluating economic performance, and a survey of contemporary swine housing and equipment options. 1 to 3 day field trips, including weekends, may be required. Students will pay costs associated with field trips (lodging, transportation, meals, etc.) above Ohio State tuition & fees.
Sp. 3 cl, 1 2-hr lab. Prereq: 2603T, 3140T, 3170T. Prereq or concour: 3150T, 3150T. Not open to students with credit for 2613T. This course is available for EM credit.

3404T Small Ruminant Production and Management U 4
The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of sheep, goats, and other small ruminants. 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. 3 cl, 1 2-hr lab. Prereq: 2202T and 2510.04T. Recommended prereq: 2582.04T, 3130T, 3132T, 3140T, 3150T, 3170T.

3407T Dairy Cattle Facilities, Environment, & 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 1040T or Math 1050 or Math placement level R or higher. Prereq or concour: 3167T. This course is available for EM credit.

3800T Principles of Farm Business Management U 4
A study of economic and management principles involved in planning, organizing, operating, and administering a farm business; emphasis placed on developing a business plan and problem solving.
Sp. 3 cl, 1 rec, 1 2-hr lab. Prereq: AEDEcon 2105 (BusTec 101T or 102T). Prereq or concour: 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.

Due to COVID-19, the master schedule of courses and semester of offering for some courses could vary from what is listed above.
Bioenergy and Water Treatment Management (BIOWMGT)

11201T Exploring Bioenergy and Water Treatment 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.

12010T Introduction to Bioenergy and Water Treatment Management U 3
An introduction to conventional and alternative energy (with emphasis on bioenergy and bioproducts), including conservation, economic and environmental issues. Water consumption, scarcity, pollution, and water resource recovery will be emphasized. Fermentation technology and biochemistry of microbial breakdown of carbohydrates, proteins, and lipids will be introduced. This course is available for EM credit.

2020T Bioenergy and Wastewater Technologies U 4
A detailed description of technologies employed in bioenergy-generating processes and wastewater treatment. Scientific and technical backgrounds of fermentation technology will be introduced. A critical evaluation of the environmental impacts of organic wastes. Bioreactor design; management of industrial, agricultural, and municipal solid wastes and wastewater will be covered.
Au. 3 cl. 1 3-hr lab. Prereq: 2010T; Chem 1110 or 1210. This course is available for EM credit.

2030T Feedstock Evaluation and Analysis U 3
An introduction to feedstocks used in the bioenergy/bio-products industry, including analytical tools for feedstock evaluation and handling, and logistical and economic aspects of industrial biomass feedstocks.
Au. 2 cl, 1 3-hr lab. Prereq: 2010T. This course is available for EM credit.

2035T Sustainable Bio-Based Technologies U 3
The science and economics of composting, recycling, bioremediation, and phytoremediation will be introduced. Bioconversion of organic wastes and plant-derived sugars to value-added non-fuel products (platform chemicals and other bioproducts) will be explored through classroom sessions and laboratory experiments.
Sp. 2 cl, 1 3-hr lab. Prereq: 2010T; Chem 1110 or 1210. This course is available for EM credit.

2040T Bioenergy and Water Management Projects U 3
This capstone course provides a general overview of bioenergy-generating and wastewater treatment systems with emphasis on planning and logistics, project management, economics, and operations in a real-world setting. Practical applications for managing waste-to-energy projects and wastewater treatment will be emphasized through hands-on and on-site experiences.
Sp. 2 cl, 1 3-hr lab. Prereq: 2020T; 2030T.

218T Bioenergy and Water Management Practicum U 1-2
Supervised practical experience in a relevant work environment – bioenergy laboratory, wastewater treatment plant, biogas plant – with emphasis on developing competencies related to classroom and career activities.
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.

219T Bioenergy and Water Management Internship U 2
Employment experience in a bioenergy/biological waste management work environment that provides 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. 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.

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.

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. Course fee: $50

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. 3 cl. Prereq: Not open to students with credit for 219T or LabBioSc 219T. This course is available for EM credit.

Business Technology (BUSTEC)

11151T General Economics U 3
Study of macro and micro-economic principles applicable to business, agricultural and personal financial decision making.
Prereq or concur: GenMath 1040T or Math 1050 or Math placement level R or higher. Not open to students with credit for AEDEcon 2001. This course is available for EM credit.

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.

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. 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.

Due to COVID-19, the master schedule of courses and semester of offering for some courses could vary from what is listed above.
2214T 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.

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.

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.

2240T Introduction to Project Management  U 3
An introduction to project management concepts and techniques focusing on how to initiate, plan, manage, control, and close a project.
Au. 2 cl, 1 2-hr. lab. 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 or AEDEcon 2001. Recommended prereq: AEDEcon 2105. 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. 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: AEDEcon 2105 (BusTec 101T or 102T). Prereq or concur: 1151T (151T) or AEDEcon 2001 (200). Not open to students with credit for 249T. This course is available for EM credit.

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: 1151T or AEDEcon 2001. This course is available for EM credit.

Due to COVID-19, the master schedule of courses and semester of offering for some courses could vary from what is listed above.
2412T Technology and Field Management of Forage Crops \ U \ 3
A study of sustainable-use of soil resources related to soil formation, mechanics, and erosion control. Sp. 2 cl, 1 3-hr lab. Prereq: 2300T and 2301T. This course is available for EM credit.

2411T Grain and Oilseeds \ U \ 3
A study of the cultural practices and production principles for grain and oilseed crops. Sp. 2 cl, 1 2-hr lab. Prereq: GenBiol 1200T or 1250T or Biology 1113. This course is available for EM credit.

2422T Weed Control Technology \ U \ 3
An introduction to the application of technologies used to control weeds in field cropping systems, including biological, chemical, and mechanical methods. Au. 2 cl, 1 2-hr lab. 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. Au. 2 cl, 1 2-hr lab. Prereq: 2300T and 2301T. This course is available for EM credit.

3800T Principles of Farm Business Management \ U \ 4
A study of economic and management principles involved in planning, organizing, operating, and administering a farm business; emphasis placed on developing a business plan and problem solving. 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 AmnTec.

Engineering Technology (ENGETECH)

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 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.

1201.03T Exploring 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 1040T or Math 1050 or Math placement level R or higher. This course is available for EM credit.

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

2110T Construction Drawings & Basic Estimating \ U \ 1
Reading and interpretation of various types of construction drawings, as well as an introduction to material quantity calculations and estimate development. Au. 1 rec, 1 2-hr lab. Prereq: GenMath 1030T or Math placement level S or higher. This course is available for EM credit.

2120T Building Science: Methods & Materials \ U \ 4
A study of materials science and installation methods used in residential and commercial construction. Emphasizes structural and architectural systems, moisture managed designs, air sealing, and thermal design for energy efficient structures. Au. 2 ½ -cl, 1 rec, 1 3-hr lab. Prereq or concur: English 1110.01; GenMath 1145T or Math 1148 or higher. This course is available for EM credit.

2121T Drafting & Computer-Aided Design \ U \ 2
Principles and applications of technical drawing utilizing proper drafting techniques for creating two dimensional, scaled drawings both by hand and by using current computer-aided design software. Basic computer skills required. Sp. 1 cl, 1 3-hr lab. Recommended prereq: Previous experience with mechanical drawing, engineering graphics, drafting, or equivalent. This course is available for EM credit.

2160T Estimating and Scheduling \ U \ 2
Estimating complete projects and developing project schedules for standard construction projects in the residential or commercial sectors of the industry. Sp. 1 cl, 1 rec, 1 2-hr lab. Prereq: 2110T, 2120T, 2440T, and Soph standing. This course is available for EM credit.

2170T Construction Project Management \ U \ 2
Principles and practices of construction project and construction business management. Sp. 2 2-hr lab. Prereq or concur: 2160T, and Soph standing. 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. Au. 1 cl. Not open to students with credit for 2191.02T. This course is available for EM credit.

Due to COVID-19, the master schedule of courses and semester of offering for some courses could vary from what is listed above.
**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.  Prereq: 2224T (274T), 2226T (271T), and 2232T (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 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.  Prereq: 2314T (241T), 2322T (202T), and 2242T (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.  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.

**2214T Group Studies**  U 1-3
Designed to give groups of students 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.

**2214T 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: GenMath 1030T or Math placement level S or higher. A grade of C or better required to meet graduation requirements for Hydraulic Power and Motion Control. This course is available for EM credit.

**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: 2224T (262T or 270T). Prereq or concur: 2224T (274T) and 2363T (273T). Not open to students with credit for 269.03T.

**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 274.0T. 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. Prereq or concur: GenMath 1145T. 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 or concur: GenMath 1145T. 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, Sp. 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 1040T or Math 1050 or Math placement level R or higher. 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.

**2310T Building Science: Electrical and Lighting Systems**  U 3
Principles, equipment, and applications of building electrical and lighting systems with emphasis on energy and resource conservation and sustainability.
Au. 2 cl, 1 2-hr lab. Prereq: TecPhys 1150T. Not open to students with credit for 2160T.

**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: GenMath 1030T or Math placement level S or higher. 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 1040T or Math 1050 or Math placement level R of higher. 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: 2101T (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, 2 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 or concur: BusTec 1151T or AedEcon 2001. 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 1030T or Math placement level S or higher. This course is available for EM credit.

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Due to COVID-19, the master schedule of courses and semester of offering for some courses could vary from what is listed above.

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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. 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: GenMath 1030T or Math placement level S or higher. Prereq: or concur: 2312T. 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. Prereq or concur: 2334T and TecPhys 1150T. This course is available for EM credit.

2345T Building Science: Mechanical Systems  U 3
Principles, equipment, and applications of building mechanical systems with emphasis on energy and resource conservation and sustainability. 
Sp. 2 cl, 1.2-hr lab. Prereq: TecPhys 1150T. Not open to students with credit for 2150T. This course is available for EM credit.

2348T Performance of Mobile Power Units  U 2
A study of operator comfort and safety, ballast, traction, stability, hitching, engine power ratings, fuel efficiency and other factors affecting the performance and application of mobile power units. 
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: 2110T or HortTec 2320T (237T); 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.

Environmental Sciences Technology (ENVSCT)
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.

General Studies (GENSTDs)
1201.01T 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. 1 cl.

1201.02T College Orientation for Transfer Students  U 0.5
Introduction to the advanced steps and opportunities for success in a life-long journey of becoming an educated person as you integrate into the Unvrsity and ATI communities. 
Au. 1 cl.

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. 
Sp. 3 cl, 1.2-hr lab. Prereq: Not open to students with credit for 120T or Biology 1113 (113). This course is available for EM credit. 
Course fee: $50

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. 3 cl, 1.2-hr lab. Prereq: Not open to students with credit for 125T or HCS 300 or PlantBiol 300. This course is available for EM credit. Course fee: $50

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. 3 cl. Prereq: GenMath 1040T or Math 1050 or Math placement level R of higher. Not open to students with credit for Chem 1110 or 1210. This course is available for EM credit.

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)
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.

2115T 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. 
Sp. 3 cl. Prereq: English 1110.01 or 1110.03. Not open to students with credit for AgrComm 2367. This course is available for EM credit.

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)
11190.01T 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. 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.

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 Basic Mathematics I U 3
A foundation course in arithmetic and beginning algebra skills. Emphasis is on obtaining competencies necessary to be successful in the Basic Mathematics II course.
Prereq: Not open to students with credit for 1040T or 1140T.

1040T Basic Mathematics II 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.
Prereq: 1030T with a grade of C- or better, or Math placement Level S. Not open to students with credit for 1140T. This course is available for EM credit.

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.
Au, Sp. 3 cl. Prereq: 1040T or 1140T or Math placement level R or higher. This course is available for EM credit.

1145T Technical Mathematics 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: 1040T or 1140T or Math placement level R or higher. This course is available for EM credit.

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)

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.

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
Plant identification course to include: trees, shrubs, evergreens, vines, annuals, perennials and tropical plants common to the Midwest covering: identification, morphology, classification, nomenclature and adaptability.
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 required to meet graduation requirements for Landscape Horticulture and Turfgrass Management. This course is available for EM credit.

2120T Plant Materials II U 3
Plant identification including: less common deciduous and evergreen trees, shrubs, vines and herbaceous plants common to the Midwest covering: identification, morphology, classification, nomenclature and adaptability.
Au, Sp. 1 cl, 2-2 hr labs. 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. This course is available for EM credit.

2140T Horticultural Photography 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. 1-3 hr lab. Prereq: Not open to students with credit for 270T. 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: 2600T. 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.
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.

2189.50T 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.  
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.

2192.21T 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.  
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.

2191.23T Greenhouse Engineering Technology Internship  U 3
Experience of employment in the greenhouse industry, structured to provide varied occupational experiences supervised by an industry employer, and coordinated by faculty.  
Prereq: 1201T, 2189.21T, and 2500T. A grade of C or better is required to meet graduation requirements for Greenhouse and Nursery Management Greenhouse Engineering Technology specialization. Repeatable to a maximum of 6 cr hrs.

2191.30T Landscape Horticulture Internship  U 3
Employment in the landscape industry structured to provide varied occupational experiences. Supervised by an industry employer and coordinated by faculty.  
Prereq: 1201T (230T); a grade of C or above in 2110T (244T); GPA 2.0 or above. A grade of C or better is required to meet graduation requirements. 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.  
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 required to meet graduation requirements.

2191.55T Turfgrass Equipment Manager Internship  U 2
Employment in turfgrass equipment management industry at an approved facility structured to provide varied occupational experiences. Supervised by an industry professional and coordinated by faculty.  
Prereq: A grade of C or above in 2225T and 2227T. 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.  
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.

2225T Turf Equipment Operation and Maintenance  U 3
Principles and practices of turf facilities organization and management, equipment maintenance, operation, safety and fleet management.  
Prereq or concur: GenMath 1040T or Math 1050 or math placement level R or higher. A grade of C or better required to meet graduation requirements for Turfgrass Management.

2227T Turfgrass Reel Mower Maintenance  U 3
Theory, configuration, and maintenance of turfgrass reel mower cutting units, including a study of the bedknife attitude, spin vs relief grinding, backlapping, bedknife selection.  
Prereq: GenBiol 1250T and GenMath 1040T or Math 1050 or math placement level R or higher. 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.  
Prereq or concur: GenBiol 1250T and GenMath 1040T or Math 1050 or math placement level R or higher. A grade of C or better required to meet graduation requirements for Landscape Horticulture and 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.  
Prereq: GenMath 1040T or Math 1050 or math placement level R or higher. 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.  
Prereq: GenMath 1040T or Math 1050 or math placement level R or higher. 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.  
Prereq: 2191.50T (290.05T), BioTech 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.  
Prereq: 2191.50T (290.05T), BioTech 2218T (218T). Prereq or concur: 2880T (272T) or 2890T (274T). A grade of C or better required to meet graduation requirements for Turfgrass Management.

2320T Landscape Construction  U 3
Techniques for building, pricing, bidding and installing various landscape plantings, features and structures including (but not limited to): pavers, retaining walls and wooden structures.  
Prereq: GenMath 1040T or Math 1050 or math placement level R or better. A grade of C or better required to meet graduation requirements for Landscape Horticulture. This course is available for EM credit.

2360T Landscape Design  U 3
Introduction to landscape drafting, CAD, design and planning emphasizing the design program, form composition, drafting techniques, design representation and 2 and 3-dimensional CAD.  
Prereq: 1 cl, 2-3 hr labs. A grade of C or better required to meet graduation requirements for Landscape Design.

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.  
Prereq: 2120T and GenBiol 1250T (125T) or Biology 1113 (113). Not open to students with credit for 241T. A grade of C or better required to meet graduation requirements for Landscape Horticulture.

2420T Garden Center Management  U 2
Principles of retail garden center management including sales, marketing, customer relations and management of product lines, stock and displays.  
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. A grade of C or better required to meet graduation requirements in Greenhouse and Nursery Management. 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 Production of Annuals  U 3
Principles and practices of greenhouse bedding and flowering container plant production, including propagation, transplanting, nutrition, environmental requirements, height control, harvesting, pests, pathogens and post-harvest marketing.
Sp. 2 cl, 1 2-hr 45-minute lab. Prereq: 2500T.

2560T Greenhouse Vegetable Production  U 3
Principles and practices of greenhouse vegetable crop production, including propagation, production systems, nutrition, environmental requirements, management practices, harvesting, pests, pathogens, food safety and post-harvest handling.
Au. 2 cl, 1 2-hr 45-minute lab. Prereq: 2500T.

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. 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. Concur: 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. Concur: 2660T. Not open to students with credit for 267T.

2740T Plant Propagation  U 4
Principles. techniques, skills, materials, and facilities used to propagate herbaceous and woody plants with emphasis on commercial propagation methods.
Sp. 3 cl, 1 2-hr 45-minute lab. Prereq: GenBiol 1250T or Biology 1113 or HCS 2202.

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 1.2-hr lab. Prereq: GenBiol 1250T (125T). Prereq or concur: GenChem 1100T (131T). Not open to students with credit for 272T or Crops Geo 2422T (266T). A grade of C or better required to meet graduation requirements for Landscape Horticulture and 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 or 2120T or 2230T; GenBiol 1250T. A grade of C or better required to meet graduation requirements for Landscape Horticulture and Turfgrass Management. This course is available for EM credit.

3550T Components of Greenhouse Technologies  U 3
A study of selected components of modern greenhouse technology, including electric motors, automated material handling and watering controls, pesticide application, and supplemental lighting.
Au. 2 cl. 1 3-hr lab. Prereq: 2500T; GenMath 1145T; EngTech 2312T and 2322T. This course is available for EM credit.

3560T Integrated Greenhouse Climate Control  U 4
Computerized climate control for greenhouse plant production, including data acquisition and control basics, use of the data, and climate control strategies for improved production efficiency.
Sp. 3 cl. 1 3-hr lab. Prereq: 2500T and 3550T. This course is available for EM credit.

Technical Physics (TECPHYS)

1150T Technical Physics  U 5
Principles and applications of forces, motion, energy, matter, heat, thermodynamics, electricity, mechanical waves, and electromagnetic radiation.
Au. 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.

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 307. GE writing and comm: level 2 and diversity soc div in the US course.

2531 Introduction to Agricultural Communication Practices  U 3
This course provides an introduction to the field of agricultural communication and examines how agricultural communicaton fits into the larger U.S. mass media system. This course will introduce the communication process, how media serves as a communication channel, and how agricultural communicators utilize media to reach a variety of audiences.
Au. 3 cl.

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.

4191.01 Agricultural Communication Internship  U 2
The Agricultural Communication Internship is designed to give you first-hand experience working in a professional communication setting. Internships may be arranged in publishing, broadcasting, public relations, editing, photojournalism, graphic design or related areas. Regardless of the field, students should be actively involved in the production of information and communication services.
Su. Au. Prereq: Permission of instructor. This course is graded S/U.

Due to COVID-19, the master schedule of courses and semester of offering for some courses could vary from what is listed above.
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 or Econ 2001. This course is available for EM credit. GE soc sci human, nat, and econ resources 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 or 2001H or Econ 2001.01, 2001.02 or 2001.03H. Not open to students with credit for AcctMIS 2200 or 2300.

3105 Principles of Agribusiness and Food Supply Chains U 3
Study of the actors, intrinsic issues and support systems that are essential to make agribusiness, commodity and food supply chains effective.

3141 Agricultural Cooperatives U 2
Basic principles of cooperatives including types of organizations, legal aspects, governance, membership relations, debt and equity financing, organization and inter-cooperative problems, and distribution of earnings.

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.
Au. Arr. Not open to students with credit for AEE 280.

Animal Science (ANIMSCI)

2200.01 Introductory Animal Sciences U 3
A study of the basic principles of genetics, breeding, reproduction, nutrition, behavior, and biotechnology as it applied to the molecular, cellular, and physical underpinnings of domesticated animal form and function. The online course is not open to students with a declared AnimSci major.
Au. 3 cl. Prereq: Not open to students with credit for 2300H. GE nat sci bio course.

12367 Animals in Society U 3
Introduction to the historical, social, cultural, economic and legal frameworks within which current human-animal relationships have evolved.
Prereq: English 1110 (110) or 111, or equiv. Not open to students with credit for 240. GE writing and comm: level 2 and soc sci indivs and groups course.

4999 Research with Distinction U 0-6
Conducting and reporting research with distinction.
Su, Au. Prereq: CPHR 3.0 overall, and GPA 3.0 or above in major, and permission of project supervisor. Repeatable to a maximum of 6 cr hrs or 6 completions. This course is graded S/U.

Biological (BIOLOGY)

1101 Introductory Biology U 4
Basic principles of biology; topics include the nature of science, organismal diversity, evolution, ecology, genetics, reproduction, and cellular structure and function. Not intended students majoring in one of the biological sciences.
Au. 3 cl. 1 3-hr lab. Prereq: Not open to students with credit for 1101E, 1113 (113), 1113H (115H), 101, Entmgy 1101 (101), or MolGen 1101 (PintBio101). This course is available for EM credit. GE nat sci bio course. Course fee: $80 (WST campus)

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. Course fee: $50 (WST campus)

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. Course fee: $50 (WST campus)

Chemistry (CHEM)

1110 Elementary Chemistry U 5
Introductory chemistry for non-science majors, including dimensional analysis, atomic structure, bonding, chemical reactions, states of matter, solutions, chemical equilibrium, acids and bases, along with topics in organic and biological chemistry.
Au, Sp. 3 cl, 1 rec, 1 3-hr lab. Prereq: Math 1073, 1074, 1075 or above; Math Placement Level L, M, N, or R; or ACT Math subscore of 22 or higher that is less than 2 years old. Not open to students with credit for 1210, 1250, 1610, 1910H. This course is available for EM credit. GE nat sci physs course. WST campus course fee: $50

1210 General Chemistry I U 5
First course for science majors, covering dimensional analysis, atomic structure, the mole, stoichiometry, chemical reactions, thermochemistry, electron configuration, bonding, molecular structure, gases, liquids, and solids.
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 1120, 1130, 1131, 1148, 1150, or above. Not open to students with credit for 1220, 1620, 1920H, 1250, 1610, or 1910H. This course is available for EM credit. GE nat sci physs course. WST campus course fee: $50

2260 Organic Chemistry I U 5
Continuation of 2210 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), 123, 231, 2510, 2510H (251H). This course is available for EM credit. GE nat sci physs course. NS Admis Cond course. WST campus course fee: $50

2510 Organic Chemistry II U 4
Introduction to structure, nomenclature, physical properties, preparation and reactions of alkenes, alkynes, amines, acids, alcohols, ethers, epoxides, aldehydes and ketones. Other topics include stereochemistry, acids, bases, and reaction mechanisms.
Au. 3 cl, 1 rec. Prereq: 2260 (223), 1620 or 1920H (293H). 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 (COMDLR)

2109 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.

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.
Sp. 2 1½-hr cl. Not open to students with credit for AEE 342.

3537 Data Analysis in the Applied Sciences U 3
A general education course focused on developing quantitative literacy and logical reasoning through analysis and interpretation of descriptive and inferential statistics. Students will be able to utilize SPSS to perform statistical data analysis, organize and summarize quantitative data, formulate conclusions, and critically evaluate research reports.
Au. 2 cl, 1 2-hr lab. Prereq: Math 1130 or 1148. GE data any 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. 3 cl. Prereq: English 1110 or equiv. GE lit 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 1110.01 (110.01), 1110.01H (110.01H), 1110.02 (110.02), 1110.02H (110.02H), 052, 060, or 110.03, or equiv.

1110.01 First-Year English Composition U 3
Practice in the fundamentals of expository writing, as illustrated in the student's own writing & in the essays of professional writers. May be available as a service learning course with five hours community service required at the Lima campus only.
Au, Sp. 3 cl. Prereq: EduTLH1902 (108.01) or 1902.04 (108.01), or English Placement Level 4. Not open to students with credit for 1109 (109.01 or 109.02), 1110.01 (non-DL version), 1110.01H (110.01H), 1110.02 (110.02), 1110.02H (110.02H), 1110.03 (110.03), 1167H (167H), 110.01. 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), 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 environmental systems, the ecological impacts of environmental degradation by humans, and strategies for sustainable management of environment and natural resources.
Au. 3 cl. This course is available for EM credit. 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.
Au. 2 1½-hr cl. Prereq: Not open to students with credit for 203. GE soc sci human, nat, and econ resources course.

2387 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 2-hr lab. Prereq: English 1110 and Soph. standing or above. GE writing and comm course: level 2.

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 1½-hr cl. Prereq or concour: English 1110.xx. Not open to students with credit for 1150 or 2002. GE historical study course. This course is available for EM credit.

Horticulture and Crop Science (HCS)

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.

2202 Form and Function in Cultivated Plants U 4
An introduction to plant growth and development with special emphasis on structure function relationships important to productivity and quality in cultivated plants.
Sp. 3 cl, 1 2-hr lab. Not open to students with credit for 300, 300E, 310, 315, or PlantBio 300. GE nat sci bio course.

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

3100 Introduction to Agronomy U 3
An introductory course of row crop and forage agricultural production (agronomy). This course introduces students to row and forage crop species common in Ohio and surrounding states, and provides fundamental information on how these crops are managed in the region. Management aspects include site preparation, seasonality of management activities, and fundamentals of nutrient and pest management.
Sp. 2 cl, 1 2-hr lab.

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 reevaluation 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.

Due to COVID-19, the master schedule of courses and semester of offering for some courses could vary from what is listed above.
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, Am. Prereq: 2250 (250), and enrollment in Pre-Professional or Professional Golf Management majors. Repeatable to a maximum of 5 completions.

Mathematics (MATH)

1050 Precalculus 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 Precalculus Mathematics II U 4
Algebraic, rational, and radical 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; or ACT math subscore of 22 or higher that is less than 2 years old. Not open to students with credit for any Math course above 1075, except for 1116; or for any quarter-system 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, or ACT math subscore of 22 or higher that is less than 2 years old. Not open to students with credit for 1131 (131), or for any Math course numbered 1149 (150) or above. This course is available for EM credit. GE quant reason math and logical 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 ACT math subscore of 22 or higher that is less than 2 years old, or permission of department. Not open to students with credit for 1144, or for Math courses numbered 1150 (150) or above. This course is available for EM credit. GE quant reason math and logical anly course.

1149 Trigonometry U 3
Trigonometric functions and their properties. Vectors, polar coordinates and complex numbers. Au, 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 any quarter Math course numbered 150 or above. This course is available for EM credit. GE quant reason math and logical anly course.

1151 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.

Meat Science (MEATSCI)

2010 Bar-B-Que Science U 2
Investigating methods to prepare various meat products. Students will gain experience in matching proper cooking methods with different muscles to produce wholesome and palatable products. Students will be introduced to product sensory techniques. Au, Sp. 1 cl, 1 3-hr lab.

3110 Introductory Meat Science U 3
Analysis of the principles of meat science as related to meat animal value factors, processing technology, and merchandising systems affecting the producer, processor, and consumer. Sp. 3 cl. Prereq: Biology 1101 or 1113. Not open to students with credit for AnimSci 3110. Cross-listed in AnimSci.

Microbiology (MICRBIO)

4000.01 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 4000 or 4000.02. 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 1 1/2-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)

11200 Mechanics, Kinematics, Fluids, Waves U 5
Algebra-based introduction to classical physics: Newtons laws, fluids, waves. Prereq: A grade of C- or above in Math 1148 (148), or Math Placement Level M. Not open to students with credit for 111. This course is available for EM credit. GE nat sci phy course. NS Admis Cond course. Course fee: $50 (WST campus)

Plant Pathology (PLNTPH)

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. 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. 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.
Due to COVID-19, the master schedule of courses and semester of offering for some courses could vary from what is listed above.

**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, 1100H (100H), or 1100E (100E). This course is available for EM credit. GE soc sci indivs and groups and diversity soc div in the US course.

**Religious Studies (RELSSTD)***

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 2370H or CompStd 2370H (270H) or 2370 (270). GE cultures and ideas and diversity global studies 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, Sociol 1101 (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
Kris Boone, PhD, Assistant Dean and Director
Carri A. Gerber, PhD, Assistant Director of Academic Affairs and Interim Assistant Director of Student Programming and Life

Faculty
Michael D. Amstutz, PhD, The Ohio State University, Professor
Adem Cakmak, PhD, Texas Tech University, Assistant Professor
Nathan Crook, PhD, Bowling Green State University, Associate Professor
Laura Deeter, PhD, The Ohio State University, Professor
Joshua Deily, PhD, University of Missouri, Associated Faculty
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Jill Byers Julia Morris
Kelly Carmack Tyler Morris
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David Dietrich Kim Sayers
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Leslie Eiseberg Cindy Shelly
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Jill Gallon Chad Stanton
Mitch Gissinger Brooke Steele
Gail Hall Jeff Strouse
Keegan Hange Denny Talampas
Elizabeth Hellerbrand Seth Walker
Heather Hetlick Frances Whited
Jodie Holava Jennifer Williams
Steve Hughes Teng Yang
Cate Hunko Kathy Yoder
Peggy Lambert

Emeritus Faculty
Gary A. Anderson, PhD, Michigan State University
John Arnold, MS, The Ohio State University, Associate Professor Emeritus
Shirley E. Badger, MS, University of Akron
Assistant Professor Emeritus
Roger Baur, PhD, The Ohio State University
Associate Professor Emeritus
Michael L. Borger, PhD, Pennsylvania State University
Associate Professor Emeritus
Ronald J. Borton, PhD, Michigan State University
Associate Professor Emeritus
Thomas L. Bowman, PhD, Michigan State University
Associate Professor Emeritus
Ella G. Copeland, MAL, Rosemary College
Assistant Professor Emeritus
Richard L. Dobec, MS, Cornell University
Assistant Professor Emeritus
Michael M. Fulton, MS, The Ohio State University
Associate Professor Emeritus
Gregory P. Gordon, MS, The Ohio State University
Assistant Professor Emeritus
Wesley A. Greene, PhD, Cornell University
Assistant Professor Emeritus
Kent D. Hammond, MS, Michigan State University
Associate Professor Emeritus
Mark E. Headings, PhD, Michigan State University
Associate Professor Emeritus
Linda S. Houston, MS, Syracuse University
Associate Professor Emeritus
Frank L. Jennings, MBA, University of Akron
Assistant Professor Emeritus
George M. Kreps, PhD, The Ohio State University
Associate Professor Emeritus
Philip R. Kroll, MA, University of Minnesota
Associate Professor Emeritus
Frederick A. Lendrum, MS, The Ohio State University
Assistant Professor Emeritus
Robert W. McMahon, MS, Iowa State University
Associate Professor Emeritus
Emil Miller, MA, University of Akron
Assistant Professor Emeritus
Arnold L. Mokma, PhD, Michigan State University
Associate Professor Emeritus
David A. Munn, PhD, The Ohio State University
Associate Professor Emeritus
Jean Oppler, MS, University of Akron
Associate Professor Emeritus
Shah Rahmema, PhD, University of Arizona
Professor Emeritus
Robert M. Rupp, MS, University of Akron,
Assistant Professor Emeritus
Larry G. Steward, MS, Virginia Polytechnic Institute and State University
Associate Professor Emeritus
Sigel G. Stocker, PhD, The Ohio State University
Assistant Professor Emeritus
David A. Willoughby, Med, Miami University
Associate Professor Emeritus
Samuel J. Woods, PhD, Purdue University
Associate Professor Emeritus
Tommy L. Zimmerman, PhD, Pennsylvania State University
Associate Professor Emeritus
University Calendar – Subject to change

Autumn Semester 2021

August 21-23 Welcome Days (Sat. – Mon.)
August 24 Classes begin (Tue.)
September 6 Labor Day – no classes, offices closed (Mon.)
October 14-15 Autumn Break – no classes (Thur. – Fri.)
November 11 Veterans’ Day – no classes, offices closed (Thur.)
November 24-26 Thanksgiving Break – no classes (Wed. – Fri.), offices closed (Thur. – Fri.)
December 8 Last day of regularly scheduled classes (Wed.)
December 10-16 Final examinations (Fri. – Thur.)
December 19 Autumn commencement – Columbus Campus
December 23 President’s Day observed – offices closed ( Thur.)
December 24 Christmas observed – offices closed (Fri.)

Spring Semester 2022

January 10 Classes begin (Mon.)
January 17 Martin Luther King Day – no classes, offices closed (Mon.)
March 14-18 Spring Break (Mon. – Fri.)
April 25 Last day of regularly scheduled classes (Mon.)
April 27 - May 3 Final examinations (Wed. – Tue.)
May 7 ATI commencement (Sat.) – Wooster Campus
May 8 Spring commencement (Sun.) – Columbus Campus

Summer Term/Sessions 2022

May 11 - July 29 Summer Term (12 weeks)
May 11 - June 6 4-week Session #1
June 7 - July 1 4-week Session #2
July 5 - July 29 4-week Session #3
May 11 - June 20 6-week Session #1
June 21 - July 29 6-week Session #2
May 11 - July 1 8-week Session #1
June 7 - July 29 8-week Session #2
May 30 Memorial Day
July 4 Independence Day observed
July 31 - Aug. 2 Term Final examinations
August 7 Summer commencement – Columbus Campus

Autumn Semester 2022

August 20-22 Welcome Days
August 23 Classes begin
September 5 Labor Day – no classes, offices closed
October 13-14 Autumn Break
November 11 Veterans’ Day – no classes, offices closed
November 23-25 Thanksgiving Break
December 7 Last day of regularly scheduled classes
December 9-15 Final examinations
December 18 Autumn commencement – Columbus Campus
December 23 President’s Day observed – offices closed
December 26 Christmas observed – offices closed

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/currentstudents/money matters

Residence Life
330-287-7504
http://ati.osu.edu/futurestudents/admitted-students/campus-housing

Student Success Services
330-287-1340

Business Training/Educational Services
1625 Wilson Road
Wooster, OH 44691
330-287-7511
http://ati.osu.edu/btes

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
Buckeye Link
614-292-0300
http://contactbuckeyelink.osu.edu/
Columbus campus Office for Disability Services
614-292-3307
www.ods.ohio-state.edu
Columbus campus Office of Military and Veterans Services
614-247-VETS (8367)
http://veterans.osu.edu/
Master Schedule of Classes
www.buckeyelink.osu.edu