

**CFAES**

# Ohio State ATI

2025-2026 BULLETIN

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**We  
sustain  
life.**



**THE OHIO STATE UNIVERSITY**

COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

WOOSTER

# The Ohio State University

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## 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

# CFAES Wooster / Ohio State ATI

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At The Ohio State University, every effort is made to provide accurate and up-to-date information. However, the university reserves the right to change without notice statements in university publications concerning rules, policies, fees, curricula, courses, or other matters when necessary. In addition, Ohio State is currently reviewing and restructuring many of our academic programs in an effort to enhance their quality and improve our efficiency. In that process, some of the programs and courses mentioned in this bulletin may be modified, consolidated with other programs or courses, or eliminated.



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## 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-two programs of study leading to the Associate of Applied Science or Associate of Science degrees 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 18:1 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. Sixty-nine 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](http://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  
 Greenhouse and Nursery Management.....  
 ..... GHNRMGT-AA  
 Horse Production and Management .....  
 ..... HRSPMGT-AA  
 Landscape Horticulture..... LANDHRT-AA  
 Livestock Production and Management.....  
 ..... LVBSRSW-AA  
 Power and Hydraulic Engineering Technologies...  
 ..... PWRHYDR-AA  
 Turfgrass Management ..... TUFGMGT-AA

### Associate of Science

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

Associate of Science degree programs can be transferred to various departments at the Columbus campus, including Agricultural Communication, Education and Leadership; Agricultural, Environmental, and Development Economics; Animal Sciences; Food, Agricultural, and Biological Engineering; Horticulture and Crop Sciences; and the School of Environment and Natural Resources.

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  
 Horticultural Science..... HORTSCI-AS  
 Sustainable Agriculture..... SUSTAG-AS

### 1 + 3 Programs

This program allows students to complete one year of coursework at Ohio State ATI before transitioning to Columbus to complete a Bachelor of Science in Entomology.

Entomology ..... ENTMLGY-PR

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.

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.

Feed Mill Operations..... FEEDM1A-CR  
 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.

## Campus Change to Columbus

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 campus change to Columbus.



## 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.

### 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 1113.01, 1114.01 .....	\$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.

### 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.....

### ..... \$1959/semester

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

## 2025-2026 Per Semester Tuition

<i>Credit hours</i>	<i>Resident tuition*</i>	<i>Non-resident tuition**</i>
1	405.13	1,604.38
2	810.26	3,208.76
3	1,215.39	4,813.14
4	1,620.52	6,417.52
5	2,025.65	8,021.90
6	2,430.78	9,626.28
7	2,835.91	11,230.66
8	3,241.04	12,835.04
9	3,646.17	14,439.42
10	4,051.30	16,043.80
11	4,456.43	17,648.18
12-18	4,861.50	19,252.50

**\*Qualified Residents:** Ohio Law requires male students between the ages of 18 and 26 to be registered with the Selective Service System, unless they are on active duty with the armed forces of the United States (other than the National Guard or Reserves) or legally excluded, to be eligible for state educational assistance programs. Residents who are not registered or have not indicated they do not need to register by the first day of the semester are required to pay the Out-of-State Tuition as required by Ohio law. Students can register with Selective Service in the year they become 18 and must complete registration by 30 days after their 18th birthday. Selective Service registration can be accomplished within a few minutes at [www.sss.gov](http://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 2025-2026

All figures are rounded to the nearest dollar.

<b>Ohio Residents</b>	<b>One Semester</b>	<b>Two Semesters</b>
Tuition	\$4,862	\$9,723
Learning Technology	49	98
Campus Housing	4,539	9,078
Academic-yr housing fee	125	125
Meal Plan (Carmen 2)	1,023	2,046
Miscellaneous fees*	45	87
Books and supplies**	510	1,020
Misc/Personal**	1,721	3,442
<b>Totals</b>	<b>\$12,874</b>	<b>\$25,619</b>

### Non-Ohio Residents

Tuition	\$19,253	\$38,505
Learning Technology	49	98
Campus Housing	4,539	9,078
Academic-yr housing fee	125	125
Meal Plan (Carmen 2)	1,023	2,046
Miscellaneous fees*	45	87
Books and supplies**	510	1,020
Misc/Personal**	2,023	4,046
<b>Totals</b>	<b>\$27,567</b>	<b>\$55,005</b>

\* 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 Ohio State ATI (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 7-16) 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 17-29.

## 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

The Business Management program provides students with the tools they need to be successful in a business career or to start, run and manage a business. There are numerous opportunities in the business world for individuals with good interpersonal skills and the knowledge of accounting, marketing, and computers

## 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 2001	Principles of Food and Resource Economics
AEDECON 2105	Managerial Records and Analysis
BUSTEC 1201T	Exploring Business
BUSTEC 1202T	Software Applications
•BUSTEC 2191T	Business Internship
BUSTEC 2231T	Fundamentals of Marketing
BUSTEC 2241T	Small Business Management
BUSTEC 2247T	Business Law
BUSTEC 2249T	Fundamentals of Business Finance
ENGLISH 1110.01	First-Year English Composition
BIOLOGY 1101	Introductory Biology
or 1250T	General Botany with Applications
GENCHEM 1100T	Introduction to General Chemistry
GENCOMM 2115T	Technical and Business Writing
GENMATH 1141T	Business Mathematics
GENSTDS 1201.01T	College Orientation
	Social Science or Humanities
	Technical Electives (from approved list)

## Specialization courses

### Agricultural Business

Additional Natural or Applied Science	
AEDECON 3142	Agricultural Cooperatives
BUSTEC 2244T	Human Res. Mgmt. & Leadership
or 2232T	Personal Selling

### General Business

BUSTEC 2232T	Personal Selling
BUSTEC 2244T	Human Res. Mgmt. & Leadership
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 36.

## 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](#).

# Construction Management

The objective of this program is to educate and prepare individuals for technical and 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 general contractors, testing and inspection firms, home builders, land surveyors, agricultural builders, building material retailers, and manufacturers. Graduates could fill roles such as project engineer, site supervisor, assistant superintendent, estimator, or assistant project manager.

## 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 software such as Bluebeam, Procore, P6 Professional, AutoCAD, and Revit 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 480 hours of full-time employment in a work experience related to their career interest.

Construction Management students also have opportunities to engage with professionals, network, and develop advanced skills through attending construction 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	<i>program change pending to ENGTECH 2608T</i>
ENGTECH 2310T	Building Science: Electrical and Lighting Systems
ENGTECH 2345T	Building Science: Mechanical Systems
GENCOMM 2115T	Technical and Business Writing
GENMATH 1145T	Technical Mathematics
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
•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 36.

# 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.

## 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
CRPSOIL 2301T	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 (now 2204 & 2205)	Ecology of Managed Plant Systems
Technical electives (from approved list)	



## Specialization courses

### Crop Management

AEDECON 2105	Managerial Records and Analysis
HORTEC 2819T	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
ENGTECH 2040T	Soil & Water Conservation Systems
<i>program change pending to ENGTECH 2440T</i>	
ENGTECH 2050T	Introduction to Geographic Information Systems
ENGTECH 2121T	Drafting and Computer-Aided Design
<i>program change pending to ENGTECH 2608T</i>	
ENGTECH 2600T	Construction Safety and Health
ENR 2100	Intro to Environmental Science
GENMATH 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 36.

## 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](#) or [Agronomy](#).

# 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. Careers opportunities are available on dairy farms and nutrition, milk quality, reproduction, genetic, equipment, and other related dairy businesses.

## 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
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 Herd Records
ANMLTEC 3407T	Dairy Cattle Facilities, Environment, and Equipment
ANMLTEC 3800T	Principles of Farm Business Mgmt.
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 36.

## Facilities

The Wooster Campus Dairy facilities are home to around 200 Holstein cows at Krauss Dairy and more than 200 Holstein and Jersey heifers at Grace Drake Learning Laboratory. Animals are housed in free-stall barns with drive-through total mixed ration feeding. The fully automated double-eight parabone 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 association. 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 Krauss Dairy their second academic year.

Dairy students must also complete an industry internship consisting of a minimum of 400 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 – Animal Industries Specialization](#).

# Greenhouse and Nursery Management

The objective of this program is to educate individuals for managerial positions in the controlled environment agriculture (CEA) related industries.

## Career opportunities

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

## Curriculum

The curriculum emphasizes greenhouse crop production and greenhouse environmental controls and include hands-on experience in the production, harvesting, handling, use of floriculture and food crops, and greenhouse maintenance. 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 propagation greenhouses, hydroponics production systems and the outdoor display gardens provide opportunities for practical experience in greenhouse and nursery production. In addition, facilities at OARDC and Secret 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

### Greenhouse

BIOTECH 2218T	General and Applied Entomology
HORTTEC 2819T	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

ENGTECH 2312T	Engineering Tech Fundamentals
ENGTECH 2322T	Basic Electricity and Electronics <i>changed to ENGTECH 2609T</i>
ENGTECH 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	Greenhouse Vegetable Production 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 36.



## 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, racetrack 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
GENSTDS 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 2201T	Introduction to Horse Science
ANMLTEC 2800T	Basic Horsemanship
or †2801T**	Horsemanship and Equitation
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	Horsemanship and Equitation
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.

†course will not be taught this year

\*\*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.

\*\*\*If BUSTEC 2232T is taken as the business elective, may not be used for the technical elective and vice versa.

[Course descriptions](#) begin on page 36.

## 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](#).

# Landscape Horticulture

The objective of this program is to prepare individuals to enter the workforce in a variety of landscape related industries. 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 19 two-year programs in the nation to be accredited by the National Association of Landscape Professionals, the national trade association for landscape professionals.



## Facilities

Landscape students have access to outstanding facilities at Ohio State ATI:

- The adjacent 122-acre Sequest Arboretum
- 5 specialty gardens
- Ohio State ATI campus grounds
- Landscape laboratory with digital design software
- Landscape Construction and Construction building

## General Education

AGRCOMM 3130	Oral Expression in Agriculture
BIOTECH 2218T	General and Applied Entomology
BUSTEC 1151T	General Economics
BUSTEC 1202T	Software Applications
CRPSOIL 2300T	Introduction to Soil Science
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
or PSYCH 1100	Introduction to Psychology
GENSTDS 1201.01T	College Orientation
HORTTEC 1201T	Exploring Horticulture
Arts/Hum Elective (from approved list)	
Business Elective (from approved list)	

## Technical Studies

•HORTTEC 2110T	Plant Materials I
•HORTTEC 2120T	Plant Materials II
•HORTTEC 2191.30T	Landscape Horticulture Internship
•HORTTEC 2230T	Fundamentals of Turfgrass Science and Management
•HORTTEC 2320T	Landscape Construction
HORTTEC 2360T	Landscape Design
•HORTTEC 2880T	Principles of Weed Science
•HORTTEC 2890T	Plant Diseases of Ornamentals and Turf

Technical Elective

•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 36.

## 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 has access to a herd of goats and the sheep flock housed 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 or 1145T	Business Mathematics Technical Mathematics
GENSTDS 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	Practical Swine Feeding
•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 36.

## Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science programs in [Animal Sciences – Animal Industries](#).

# Power and Hydraulic Engineering Technologies

This program offers a comprehensive educational pathway for students pursuing their degree, with a focus on diesel engines, hydraulics, and electronics. This program integrates embedded certifications from NC3 (National Coalition of Certification Centers), ensuring students gain industry-recognized credentials alongside their academic achievements.

## Career opportunities

Graduates of Power and Hydraulic Engineering Technologies will have the skills needed to become an agriculture and construction equipment technician, manufacturing technician, assembly line technician, hydraulic assembler, or diagnostic technician.



## Curriculum

The curriculum emphasizes performance in diesel engines, troubleshooting and design of hydraulic systems, proficiency in electronics, and includes NC3 certifications to validate their skills in these critical areas.

## General Education

AGRCOMM 3130	Oral Expression in Agriculture
AEDECON 2001	Principles of Food and Resource Economics
AGSYSMT 2150	Applied Agricultural Mechanics and Electronics
BUSTEC 1202T	Software Applications
BUSTEC 2241T	Small Business Management
ENGLISH 1110.01	First-Year English Composition
ENGTECH 1201.01T	Exploring Engineering Technologies
ENGTECH 2608T	Applied Computer Aided Design
ENGTECH 2609T	Basic Electricity and Electronics
GENCOMM 2115T	Technical and Business Writing
GENMATH 1145T	Technical Mathematics
GENSTDS 1201.01T	College Orientation

## Technical Studies

•ENGTECH 2191.03T	Power Equipment Internship
ENGTECH 2240T	Welding Technology
ENGTECH 2332T	Mobile Heating and Air Conditioning
ENGTECH 2602T	Workplace Safety
ENGTECH 2603T	Precision Tools
ENGTECH 2604T	Introduction to Power Units
ENGTECH 2605T	Transmissions and Components
*ENGTECH 2606T	Power Units and Components
ENGTECH 2607T	Power Application and Performance
ENGTECH 2610T	Components and Fluid Circuits
ENGTECH 2611T	Small Engine Basics
ENGTECH 2612T	Fundamentals of Fluid Power and Components
*ENGTECH 2613T	Electrohydraulics and System Design

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

[Course descriptions](#) begin on page 36.

## 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 and Hydraulic Engineering Technologies 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
GENSTDS 1201.01T	College Orientation
HORTTEC 1201T	Exploring Horticulture

## Technical Studies

ENGTECH 2011T	Small Engine Basics <i>changed to ENGTECH 2611T</i>
•HORTTEC 2110T	Plant Materials I
•HORTTEC 2191.50T	Turfgrass 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 •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 36.

## Facilities

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 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 businesses.

### 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

*AEDECON 2001	Principles of Food and Resource Economics
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra
	Literary, Visual and Performing Arts
	Historical and Cultural Studies
	Natural Science
	Race, Ethnicity and Gender Diversity

\* One possible course from approved GE list or major requirement that has multiple options

## Degree Requirements

AGRECOMM 3130	Oral Expression in Agriculture
BUSTEC 1201T	Exploring Business
GENSTDS 1201.01T	College Orientation
	Additional Science

## Major courses

AEDECON 2105	Managerial Records and Analysis
AEDECON 3105	Principles of Agribusiness and Food Supply Chains
BUSTEC 2231T	Fundamentals of Marketing
BUSTEC 2241T	Small Business Management
BUSTEC 2249T	Fundamentals of Business Finance
	Major Electives (from approved list)
	Electives (courses selected in consultation with advisor)

Course descriptions begin on page 36.

## Other degree options

An Associate of Applied Science degree is available in [Business Management](#).

# Agricultural Communication

The objective of the Agricultural Communication program 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 or natural resource publications, advertising, marketing, and public relations professionals who work with agribusinesses, commodity or environmental groups, directors of communication for agricultural or natural resource organizations, and on-air broadcasters and reporters for agriculture and natural resource-related radio and television programs.

## Curriculum

Agricultural Communication majors must complete a minor in the College of Food, Agricultural, and Environmental Science. Students can start working on their minor at Ohio State ATI. Minor options include: agribusiness, animal science, crop science, equine, horticulture, natural resources, production agriculture, turfgrass, and more. A complete listing can be found at <https://students.cfaes.ohio-state.edu/academics/minors>

## General Education

*AEDECON 2001	Principles of Food and Resource Economics
*BIOLOGY 1101 or 1113.01	Introductory Biology
*COMLDR 3535	Bio Sci: Energy Transfer & Dev. Toward Cultural Proficiency
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra

Literary, Visual and Performing Arts  
Race, Ethnicity and Gender Diversity

\* One possible course from approved GE list or major requirement that has multiple options



## Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
GENCOMM 1201T	Exploring Agricultural Communication, Education and Leadership
GENSTDS 1201.01T	College Orientation
Additional Science	

## Major courses

AGRCOMM 2330	Perceptions of Agricultural and Environmental Issues
AGRCOMM 2531	Introduction to Agricultural Communication Practices
AGRCOMM 4130	Publication Design & Production
AGRCOMM 4530	Communicating Agricultural Issues
COMLDR 3530	Foundations of Personal and Professional Leadership
COMLDR 3537	Data Analysis in the Applied Sciences
*GENCOMM 2189.01T	Practicum in Agricultural Communication
Electives (to be selected in consultation with advisor)	

\* A grade of C or better is required to meet graduation requirements.

[Course descriptions](#) begin on page 36.

# Agricultural Systems Management

The objective of the Agricultural Systems Management program 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

*AEDECON 2001	Principles of Food and Resource Economics
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra
PHYSICS 1200	Mechanics, Kinematics, Fluids, Waves

Literary, Visual and Performing Arts  
Historical and Cultural Studies  
Race, Ethnicity and Gender Diversity

\* One possible course from approved GE list or major requirement that has multiple options

## Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
CRPSOIL 2300T	Introduction to Soil Science
CRPSOIL 2301T	Introduction to Soil Science Lab
ENGTECH 1201.03T	Exploring Agricultural Systems Management
GENSTDS 1201.01T	College Orientation

## Major courses

ANIMSCI 2200.01 or HCS 2202	Introductory Animal Sciences Form & Function of Cultivated Plants
or HCS 2204	Ecology of Managed Plant Systems
AGSYSMT 2305	Professional Development I
CRPSOIL 2228T	Manure Management
ENGTECH 2040T	Soil & Water Conservation Systems
	<i>program change pending to ENGTECH 2440T</i>
ENGTECH 2120T	Building Science: Methods and Materials
•ENGTECH 2191.04T	Agricultural Systems Technology Internship
ENGTECH 2240T	Welding Technology
Electives (from approved list)	

• A grade of C or better is required to meet graduation requirements.

[Course descriptions](#) begin on page 36.

## 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](#).

## Agriscience Education

The objective of the Agriscience Education program 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

*AEDECON 2001	Principles of Food and Resource Economics
*BIOLOGY 1101	Introductory Biology
*COMLDR 3535	Historical and Cultural Studies
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra
Literary, Visual and Performing Arts	
Race, Ethnicity and Gender Diversity	

\* One possible course from approved GE list or major requirement that has multiple options

### Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
ENR 2100	Intro. to Environmental Science
GENCOMM 1201T	Exploring Agricultural Communication, Education, and Leadership
GENSTDS 1201.01T	College Orientation



### Major courses

AGRCOMM 2330	Perceptions of Agricultural and Environmental Issues
ANIMSCI 2200.01	Introductory Animal Sciences
ANMLTEC 2200.02T	Introduction to Animal Sciences Lab
ASE 2189	Early Field Experience in Agriscience Education
CHEM 1110 or 1210	Elementary Chemistry General Chemistry I
COMLDR 2530	Introduction to Agricultural Communication, Education and Leadership
COMLDR 3537	Data Analysis in the Applied Sciences
ENGTECH 2240T	Welding Technology
HCS 2204	Ecology of Managed Plant Systems
HCS 2205	Ecology of Managed Plant Systems Lab
PSYCH 1100	Introduction to Psychology

[Course descriptions](#) begin on page 36.

## 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
*BIOLOGY 1113.01	Bio Sci: Energy Transfer & Dev.
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra
	Literary, Visual and Performing Arts
	Historical and Cultural Studies
	Race, Ethnicity and Gender Diversity

\* One possible course from approved GE list or major requirement that has multiple options

### Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
CRPSOIL 1201T	Exploring Agronomy, Sustainable Agriculture, and Crop Mgmt. and Soil Conservation
CRPSOIL 2300T	Introduction to Soil Science
GENSTDS 1201.01T	College Orientation

### Major courses

BIOTECH 2218T	General and Applied Entomology
CHEM 1110	Elementary Chemistry
or 1210	General Chemistry I
•CRPSOIL 2189T	Practicum in Crop and Soil Technologies
CRPSOIL 2301T	Introduction to Soil Science Laboratory
CRPSOIL 2580T	Soil Fertility and Fertilizers
HCS 2202	Form and Function in Cultivated Plants
HCS 2204	Ecology of Managed Plant Systems
HCS 2205	Ecology of Managed Plant Systems Lab
HCS 3100	Introduction to Agronomy
Electives (from approved list)	

♦ A grade of C or higher required to meet graduation requirements.

[Course descriptions](#) begin on page 36.



### 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 Bioscience Specialization

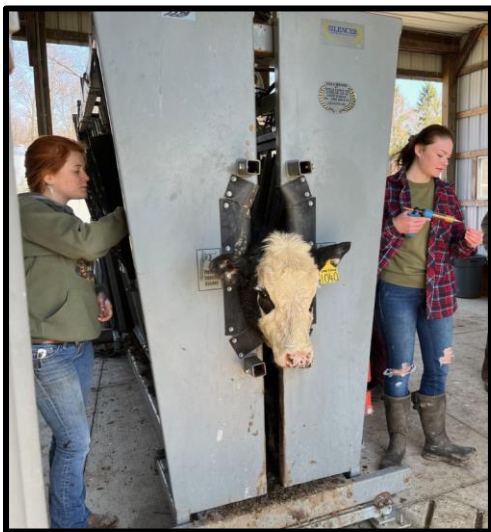
The objective of the Animal Sciences – Animal Bioscience program is to allow students to complete the first half of a Bachelor of Science degree in Agriculture majoring in Animal Sciences (Animal Bioscience) at The Ohio State University with a focus on academic preparation for professional degrees or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

The Animal Bioscience 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 veterinary medicine or graduate school 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 the Veterinary Early Commitment Program offered by the Department of Animal Sciences in conjunction with the College of Veterinary Medicine.

## 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 graduate programs for careers in veterinary medicine, veterinary research, public health, toxicology, pharmacology, nutrition, animal welfare, and other specialties.



## Curriculum

The curriculum of the Animal Sciences program allows the student to choose one of three specializations: animal biosciences, animal industries, or horse. The Animal Biosciences 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

*AEDECON 2001	Principles of Food and Resource Economics
*BIOLOGY 1113.01	Bio Sci: Energy Transfer & Dev.
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra
	Literary, Visual and Performing Arts
	Historical and Cultural Studies
	Race, Ethnicity and Gender Diversity

\* One possible course from approved GE list or major requirement that has multiple options

## Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
ANMLTEC 1201.08T	Exploring Animal Bioscience Careers
CHEM 1210	General Chemistry 1
GENSTDS 1201.01T	College Orientation

## Major courses

ANIMSCI 2000	Animal Handling
ANIMSCI 2200.01	Introductory Animal Sciences
ANIMSCI 2200.03	Animal Systems
ANMLTEC 2200.02T	Introduction to Animal Sciences Laboratory
ANMLTEC 3140T	Animal Anatomy and Physiology
ANMLTEC 3150T or 3157T	Livestock Genetic Improvement Dairy Cattle Genetic Improvement
CHEM 1220	General Chemistry II
COMLDR 3537	Data Analysis in the Applied Sciences

Electives (from approved list)

[Course descriptions](#) begin on page 36.

# Animal Sciences

## Animal Industries Specialization

The objective of the Animal Sciences – Animal Industries program 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 animal production units; technical representatives for feed, equipment, pharmaceutical, breeding/genetics and other related companies; research or product development technicians; and other related employment opportunities. Practical application is emphasized at the Ohio State ATI Grace Drake Learning Laboratory, Krauss Dairy, and the Sheep/Goat Research Center on the Wooster Campus.

## Curriculum

The curriculum of the Animal Sciences program allows the student to choose one of three specializations: animal biosciences, animal industries, or horse. Students in the Animal Industries Specialization can select a focus on beef, dairy, small ruminant, or swine species or select a focus that combines multiple animal species.

## General Education

*AEDECON 2001	Principles of Food and Resource Economics
*BIOLOGY 1113.01	Bio Sci: Energy Transfer & Dev.
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra
Literary, Visual and Performing Arts	
Historical and Cultural Studies	
Race, Ethnicity and Gender Diversity	

\* One possible course from approved GE list or major requirement that has multiple options

## Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
ANMLTEC 1201.01T	Exploring Equine Careers and Industry
or 1201.02T	Exploring Livestock Careers and Industry
or 1201.07T	Exploring Dairy Careers and Industry
CHEM 1110	Elementary Chemistry
or 1210	General Chemistry 1
GENSTDS 1201.01T	College Orientation



## Major courses

ANIMSCI 2200.01	Introductory Animal Sciences
ANIMSCI 2200.03	Animal Systems
ANMLTEC 2200.02T	Introduction to Animal Sciences Laboratory
ANMLTEC 3140T	Animal Anatomy and Physiology
ANMLTEC 3150T or 3157T	Livestock Genetic Improvement Dairy Cattle Genetic Improvement
COMLDR 3537	Data Analysis in the Applied Sciences
Electives (from approved list)	

### GENERAL

ANIMSCI 2000	Animal Handling
BIOLOGY 1114.01	Bio Sci: Form, Function, Diversity and Ecology
or CHEM 1220 or MICRBIO 4000.01	General Chemistry II Basic and Practical Microbiology

### BEEF focus

ANMLTEC 2202T	Intro. to Beef & Small Ruminant Production
•ANMLTEC 2510.02T	Food Animal Resource Management I – Beef
ANMLTEC 3132T	Ruminant Feeds and Feeding
ANMLTEC 3170T	Principles of Livestock Health
ANMLTEC 3402T	Beef Production and Management

### DAIRY focus

•ANMLTEC 2787T	Applied Dairy Herd Practices and Management
ANMLTEC 3137T	Dairy Cattle Feeding Management
ANMLTEC 3167T	Dairy Cattle Milking and Reproductive Management
ANMLTEC 3177T	Dairy Cattle Health Management
ANMLTEC 3207T	Dairy Cattle Evaluation and Herd Records

### SMALL RUMINANT focus

ANMLTEC 2202T	Intro. to Beef & Small Ruminant Production
•ANMLTEC 2510.04T	Food Animal Resource Management I – Small Ruminants
ANMLTEC 3132T	Ruminant Feeds and Feeding
ANMLTEC 3170T	Principles of Livestock Health
ANMLTEC 3404T	Small Ruminant Production and Management

### SWINE focus

•ANMLTEC 2510.03T	Food Animal Resource Management I – Swine
ANMLTEC 2603T	Swine Production and Mgmt. I
ANMLTEC 3133T	Practical Swine Feeding
ANMLTEC 3170T	Principles of Livestock Health
ANMLTEC 3403T	Swine Production and Mgmt. II

• A grade of C or higher is needed to meet graduation requirements.

[Course descriptions](#) begin on page 36.

## Other degree options

An Associate of Applied Science degree is available in [Dairy Cattle Production and Management](#) and [Livestock Production and Management](#).

# Animal Sciences

## Horse Specialization

An Associate of Science degree in Animal Sciences with a Horse Specialization provides the student with a solid foundation in general studies and science courses to continue their education for a Bachelor of Science degree in Animal Science. An abundance of equine specific courses provides applicable skills and knowledge to those seeking professional employment in many areas of the equine industry.

## Career opportunities

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

## Curriculum

The curriculum of the Animal Sciences – Horse program allows students to complete an Associate of Science degree which transitions easily into 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  
 \*BIOLOGY 1113.01 Bio Sci: Energy Transfer & Dev.  
 \*ENGLISH 1110.01 First-Year English Composition  
 GENED 1201 GE Launch Seminar  
 \*MATH 1148 College Algebra  
 Literary, Visual and Performing Arts  
 Historical and Cultural Studies  
 Race, Ethnicity and Gender Diversity

\* One possible course from approved GE list or major requirement that has multiple options

## Degree Requirements

AGRCOMM 3130 Oral Expression in Agriculture  
 ANMLTEC 1201.01T Exploring Equine Careers and Industry  
 CHEM 1110 Elementary Chemistry  
 or 1210 General Chemistry 1  
 GENSTDS 1201.01T College Orientation

## Major courses

ANIMSCI 2000	Animal Handling
ANIMSCI 2200.01	Introductory Animal Sciences
*ANMLTEC 2189.01T	Horse Practicum
ANMLTEC 2200.02T	Introduction to Animal Sciences Laboratory
ANMLTEC 2201T	Introduction to Horse Science
or 2800T <b>AND</b>	Basic Horsemanship
*2189.01T	Horse Practicum
or †2801T	Horsemanship and Equitation
ANMLTEC 3101.01T	Equine Marketing
ANMLTEC 3101.02T	Equine Facility Management
ANMLTEC 3131T	Equine Feeding and Nutrition
ANMLTEC 3140T	Animal Anatomy and Physiology
ANMLTEC 3151T	Horse Breeding & Selection
ANMLTEC 3161T	Applied Equine Reproductive Mgt.
ANMLTEC 3171T	Horse Health and Disease

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

†course will not be taught this year

[Course descriptions](#) begin on page 36.



## Other degree options

An Associate of Applied Science degree is available in [Horse Production and Management](#).

## Biochemical Sciences

The objective of the Biochemical Sciences program is to allow students to complete the first half of a Bachelor of Science degree, majoring in Biology.

### Career opportunities

Graduates with an Associate of Science in Biochemical Sciences can find careers as quality assurance technicians, or research/laboratory technicians.

Graduates with a Bachelor of Science in Biology can find careers in communications, business (pharmaceutical, sales, technical), teaching, scientific or biomedical research, scientific or technical writing, product development, forensics, and health professions (medical school, dental school, etc.).

### Curriculum

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

### General Education

*AEDECON 2001	Principles of Food and Resource Economics
*BIOLOGY 1113.01	Bio Sci: Energy Transfer & Dev.
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1151	Calculus I
Literary, Visual and Performing Arts	
Historical and Cultural Studies	
Race, Ethnicity and Gender Diversity	

\* One possible course from approved GE list or major requirement that has multiple options

### Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
BIOTECH 1201T	Exploring Biochemical Sciences and Biotechnology
GENSTDS 1201.01T	College Orientation
MICRBIO 4000.01	Basic and Practical Microbiology



### Major Courses

BIOLOGY 1114.01	Bio Sci: Form, Function, Diversity and Ecology
CHEM 1210	General Chemistry I
CHEM 1220	General Chemistry II
CHEM 2510	Organic Chemistry I
CHEM 2520	Organic Chemistry II
COMLDR 3537	Data Analysis in the Applied Sciences
Electives (selected in consultation with advisor)	

[Course descriptions](#) begin on page 36.

## Community Leadership

The objective of the Community Leadership program 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.

## General Education

*AEDECON 2001	Principles of Food and Resource Economics
*COMLDR 3535	Toward Cultural Proficiency
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra
	Literary, Visual and Performing Arts
	Natural Science
	Race, Ethnicity and Gender Diversity

\* One possible course from approved GE list or major requirement that has multiple options

### Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
GENCOMM 1201T	Exploring Agricultural Communication, Education and Leadership
GENSTDS 1201.01T	College Orientation
PSYCH 1100	Introduction to Psychology

### Major Courses

#### Community and Extension Education

AGRCOMM 2330	Perceptions of Agricultural and Environmental Issues
AGRCOMM 4130	Publication Design and Production
COMLDR 2189	Early Experience in Community and Extension Education
COMLDR 2530	Introduction to Agricultural Communication, Education, and Leadership
COMLDR 3530	Foundations of Personal and Professional Leadership
COMLDR 3537	Data Analysis in the Applied Sciences
Electives (selected in consultation with advisor)	

#### Leadership

AGRCOMM 2330	Perceptions of Agricultural and Environmental Issues
AGRCOMM 4130	Publication Design and Production
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
*GENCOMM 2189.02T	Practicum in Community Leadership
Electives (selected in consultation with advisor)	

\* A grade of C or better is required to meet graduation requirements.

[Course descriptions](#) begin on page 36.

# Construction Systems Management

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

## Career opportunities

Graduates with a Bachelor of Science in Construction Systems Management may be employed by specialty or general contractors, designers, land developers, or may secure a position in one of the various roles that support project construction. These individuals could be supplying materials, performing testing and inspections on a jobsite, or performing construction surveying. The Bachelor of Science in Construction Systems Management provides the graduate maximum opportunity in the commercial, heavy highway/infrastructure, residential, or agricultural 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
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra
*PHYSICS 1200	Mechanics, Kinematics, Fluids, Waves

Literary, Visual and Performing Arts  
Historical and Cultural Studies  
Race, Ethnicity and Gender Diversity

\* One possible course from approved GE list or major requirement that has multiple options

## Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
CRPSOIL 2300T	Introduction to Soil Science
CRPSOIL 2301T	Introduction to Soil Science Lab
ENGTECH 1201.02T	Exploring Construction Careers and Industry
GENSTDS 1201.01T	College Orientation



## Major courses

BUSTEC 1202T	Software Applications
CONSYSM 2305	Professional Development I
ENGTECH 2110T	Construction Drawings and Basic Estimating
ENGTECH 2120T	Building Science: Methods and Materials
<i>ENGTECH 2121T, Drafting and Computer-Aided Design program change pending to ENGTECH 2608T</i>	
ENGTECH 2160T	Estimating and Scheduling
ENGTECH 2170T	Construction Project Management
*ENGTECH 2191.01T	Construction Management Internship
ENGTECH 2240T	Welding Technology
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

♦ A grade of C or higher required to meet graduation requirements.

[Course descriptions](#) begin on page 36.

## 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 is to allow students to complete the first half of a Bachelor of Science degree in the School of Environment and Natural Resources at The Ohio State University. Students choosing our Environmental Science specialization can transition into either Environmental Science, or Forestry, Fisheries and Wildlife; while students in our Natural Resource Management specialization can transition into Natural Resource Management, or Environmental Policy and Decision Making.



## 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.

## General Education

*AEDECON 2001	Principles of Food and Resource Economics
*CHEM 1110 (NTR) or 1210 (EVS)	Elementary Chemistry General Chemistry I
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148 (NTR) or 1151 (EVS)	College Algebra Calculus I
Literary, Visual and Performing Arts	
Historical and Cultural Studies	
Race, Ethnicity and Gender Diversity	

\* One possible course from approved GE list or major requirement that has multiple options

## Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
ENR 2100	Intro. to Environmental Science
ENVSCT 1201T	Exploring Environmental Science
GENSTDS 1201.01T	College Orientation

## Major courses

### Environmental Science

BIOLOGY 1113.01	Bio Sci: Energy Transfer and Development
BIOLOGY 1114.01	Bio Sci: Form, Function, Diversity and Ecology
CRPSOIL 2300T	Introduction to Soil Science
CRPSOIL 2301T	Introduction to Soil Science Lab
ENR 2300	Society and Natural Resources
ENR 2367	Communicating Environment & Natural Resources Information
ENR 3300	Introduction to Forestry, Fisheries, and Wildlife
Electives (from approved list)	

### Natural Resource Management

COMLDR 3537	Data Analysis in the Applied Sciences
CRPSOIL 2300T	Introduction to Soil Science
ENR 2300	Society and Natural Resources
ENR 2367	Communicating Environment & Natural Resources Information
ENR 3280	Water Quality Management
ENR 3300	Introduction to Forestry, Fisheries, and Wildlife
Electives (from approved list)	

[Course descriptions](#) begin on page 36.

# Horticultural Science



The objective of the Horticultural Science program is to allow students to complete the first half of a Bachelor of Science in Sustainable Plant Systems, with a focus in Agroecology, Controlled Environment Agriculture, Horticulture, Plant Biosciences, or Turfgrass Science.

## Career opportunities

Graduates with a horticulture specialization will find careers in design, sales, management, grounds management, greenhouse production, vegetable production or public gardens. The turfgrass science specialization leads to careers in golf course superintendents, athletic field managers, lawn care specialists, or sod producers. The agroecology specialization leads to careers in soil science, extension specialists, and the plant biosciences specialization concentrates on plant research, genetics, physiology and breeding.

## 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
*BIOLOGY 1113.01	Bio Sci: Energy Transfer & Dev.
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148	College Algebra
Literary, Visual and Performing Arts	
Historical and Cultural Studies	
Race, Ethnicity and Gender Diversity	
* One possible course from approved GE list or major requirement that has multiple options	

## Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
CRPSOIL 2300T	Introduction to Soil Science
GENSTDS 1201.01T	College Orientation
HORTTEC 1201T	Exploring Horticulture

## Major courses

CRPSOIL 2301T	Introduction to Soil Science Lab
HCS 2204	Ecology of Managed Plant Systems
HCS 2205	Ecology of Managed Plant Systems Lab

The courses below will meet requirements for the bachelor degree program in Plant Pathology or focused areas of Sustainable Plant Systems.

### Agroecology:

BIOLOGY 1114.01	Bio Sci: Form, Function, Diversity and Ecology
CHEM 1110	Elementary Chemistry
or 1210	General Chemistry I
HCS 2202	Form & Function in Cultivated Plants
Electives (from an approved list)	

### Controlled Environment Agriculture:

BIOTECH 2218T	General and Applied Entomology
CHEM 1110	Elementary Chemistry
or 1210	General Chemistry I
CRPSOIL 2210T	Sustainable Agriculture Methods
HCS 2202	Form & Function in Cultivated Plants
HORTTEC 2500T	Greenhouse Environment Control
HORTTEC 2740T	Plant Propagation
Elective (from an approved list)	

### Horticulture:

BIOTECH 2218T	General and Applied Entomology
CHEM 1110	Elementary Chemistry
or 1210	General Chemistry I
HCS 2202	Form & Function in Cultivated Plants
HORTTEC 2110T	Plant Materials I
HORTTEC 2120T	Plant Materials II
Electives (from an approved list)	

### Plant Biosciences:

BIOLOGY 1114.01	Bio Sci: Form, Function, Diversity and Ecology
CHEM 1210	General Chemistry I
CHEM 1220	General Chemistry II
CHEM 2510	Organic Chemistry I
HCS 2202	Form & Function in Cultivated Plants
Electives (from an approved list)	

### Plant Pathology:

CHEM 1210	General Chemistry I
CHEM 1220	General Chemistry II
COMLDR 3537	Data Analysis in the Applied Sciences
HCS 2202	Form & Function in Cultivated Plants
or BIOLOGY 1114.01	Bio Sci: Form, Function, Diversity, and Ecology
HCS 3100	Introduction to Agronomy
MICRBI0 4000.01	Basic and Practical Microbiology

### Turfgrass Science:

CHEM 1110	Elementary Chemistry
or 1210	General Chemistry I
HCS 2202	Form and Function in Cultivated Plants
HCS 2270	Historical Perspectives on Golf Course Design and Management
HORTTEC 2230T	Fundamentals of Turfgrass Science and Management
Electives (from an approved list)	

[Course descriptions](#) begin on page 36.

## Other degree options

Associate of Applied Science degrees are available in [Greenhouse and Nursery Management](#), and [Turfgrass Management](#).

# Sustainable Agriculture

Students majoring in sustainable agriculture will take a broad range of courses in the soil, crop, animal, and environmental sciences, while also gaining an understanding of key economic and business principles. The objective of the Sustainable Agriculture program is to allow students to complete a 2-year Associate of Science degree that makes them competitive in the agricultural job market. Upon completion of this degree, students may also continue their studies in Columbus by transferring into the Sustainable Agriculture Bachelor of Science program.

## Career opportunities

Graduates typically find employment in a wide range of crop, livestock, and dairy enterprises. Graduates may also pursue careers as farm and natural resource managers.

## 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

*AEDECON 2001	Principles of Food and Resource Economics
*BIOLOGY 1113.01	Bio Sci: Energy Transfer & Dev.
*ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
*MATH 1148 or 1150	College Algebra Precalculus

Literary, Visual and Performing Arts  
Historical and Cultural Studies  
Race, Ethnicity and Gender Diversity

\* One possible course from approved GE list or major requirement that has multiple options



## Degree Requirements

AGRCOMM 3130	Oral Expression in Agriculture
CHEM 1110 or 1210	Elementary Chemistry General Chemistry 1
CRPSOIL 1201T	Exploring Agronomy, Sustainable Agriculture, and Crop Mgmt. and Soil Conservation
GENSTDS 1201.01T	College Orientation

## Major courses

BIOTECH 2218T	General and Applied Entomology
BUSTEC 2241T	Small Business Management
COMLDR 3537	Data Analysis in the Applied Sciences
CRPSOIL 2210T	Sustainable Agriculture Methods
CRPSOIL 2300T	Introduction to Soil Science
CRPSOIL 2301T	Introduction to Soil Science Laboratory
ENR 3100	Introduction to Sustainable Agriculture
HCS 2202 or 2204 and 2205	Form and Function of Cultivated Plants Ecology of Managed Plants Systems and EMPS Lab
Electives (selected in consultation with advisor)	

Course descriptions begin on page 36.

## 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 Programs

## Entomology

The 1 + 3 program at Ohio State ATI is designed to capture students who are interested in Entomology and the agricultural sciences, allowing them to complete the first year of the Bachelor of Science degree, majoring in Entomology. After one year, students campus change to Columbus to complete the remainder of the program.

### Career opportunities

Entomology majors are well prepared for careers in plant health management, public health (including the armed forces), research laboratories, greenhouse management, university extension services, agrochemical industries, environmental and crop consulting, environmental education, zoo and wildlife management, natural resource protection and conservation, and government agencies.



## Curriculum

The entomology major couples a strong background in the biological sciences with in-depth study of insect biology and applied entomology. Students learn insect physiology, behavior, ecology and taxonomy, as well as beekeeping, veterinary and public health entomology, sustainable agriculture, and integrated pest management in agricultural, forest and urban environments.

### Applied learning opportunities

Required student internships are customizable by student interest. While some students use research experience with entomology faculty as their internship, many students secure hands-on experiences outside the university through government agencies, non-profits, and private business and consulting firms.

The following courses are offered on the Ohio State ATI campus:

### General Education

BIOLOGY 1113.01	Bio Sci: Energy Transfer and Development
ENGLISH 1110.01	First-Year English Composition
GENED 1201	GE Launch Seminar
MATH 1150	Precalculus

### Degree Requirements

BIOLOGY 1114.01	Bio Sci: Form, Function, Diversity, and Ecology
ENTMLGY 1100	Dept. Survey
GENSTDS 1201.01T	College Orientation
MATH 1151	Calculus I

### Major supporting courses

CHEM 1210	General Chemistry I
CHEM 1220	General Chemistry II

[Course descriptions](#) begin on page 36.

# 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 campus change to Columbus to complete the remainder of the program.

## Career opportunities

Career opportunities in professional golf management (PGM) include positions such as director of golf, head golf professional, assistant golf professional, teaching professional, general manager, tournament director, merchandising director, sales or technical representative, and rules official.

## 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.

## Applied learning opportunities

All professional golf management (PGM) majors are required to complete five semesters of internship experience locally, nationally or internationally. PGM staff provides counseling and advice on choosing an appropriate internship that will provide them with real world experience in the golf industry while preparing them for the PGA's knowledge tests.

The following courses are offered on the Ohio State ATI campus:

## General Education

AEDECON 2001	Principles of Food and Resource Economics
CHEM 1110	Elementary Chemistry
COMPSTD 2301	Introduction to World Literature
ENGLISH 1110.01	First-Year English Composition
HISTORY 1152	American History since 1877
MATH 1148	College Algebra
MUSIC 2250	Music Cultures of the World
RURLSOC 1500	Introduction to Rural Sociology

## Degree Requirements

GENSTDS 1201.01T	College Orientation
HORTEC 1201T	Exploring Horticulture

## Major courses

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

[Course descriptions](#) begin on page 36.



## 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

## Feed Mill Operations

The Certificate in Feed Mill Operations is designed to provide a foundation in animal feed milling technology. This certificate program will enable the student to acquire an understanding of the function of a modern feed mill; to learn procedures to assist in operating a feed mill; and to apply academic skills to the challenges of operating a manufacturing facility.

### Career opportunities

According to The American Feed Industry Association, there are more than 5,800 animal food manufacturing facilities in the United States which provide more than 944,000 jobs. Students earning the Feed Mill Operations certificate might pursue employment as a feed mill technician, assistant manager, or operator.



## Curriculum

ANIMSCI 2200.01	Introductory Animal Sciences
ANMLTEC 3131T	Equine Feeding and Nutrition
or 3132T	Ruminant Feeds and Feeding
or 3133T	Practical Swine Feeding
or 3137T	Dairy Cattle Feeding Mgmt.
ENGTECH 2061T	Feed Mill Operations and Quality Assurance
ENGTECH 2062T	Feed Technology, Formulation, and Safety
ENGTECH 2189T	Feed Mill Practicum

### Recommended, but not required:

AGSYSMT 3330*	Grain Handling, Drying, and Milling
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\*Prereq: MATH 1130, 1131, 1148, 1149, 1150, or 1151

## Facilities

The CFAES Wooster campus has a state-of-the-art feedstock processing research facility, or feed mill, which provides the quality, nutritional value and precision mixing of feeds needed to support internationally recognized CFAES livestock and poultry research programs.

[Course descriptions](#) begin on page 36.

# 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 rebuilders, 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

BUSTEC 1202T	Software Applications
ENGTECH 1201.01T	Exploring Engineering Technologies
ENGTECH 2322T	Basic Electricity and Electronics
ENGLISH 1110.01	First-Year English Composition
or AGRCOMM 3130	Oral Expression in Agriculture
GENSTDS 1201.01T	College Orientation
Free Elective	

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

ENGTECH 2214T	Fundamentals of Fluid Power and Components
	<i>changed to ENGTECH 2612T</i>
ENGTECH 2221T	Component Rebuilding
ENGTECH 2224T	Fluids, Filtration, and Fluid Conveyance
ENGTECH 2240T	Welding Technology
ENGTECH 2312T	Engineering Technology Fundamentals
	<i>changed to ENGTECH 2602T and 2603T</i>
ENGTECH 2336T	Methods of Power Transmission
	<i>changed to ENGTECH 2605T</i>
BUSTEC elective (from approved list)	
ENGTECH elective (from approved list)	

[Course descriptions](#) begin on page 36.

# 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

**Program changes pending to italicized courses.**

AGRCOMM 3130	Oral Expression in Agriculture
BUSTEC 1202T	Software Applications
ENGTECH 2322T	Basic Electricity and Electronics <i>change to ENGTECH 2609T</i>
GENBIOL 1250T	General Botany with Applications
GENSTDS 1201.01T	College Orientation
HORTTEC 1201T	Exploring Horticulture

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

**Program changes pending to italicized courses.**

ENGTECH 2011T	Small Engine Basics <i>changed to ENGTECH 2611T</i>
ENGTECH 2214T	Fundamentals of Fluid Power and Components <i>change to ENGTECH 2612T</i>
ENGTECH 2240T	Welding Technology
ENGTECH 2312T	Engineering Tech Fundamentals <i>change to ENGTECH 2602T and 2603T</i>
ENGTECH 2336T	Methods of Power Transmission <i>change to ENGTECH 2605T</i>
HORTTEC 2191.55T	Turf Equipment Manager Internship
HORTTEC 2225T	Turf Equipment Operation and Maintenance
HORTTEC 2227T	Turfgrass Reel Mower Maintenance

[Course descriptions](#) begin on page 36.

# Course offerings

CFAES Wooster Ohio State ATI courses are scheduled according to the published sequence for each offered major. Sequences can be found at: <https://ati.osu.edu/academics/majors>. Course availability is guaranteed for students following the published major sequence. Length of time to degree will likely be extended for students entering with remedial course needs or those selecting dual major enrollment. While remedial courses are not eligible for application to degree requirements, they are used in calculation of full-time status enrollment and are also included in GPA calculation. We recommend remedial courses be taken the first year of enrollment, to ensure future course enrollment is not hindered. Students should work with their assigned advisor each term to ensure courses are being schedule appropriately.

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

<b>A</b>	<b>3140T Animal Anatomy and Physiology U 4</b>
<b>B</b>	An introductory study of the structure and functions of the various organ systems of domestic animals.
<b>C</b>	Au, Sp. 3 cl, 1 2-hr lab. Prereq: GenBiol 1200T or Biology 1113. This course is available for EM credit.

### 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.

**Course title:** Animal Anatomy and Physiology

**Instructional level:** U—Undergraduate

**Credit hours:** 4

### B Course description:

An introductory study of the structure and functions of the various organ systems of domestic animals.

### C Semesters of offering:

Su—Summer; Au—Autumn; Sp—Spring

**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. The course number(s) or other information indicates the preparation or classification required to enroll in the course. If no department name is listed, the number(s) refers to the specific course within the same department.

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

**General information clause:** Gives general information about the course.

## 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 Bioscience Careers U 0.5

Provides an overview of the unique requirements of the Animal Biosciences specialization, promotes student success in college, and explores personal and career interests, needs, and goals. Increase student awareness of necessary steps to present a competitive application to professional and graduate schools.  
Au. 1 cl.

### 1289.01T 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.  
Au, Sp. Arr. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

### 1289.07T 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.  
Au, Sp. Arr. Prereq: Permission of instructor. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs or 4 completions.

### 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.

### 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 or concur: 2200T or AnimSci 2200.01. This course is available for EM credit.

### 2201T Introduction to Horse Science U 3

Fundamental survey of the development of domestic horses and breeds, terminology, behavior, uses, conformation, management and safe horse handling.  
Au. 2 cl, 1 2-hr lab. Prereq: Not open to students with credit for 211T. This course is available for EM credit.

### 2202T Introduction to Beef and Small Ruminant Production U 3

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

### 2205T Introduction to Companion Animals U 3

An introduction to the social, financial, health, nutrition, and management fundamentals, as well as career opportunities, involved in companion animal care.  
Au. 3 cl.

### 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: 2510.02T. 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.

**2787T Applied Dairy Herd Practices and Management U 1**

Experience in applying, directing, and evaluating dairy herd management procedures and practices at the Ohio State ATI dairy farm.

Au, Sp. Arr. Prereq: Soph standing; permission of instructor; completion of the Equipment Training and Certification process and a driver background check required. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 3 cr hrs.

**2797T Dairy Industry Seminar and Experience U 1**

Current trends, issues, technology, and developments in the dairy industry; emphasis on developing lifelong learning skills through evaluation of science/trade journals, participation in professional meetings, and visits to innovative businesses. 1 to 3 day field trips, including weekends, may be required. Students pay field trip costs of lodging, meals, etc. above Ohio State tuition and fees.

Sp. Arr. Prereq: Permission of instructor. Prereq or concur: English 1110.01 or 1110.03. Repeatable to a maximum of 3 cr hrs or 3 completions. This course is graded S/U.

**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 2801T or 2811T.

**†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.

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.

**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: 2202T 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. Prereq: 2603T or AnimSci 2200.01; GenMath 1040T or Math 1075 or Math placement level R or higher. This course is available for EM credit.

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

Principles of dairy cattle feeding management with emphasis on the critical evaluation and formulation of rations in current management situations.

Sp. 2 cl, 1 rec, 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 course will introduce the principles of animal body structure (anatomy) and function (physiology) as relevant to 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: AnimSci 2200.01, or Biology 1101, or 1113.xx or 1114.xx. 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: 2201T (211T). Recommended prereq: 3140T (221T) or GenBiol 1200T (120T). Not open to students with credit for 266T. This course is available for EM credit.

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

Principles of inheritance and the genetic improvement of dairy cattle through cellular, qualitative, and population genetics; emphasizing breeding values, selection, and mating systems.

Sp. 3 cl, 2 rec. Prereq: GenBiol 1200T, or Biology 1101, or 1113; Math 1050, or GenMath 1141T, or GenMath 1145T, or Math placement level S or higher. This course is available for EM credit.

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

Advanced course in equine reproductive management with emphasis on understanding and improving equine infertility; applications of current research; and development of technical skills.

Sp. 1 cl, 1 3-hr lab. Prereq: 2201T (211T). Prereq or concur: 3151T (266T). Concur: 2189.01T or 2190.01T. Not open to students with credit for 269T.

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

A study of recommended dairy cattle milking and reproductive management practices, based on the anatomy and physiology of the systems.

Au. 3 cl, 1 rec, 1 3-hr lab. Prereq: Not open to students with credit for 201T and 203T. This course is available for EM credit.

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

A basic introduction to the relationship between animal health and performance. Topics include: immunology, sanitation, disease etiology, and disease prevention, symptoms, and treatment.

Sp. 3 cl. Prereq: 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 required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 2 completions.

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

Employment in the dairy industry structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty; comprehensive report required.

Su, Au, Sp. Arr. Prereq: 3167T (201T and 203T), 3207T (202T), 3177T (252T); CPHR 2.0 or above; permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 3 completions.

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

Principles of live animal selection and carcass evaluation of livestock.

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.

Sp. 3 cl, 1 2-hr lab. Prereq: 2202T 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 concur: 3133T, 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 and 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 concur: 3167T. This course is available for EM credit.

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

A study of economic and management principles involved in planning, organizing, operating, and administering a farm business; emphasis placed on developing a business plan and problem solving.

Sp. 3 cl, 1 rec, 1 2-hr lab. Prereq: AEDEcon 2105 (BusTec 101T or 102T). Prereq or concur: BusTec 1151T (151T) or AEDEcon 2001 (200). Not open to students with credit for BusTec 240T. This course is available for EM credit. Cross-listed in CrpSoil.

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

A study of dairy farm business management combining business, financial, and animal management principles, practices, and strategies; emphasis placed on developing a business plan and problem solving.

Prereq: AEDCon 2001 or BusTec 1151T; Soph standing; minimum of 10 cr hrs in AnmITec. This course is available for EM credit.

## Biotechnology (BIOTECH)

### 1201T Exploring Biochemical Sciences and Biotechnology U 0.5

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

### 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.  
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

## Business Technology (BUSTEC)

### †1151T 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. Not open to students with credit for 290.02T or 290.03T. A grade of C or better required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs.

### 2193T Individual Studies U 1-3

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

### 2194T Group Studies U 1-3

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

### 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: AEDEcon 2001. 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: 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.

### 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 2001 and 2105. This course is available for EM credit.

## Crop and Soil Technology (CRPSOIL)

### 1201T Exploring Agronomy, Sustainable Agriculture, and Crop Management and Soil Conservation U 0.5

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

### 2189T Practicum in Crop and Soil Technologies U 1

Supervised experiences in field, laboratory, and/or industry work.  
Au. Arr. A grade of C or higher required to meet graduation requirements. Repeatable to a maximum of 3 cr hrs.

### 2191T Crop and Soil Internship U 3

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

### 2193T Individual Studies U 1-3

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

### 2194T Group Studies U 1-3

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

### 2210T Sustainable Agriculture Methods U 1

This course will give students experience with the practical on-farm skills, management practices and entrepreneurship expertise needed in various sustainable agriculture enterprises. Students will work as a team to select, plan and execute a hands-on or field-based project that integrates the environment, social and economic aspects of sustainable agriculture.  
Au. 1 3-hr lab. Prereq or concur: 2200T. Repeatable to a maximum of 2 cr hrs. This course is available for EM credit.

**2228T Manure Management U 3**

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

**2265T Integrated Pest Management U 2**

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

**2280T Applied Precision Agriculture U 3**

An introduction to precision agriculture technologies including auto-guidance, prescription mapping, variable rate technologies, and remote sensing with a focus on practical application of the technologies in modern production systems.  
Sp. 1 cl, 1 2-hr lab, 1 3-hr lab.

**2300T Introduction to Soil Science U 3**

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

**2301T Introduction to Soil Science Laboratory U 1**

Laboratory analysis of soil physical, chemical, and biological properties related to plant systems, environmental quality, and construction.

Au, Sp. 1 3-hr lab. Prereq or concur: 2300T. Not open to students with credit for 221T. This course is available for EM credit.

**†2324T Soil Management U 3**

A study of sustainable-use of soil resources related to soil formation, mechanics, and erosion control.  
Prereq: 2300T and 2301T. This course is available for EM credit.

**2412T Technology and Field Management of Forage Crops U 3**

An applied study of the crop species, field management practices and agricultural technologies used to grow grasses, legumes, and forbs for forage and livestock production systems.  
Sp. 2 cl, 1 3-hr lab. 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.

**3797.01T Sustainable Agriculture in Hawaiian Ecosystems U 3**

This course is designed to give students an overview of sustainable agriculture in the tropical climate of the Pacific Islands, focusing on Hawaii's unique practices and ecosystems.  
Sp. Arr.

**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 AnmITec.

## Engineering Technology (ENGTECH)

**†1201.01T Exploring Engineering Technologies U 0.5**

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

**1201.02T Exploring Construction 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.

**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. 1 2-hr rec, 2 2-hr labs. Recommended prereq: Completion of tractor/mobile equipment safety certification process. This course is available for EM credit.

**†2050T Introduction to Geographic Information Systems U 3**

A study of spatial relationships using global positioning and geographic information systems in urban and rural landscapes.  
Prereq: GenMath 1040T or Math 1050 or Math placement level R or higher. This course is available for EM credit.

**†2061T Feed Mill Operations and Quality Assurance U 3**

Principles of feed manufacturing, equipment operation, feed and ingredient quality assurance and regulatory compliance in a modern feed milling operation.  
Sp. 2 cl, 1 2-hr lab.

**†2062T Feed Technology, Formulation, and Safety U 3**

Technical knowledge in feed manufacturing operations, feed regulations, and materials handling and storage; emphasis on how feed processing affects animal nutrition and performance.  
Sp. 3 cl. Prereq: 2061T.

**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 1½-hr 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.

**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.

**†2189T Feed Mill Practicum U 1**

Supervised practical experience in the operation of a feed mill, such as the Feedstock Processing Research Facility. Emphasis on developing competencies related to employability and problem solving.

Sp. Arr. Prereq: 2061T or 2062T.

**2191.01T Construction Management Internship U 2-3**

Construction Management occupational internship, structured to provide occupational experiences; supervised by an industry employer and coordinated by faculty.

Su, Au, Sp. Arr. Prereq: 2110T and 2120T (253T, 256T, and 257T), and 2600T, and CPHR 2.0 or above, and permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 2 completions.

**2191.03T Power Equipment Internship U 3**

Employment in power equipment industries; structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty.

Su, Au, Sp. Arr. Prereq: 2314T (241T), 2322T (202T), and 2324T (245T), and CPHR 2.0 or above, and permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs.

**2191.04T Agricultural Systems Technology Internship U 2**

Agricultural Systems Technology occupational internship structured to provide occupational experiences; supervised by an industry employer and coordinated by faculty..

Su, Au, Sp. Arr. Prereq: CPHR 2.0 or above, and permission of instructor. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 4 cr hrs.

**2193T Individual Studies U 1-3**

Designed to give an individual student an opportunity to pursue special studies not offered in other courses.

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

**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. This course is graded S/U.

**2224T Fluids, Filtration, and Fluid Conveyance U 2**

Characteristics of hydraulic fluids; methods of filtering oils and of conveying pressurized fluids.

Sp. 1 cl, 1 2-hr lab. Prereq: 2214T (262T or 270T). Not open to students with credit for 274T. This course is available for EM credit.

**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.

**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 2150T.

**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.

**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.

**2440T Site Development and Surveying U 4**

Principles of hydrology and soil mechanics as they relate to erosion control, irrigation, drainage, and wetland systems with an additional emphasis on surveying and mapping equipment and techniques for staking out and grading activities associated with site selection and construction installation.

Sp. 3 cl, 1 3-hr lab. Prereq or concur: GenMath 1141T, 1145T or Math 1148 or above.

**2450T Class A Commercial Driver's License (CDL) Entry Level Driver Training (ELDT) U 3**

In this course students will complete all training necessary to take a Commercial Driver's License (CDL) Exam with the state of Ohio. Students will receive instruction from ATI instructors, who are experienced to teach a commercial driver course, through class time and driving time in order to help prepare them for the CDL test and will learn to be proficient at pre-trip and operational skills. Must have valid state issued drivers license. Must hold a valid Ohio Commercial Learners Permit. Must pass Department of Transportation (DOT) Physical and Drug Test. A major must be declared, and the student must be full-time as part of a designated major. (These requirements are due to the institutions exemption status as a state-licensed school under exemption 4508.7, sections 4508.1 to 4508.6.

*Ohio State academic programs are designed to prepare students to sit for applicable licensure or certification in Ohio. If you plan to pursue licensure or certification in a state other than Ohio, please review state educational requirements for licensure and certification at [go.osu.edu/onground](http://go.osu.edu/onground).*

Sp. 3 2-hr labs. Prereq: Permission of instructor.

**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.

**2602T Workplace Safety U 1.5**

This course provides practical guidance on workplace safety protocols, emphasizing personal protective equipment, safety procedures, and standards used in general industry professions to minimize risks and ensure a secure working environment.

Au. 7-wk course. 2 cl. 1 2-hr lab. This course is available for EM credit.

**2603T Precision Tools U 1.5**

Practical guidance on workplace standard operating procedures related to proper tool use and maintenance in power equipment and hydraulic professions.

Au. 7-wk course. 2 cl. 1 2-hr lab. This course is available for EM credit.

**2604T Introduction to Power Units U 3**

An introduction to off-road machinery industries, exploring their past and future, and the application of engineering principles to the power equipment industry.

Au. 2 cl. 1 2-hr lab. Recommended prereq: 2611T. This course is available for EM credit.

**2605T Transmission and Components U 1.5**

A study of the mechanics and precision of transmissions, and steering components on off-road equipment.

Sp. 7-wk course. 2 cl. 1 2-hr lab. This course is available for EM credit.

**2606T Power Units and Components U 3**

A study of the principles, operation, and service of diesel engine systems with emphasis on fuel systems and electronic engine controls.

Sp. 2 cl. 1 2-hr lab. Prereq: 2611T, and 2603T and 2609T. A grade of C or better required to meet graduation requirements for Power and Hydraulic Engineering Technologies. This course is available for EM credit.

**2607T Power Applicator and Performance U 1.5**

Explore diesel and gasoline engine dynamics and electric power systems to optimize performance in power and hydraulic applications.

Sp. 7-wk course. 2 cl. 1 2-hr lab. Prereq: 2605T and 2611T and AgSysMt 2150. This course is available for EM credit.

**2608T Applied Computer Aided Design U 3**

This course will equip students with the essential skills used in Computer-Aided Design (CAD) for practical applications in power equipment and fluid power technologies. This course will emphasize reading, understanding, drafting, and applying designs (2D and 3D) to diverse types of equipment commonly found in mechanical industries.

Sp. 1 cl. 2 2-hr labs. This course is available for EM credit.

**2609T Basic Electricity and Electronics U 3**

This course will discuss the principles of alternating current (AC) and direct current (DC) electricity ad electronics with an emphasis on components, operation, and applications.

Sp. 2 cl. 1 2-hr lab. This course is available for EM credit.

**2610T Components and Fluid Circuits U 3**

This course will discuss advanced hydraulic and pneumatic component topics as well as how fluid power components are integrated into a complete system. This includes performance characteristics and energy efficiency.

Sp. 2 cl. 1 2-hr lab. Concur: 2602T. This course is available for EM credit.

**2611T Small Engine Basics U 3**

A study of the theory of operation, service, maintenance and repair of small off-road gasoline and compact diesel engines.

Sp. 2 cl. 1 2-hr lab. This course is available for EM credit.

**2612T Fundamentals of Fluid Power and Components U 3**

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. 2 cl. 1 2-hr lab. This course is available for EM credit.

**2613T 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: 2612T. A grade of C or better required to meet graduation requirements for Power and Hydraulic Engineering Technologies. This course is available for EM credit.

## Environmental Sciences Technology (ENVST)

**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, Sp. 1 cl.

**3191T Conducting Your Internship in the College of Food, Agricultural, and Environmental Sciences OSU ATI U 0**  
Ohio State ATI strives to provide opportunities for students to develop the critical competencies and technical knowledge and skills that employers demand in the job market and that are necessary for student success in their chose field. This class provides students the structure to complete the initial requirements of their internship experience. Advisor approval required.  
Su. Arr. Prereq: Permssion of instructor. This course is graded S/U.

## 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.

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 PlntBio 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 hrs or 10 completions.

## General Studies: Chemistry (GENCHEM)

**1100T Introduction to General Chemistry U 3**

Develops the basic concepts of atomic structure, bonding theory, molecular structure, chemical reactions, solutions, equilibrium, and acid-base chemistry.

Au, Sp. 3 cl. Prereq: GenMath 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 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.

**2189.01T Agricultural Communication Practicum U 1-2**

Practicum is an experiential learning class that allows students to gain practical agricultural communication experience in a supervised environment. Emphasis is placed on developing technical communication skills in preparation for careers in the agricultural communication industry.

Au, Sp. Arr. Prereq: AgrComm 2531. Repeatable to a maximum of 3 or hrs or 2 completions. A grade of C or higher required to meet graduation requirements.

**2189.02T Community Leadership Practicum U 1**

Practicum is an experiential learning class that allows students to gain practical community leadership experience in a supervised environment. Emphasis is placed on developing technical communication skills in preparation for careers in the community leadership industry.

Sp. Prereq or concur: Comldr 2530. A grade of C or better is required to meet degree requirements.

**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.

## General Studies: Humanities

### (GENHUM)

#### 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)

#### 1141T Business Mathematics U 3

The mathematics of business and finance: ratios, proportions, decimals, percents, markup and discounts, the income statement, simple interest, compound interest, annuities, amortization and sinking funds.

Au, Sp. 3 cl. Prereq: Math 1050, or Math Placement Level S or higher, or Concur: GenMath 1193T. 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: Math 1050 with a grade of C- or better, or Math Placement Level R or higher, or Concur: GenMath 1193T. This course is available for EM credit.

#### 1193T Individual Studies U 2

This course serves as additional support for students to successfully complete a college level mathematics course.

Au, Sp. 2cl. Concur: 1141T or 1145T. 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: 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.

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. 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.

#### 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.

#### †2189.50T 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.

#### 2190.21T 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.

#### 2191.21T Greenhouse Management Internship U 1-3

Employment in the greenhouse industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty.

Su, Au, Sp. Arr. Prereq: 1201T, 2189.21T, and 2500T. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 6 cr hrs or 2 completions.

#### 2191.30T 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.

Su, Au, Sp. Arr. 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. Su, Au, Sp. Arr. 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. Repeatable to a maximum of 6 cr hrs.

#### 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.

Su, Au, Sp. Arr. 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.

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

#### 2194T Group Studies U 1-3

Designed to give groups of students an opportunity to pursue special studies not offered in other courses.

Su, Au, Sp. Arr. 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.

Au. 2 cl, 1 3-hr lab. 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.

Sp. 4 cl, 2 3-hr labs. (7-wk offering)

**2230T Fundamentals of Turfgrass Science and Management U 3**

Identification, growth and development characteristics and responses, uses, and fundamental practices essential to the production and management of fine quality turf.

Au. 2 cl, 1 2-hr lab. Prereq or concur: GenBiol 1250T 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.

Sp. 4 cl, 2 3-hr labs. (7-wk offering) 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.

Sp. 4 cl, 2 3-hr labs. (7-wk offering) Prereq: 2225T (EngTech 219T), 2230T (223T). Not open to students with credit for 225T. A grade of C or better required to meet graduation requirements for Turfgrass Management.

**2260T Sports Turf Operations Organization and Management U 3**

Specialized course in sports turf management including the organization, design, construction, equipment, field surface quality, safety, personnel, finances, renovation, and maintenance of a sports turf facility.

Au. 2 cl, 1 3-hr lab. Prereq: 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.

Au. 2 cl, 1 3-hr lab. Prereq: 2191.50T (290.05T), BioTech 2218T (218T). Prereq or concur: 2880T (272T) or 2890T (274T). Not open to students with credit for 227T. A grade of C or better required to meet graduation requirements for Turfgrass Management.

**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.

Au. 2 cl, 1 3-hr lab. 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.

Sp. 1 cl, 2 3-hr labs. Prereq or concur: 2110T. Not open to students with credit for 231T. A grade of C or better required to meet graduation requirements for Landscape Horticulture.

**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 Nursery Specialization. This course is available for EM credit.

**2520T Greenhouse Perennial Production U 3**

Principles and practices of greenhouse perennial plant production, including propagation, vernalization, photoperiodic treatments, production techniques, integrated pest and plant health management, and post-harvest marketing.

Au. 2 cl, 1 3-hr lab. Prereq: 2500T (251T). Not open to students with credit for 255T. This course is available for EM credit.

**2540T Greenhouse 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.

**†2720T Arboriculture U 3**

Principles of proper tree culture, management and care emphasizing planting, maintenance, evaluation, and diagnosis and care of tree problems.

Sp. 2 cl, 1 3-hr lab. Prereq: 2110T (243T or 249T); and GenBiol 1250T (125T) or Biology 1113 (113). Not open to students with credit for 278T.

**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.

**2819T 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 BIOTECH 2219T. This course is available for EM credit.

**2880T Principles of Weed Science U 3**

A study of weed classification, ecology, plant competition, herbicide formulation, properties and uses of herbicides and weed management in horticultural crops.

Au.: 2 cl, 1 2-hr lab. Prereq: GenBiol 1250T (125T). Prereq or concur: GenChem 1100T (131T). Not open to students with credit for 272T or CrpSoil 2422T (266T). A grade of C or better required to meet graduation requirements for 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.

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.

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 or hrs or 10 completions.

**Associate of Science Courses****Agricultural Communication (AGRCOMM)****2330 Public Perceptions of Agricultural and Environmental Issues U 4**

Students will explore vital issues in food, agricultural, and environmental sciences and be exposed to methods to critically evaluate, effectively communicate, and influence decisions made about these issues. They will engage with issue stakeholders and investigate the impacts that their varying perceptions have on the food system, the environment, and society.

Au. 3 cl. 1 2-hr lab. Prereq: Completion of GE Foundations Writing and Information Literacy course. GE theme lived environments course.

**2531 Introduction to Agricultural Communication Practices U 3**

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

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.

**4130 Publication Design and Production U 3**

Introduces students to basic practices and techniques used in designing and producing professional-quality publications for agricultural and general audiences. Agricultural communicators will find application for these skills in a variety of ways.

Sp. 3 cl.

**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.

Au. Arr. Prereq: Permission of instructor. This course is graded S/U.

**4530 Communicating Agricultural Issues U 3**

This course is designed to introduce students to the world of communicating agricultural science to a variety of audiences. Many times the topics we are asked to write or speak on are complex science in nature and highly emotional. This course will walk you through the theories and skills needed to craft messages that can reach farmers, consumers, politicians, and the like.

Sp. 3 cl. Prereq: 2330.

**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. GE foundation social and behavioral sci 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.

Au. 3 cl. Prereq: 2001 or Econ 2001.

**3142 Agricultural Cooperatives U 3**

Cooperatives are jointly owned, democratically controlled enterprises that present an alternative model for doing business compared to investor-owned structures. This course will explore the basic principles and operations of cooperatives compared to other business structures with a focus on cooperatives in food, agriculture, and rural communities.

Sp. 3 cl. Prereq: 2001 or 2001H or Econ 2001 or Econ 2001H.

**Agricultural Systems Management (AGSYMT)****2150 Applied Agricultural Mechanics and Electronics U 4**

The application of mechanical, electrical, and thermodynamic principles to agricultural industries with an increased focus on emerging agricultural technologies, machinery and facilities. Course topics include velocity, displacement, force, work, power, energy conversion and storage, psychrometrics, heat engines, and basic electro-mechanical circuits and devices with hands-on laboratory component.

Sp. 2 1½-hr cl, 1 2-hr lab. Prereq: Math 1148, or GenMath 1145T, or Math Placement Level M or above; or permission of instructor.

**2305 Professional Development I U 2**

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

Sp. 2 1½-hr cl. Prereq: English 1110. Not open to students with credit for CONSYSM 2305. This course is available for EM credit.

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

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

Sp. 2 cl.1 3-hr lab. Prereq: Math 1130, 1131, 1148, 1149, 1150, or 1151.

## Agriscience Education (ASE)

### 2189 Early Field Experience in Agriscience Education U 1

The course is designed to help students explore careers and gain experience in Agriscience Education. Students will learn first-hand about the Agriscience Education profession by working in K-12 school settings with a mentor educator (cooperating teacher). This is a licensure requirement for Agriscience Education majors pursuing an initial teaching license.

Au. Arr.

### 3210 Foundations of Youth Development and Experiential Learning within Agriscience Education U 2

This course provides preservice agriscience teachers with a foundation of the philosophies for engaging youth within a comprehensive agricultural education program. Students will recognize the importance of positive youth development and experiential learning in relation to agricultural education, specifically advising youth organizations and coordinating supervised agricultural experiences.

Sp. Arr.

## Animal Science (ANIMSCI)

### 2000 Animal Handling U 2

General introduction to domestic animal behavior and hands-on experience handling food animal species.

Au, Sp, 1 cl, 1 2-hr lab.

### 2200.01 Introductory Animal Sciences U 3

A study of the basic principles of genetics, breeding, reproduction, nutrition, behavior, and biotechnology as it applies to the molecular, cellular, and physical underpinnings of domesticated animal form and function.

Au, Sp, 3 cl. Prereq: Not open to students with credit for 2300H. GE nat sci bio course. GE foundation natural sci course.

### 2200.03 Animal Systems U 2

Overview of the size and scope of the livestock and companion animal systems, the economic and social impact of the animals and their products, and the structure of the industries.

Au, Sp, DL.

### 4999 Research with Distinction U 0-6

Conducting and reporting research with distinction.

Su, Au, Sp. 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.

## Biology (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, Entm1gy 1101 (101), or MolGen 1101 (Pln1Bio101). This course is available for EM credit. GE nat sci bio course. GE foundation natural sci course. Course fee: \$80 (WST campus)

### 1113.01 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 1120, 1130, 1148, 1150, or above, or Math Placement Level L or M. Prereq or concur: Chem 1110, 1208, 1210, 1610, or 1910H, or permission of course coordinator. Not open to students with credit for 1113 or 1113.02. This course is available for EM credit. GE nat sci bio course. GE foundation natural sci course. Course fee: \$50 (WST campus)

### 1114.01 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 1120, 1130, 1148, or 1150 or above, or Math Placement Level L or M. Prereq or concur: Chem 1110, 1208, 1210, 1610, or 1910H, or permission of course coordinator. Not open to student with credit for 1114 or 1114.02. This course is available for EM credit. GE nat sci bio course. GE foundation natural sci 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 phys course. GE foundation natural sci 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 phys course. GE foundation natural sci course. WST campus course fee: \$50

### 1220 General Chemistry II U 5

Continuation of 1210 for science majors, covering solutions, kinetics, chemical equilibrium, solubility and ionic equilibria, qualitative analysis, thermodynamics, electrochemistry, descriptive chemistry, coordination compounds, and nuclear chemistry.

Sp, 3 cl, 1 rec, 1 3-hr lab. Prereq: 1210, 1215, 1250, 1610, or 1910H, and Math Placement Level L or M, or a grade of C- or above in Math 1120, 1130, 1131, 1148, or 1150, or above; or credit for both Chem 1206 and 1208. This course is available for EM credit. GE nat sci phys course. GE foundation natural sci course. WST campus course fee: \$50

### 2510 Organic Chemistry I U 4

Introduction to structure, nomenclature, physical properties, preparation and reactions of alkanes, alkenes, conjugated dienes, alkynes, alcohols, ethers, epoxides, aldehydes and ketones. Other topics include stereochemistry, conformations of molecules, acids, bases, and reaction mechanisms.

Au, 3 cl, 1 rec. Prereq: Chem 1208, or 1210, or 1250, or 1610 or 1910H; and Chem 1220, or 1620 or 1920H; 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 Chem 2520, 2610, 2620, 2910H, or 2920H.

### 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: Chem 1208, 1210, 1250, 1610, or 1910H, and Chem 1220, 1620, or 1920H, and Chem 2510, 2610, or 2910H, 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 Chem 2620 or 2920H.

## Community Leadership (COMLDR)

### 2189 Early Experience in Community and Extension Education U 1

The early experience program is designed to help students explore careers and gain experience in Community and Extension Education.

Sp. Arr. Prereq: Permission of Instructor. Not open to students with credit for AEE 280.

### 2530 Introduction to Agricultural Communication, Education, and Leadership U 2

Creating an awareness and understanding of the agricultural communication, education and leadership profession. The class will provide a basis for educating, communicating, and leading by synthesizing theoretical knowledge with practical application.

Sp. 2 cl. Not open to students with credit for AEE 230 or AgrComm 200.

### 3530 Foundations of Personal and Professional Leadership U 3

Leadership theories, principles, and concepts. Research-based theories, methods of social scientific inquiry, individual strengths, personal leadership philosophy and vision, concepts of diversity and ethics, and professional development plan.

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

### 3535 Toward Cultural Proficiency U 3

Learner effectiveness in multicultural, multiracial learning environments. Strategies for obtaining insight into learners from varied cultures. Theory will connect practice through service-learning using cognitive, affective and psychomotor domains.

Au. 3 cl. Prereq: Not open to students with credit for AEE 594. GE cultures and ideas and diversity soc div in the US course. GE foundation historical and cultural studies course.

### 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, Sp. 2 cl, 1 2-hr lab. Prereq: Math 1130 or 1148. GE data anyl course. GE foundation math and quant reasoning or data anyl 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. GE foundation lit, vis and performing arts and race, ethnicity and gender div course.

## Construction Systems Management (CONSYSM)

### 2305 Professional Development I U 2

Business communications and professional development in construction systems management including informative and persuasive writing, academic planning, project management, research techniques, teaming, report writing and presentations.

Sp. 2 1½-hr cl. Prereq: English 1110. Not open to students with credit for AGSYSMT 2305. This course is available for EM credit.

## 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: EduTL1902 (108.01) or 1902.04 (108.01), or English Placement Level 4. Not open to students with credit for 1109 (109.01 or 109.02), 1110.01 (non-DL version), 1110.01H (110.01H), 1110.02 (110.02), 1110.02H (110.02H), 1110.03 (110.03), 1167H (167H), 110.01. GE writing and comm course: level 1. GE foundation writing and info literacy course.

### 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, 1110.01H, 1110.02, 1110.02H, 1167H, or equiv. This course is available for EM credit only through the AP program. GE writing and comm course: level 1. GE foundation writing and info literacy course.

### 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. GE foundation natural sci 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. GE soc sci human, nat, and econ resources course. GE foundation social and behavioral sci course.

### 2367 Communicating Environmental and Natural Resources Information U 3

Concepts, skills development, and practice in accessing and communicating information about the environment and natural resources to varied audiences; emphasis on written and oral communication.

Sp. 2 cl, 1 2-hr lab. Prereq: English 1110 and Soph. standing or above. GE writing and comm course: level 2.

### 3100 Introduction to Sustainable Agriculture U 3

This course is an introduction to the issues, concepts and practices associated with sustainable agriculture. Since agriculture is a complex social-ecological system which integrates a wide range of economic, environmental and social aspects, this course uses a multidisciplinary approach to enable students to assess the sustainability of agricultural systems.

Au. 2 cl, 1 3-hr lab.

### 3280 Water Quality Management U 2

Causes, consequences, and solutions of pollution in lakes, rivers, wetlands, and groundwater; analysis of the physical, chemical, and biological indicators of water quality.

Sp. 2 cl.

### 3300 Introduction to Forestry, Fisheries, and Wildlife U 3

This course is an introduction to the basic elements of forestry, fisheries, and wildlife (FFW) ecology and management for majors in environment and natural resources. This course has also been organized to provide an introduction to non-majors who may not have the opportunity to take further courses in these fields.

Sp. 3 cl. Prereq: 2100 or EEOB 3410. Not open to student with credit for 3300E.

## Food Science and Technology

(FDSCTE)

### 1110 Chocolate Science U 1

Introduction to the science and business of chocolate. The course covers the history, agriculture and processing of cacao, components and nutritional benefits of chocolate, basic steps in the production of chocolate, uses of chocolate, marketing of chocolate and chocolate products, and current events related to chocolate agriculture, production, and marketing.  
Au, Sp. DL.

### 1120 Wine and Beer in Western Culture U 2

To familiarize students with the terminology, production and practices related to wine, beer, and distilled spirits as well as critical historical and cultural events. Basic biology and chemistry understanding will help the student succeed.  
Au, Sp. DL.

### 1140 Kitchen Science U 2

Students are introduced to sanitation rules, basic culinary/baking methods, fundamentals of cooking, & the science behind its methodology. Students gain an understanding of common foods & their function in cooking. Cooking techniques will be demonstrated & methodology for each formulation is explained on a scientific basis. Basic biology and chemistry understanding will help the student succeed.  
Au, Sp. DL.

### 1150 Caffeine Science U 1

Explore the science of caffeine and production of caffeinated products, how it affects the human body along with a study of the historical importance of some of today's most popular caffeine sources.  
Au, Sp. DL.

### 1200 Science of Cooking U 4

The Science of Cooking covers the scientific method, sanitation, hygiene, and safety in the kitchen and laboratory; food components; weights and measurements; heat and heat transfer; cooking methods; food preservation, and tasting and evaluation of foods. Students taking the online-only version will need access to a kitchen.  
Au. DL. GE foundation natural sci course.

### 2300 Role of Food Science in Human Health U 3

This course explores the role of food in an individual's health by addressing mainstream controversies. Students will have an understanding of food supply chain, food components, food safety, food processing, food additives, labeling, food laws and regulations and their impact on ensuring a safe food supply and protecting consumer's health.  
Au. DL. Not open to students with credit for 2200 or 4597.02. GE theme health and well-being course.

### 2400 Introduction to Food Processing U 3

Introductory class applying chemistry, biology, and engineering to hands-on experience on the production and evaluation of foods. Includes basic food regulations, sanitation and formulation.  
Au. 2 cl. 1 2-hr lab. Prereq: Biology 1101 or 1113, and Chem 1110 or 1210; or permission of instructor. Not open to students with credit for 1401.

## General Education (GENED)

### 1201 GE Launch Seminar U 1

This course is first GE Bookend class. The Launch seminar provides a strong introduction to the broad goals of the General Education program, introduces key skills, and supports sustained growth in terms of attaining program goals.  
Sp. 1 cl. This course is graded S/U. GE bookend launch seminar course.

## History (HISTORY)

### 1152 American History 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 concur: English 1110.xx, GE foundation writing and info literacy course, or permission of instructor. Not open to students with credit for 1150 or 2002. GE historical study course. GE foundation historical and cultural studies course.

## Horticulture and Crop Science (HCS)

### 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 PlntBio 300. GE nat sci bio course. GE foundation natural sci course.

### 2204 Ecology of Managed Plant Systems U 3

Origin, diversification, and biogeography of plants inhabiting managed landscapes.  
Au. 3 cl. Not open to students with credit for 2201. GE theme sustainability course.

### 2205 Ecology of Managed Plant Systems – Laboratory U 1

Origin, diversification, and biogeography of plants inhabiting managed landscapes.  
Au. 1 2-hr lab. Prereq or concur: 2204. Not open to students with credit for 2201.

### †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 re-evaluation of skills progress.  
Prereq: Permission of instructor. Repeatable to a maximum of 3 cr hrs. This course is graded S/U.

### †4191.02 PGM Internship U 1

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

## Mathematics (MATH)

### 1050 Precollege Mathematics I U 5

Fractions and decimals, basic algebra, graphing lines, factoring, systems of equations. Credit for this course will not count toward graduation in any degree program.

Au, Sp, 5 cl. Prereq: 1040 (40) or 50, or Math Placement Level T, or permission of department. Not open to students with credit for any Math course above 1050 (50). This course is available for EM credit.

### 1075 Precollege Mathematics II U 4

Algebraic, rational, and 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.

### 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 anyl course. GE foundation math and quant reasoning or data anyl 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 anyl course. GE foundation math and quant reasoning or data anyl course.

### 1150 Precalculus U 5

Functions: polynomial, rational, radical, exponential, logarithmic, trigonometric, and inverse trigonometric. Applications. Au, 5 cl. Prereq: Math Placement Level M. Not open to students with credit for 1144, 1148, or for 1149 or above, or for any quarter Math course numbered 150 or above. This course is available for EM credit. GE quant reason math and logical anyl course. GE foundation math and quant reasoning or data anyl 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 anyl course. GE foundation math and quant reasoning or data anyl course.

## Microbiology (MICRBI)

### 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. GE foundation natural sci course.

## Music (MUSIC)

### 2250 Music Cultures of the World U 3

This course is a survey of world music designed for general education focusing on understanding the sounds and structures of music, as well as the contextual meanings and practices associated with the music. Students will analyze and interpret a variety of music from around the world including musical forms, instrumentation, and gendered and ethnic/racialized contexts and performance practice.

Au, Sp, 3 cl. GE VPA and diversity global studies course. GE foundation lit, vis and performing arts and race, ethnicity and gender div course.

## Physics (PHYSICS)

### 1200 Mechanics, Kinematics, Fluids, Waves U 5

Algebra-based introduction to classical physics: Newtons laws, fluids, waves.

Au, 2 cl, 2 rec, 1 3-hr lab. Prereq: A grade of C- or above in Math 1120 or 1148, or Math Placement Level M. This course is available for EM credit. GE nat sci phys course. GE foundation natural sci course. Course fee: \$50 (WST campus)

## 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. GE foundation social and behavioral sci course.

## Religious Studies (RELSTDS)

### 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 or equiv. Not open to students with credit for 2370H or CompStd 2370H or 2370. GE cultures and ideas and diversity global studies course. GE foundation historical and cultural studies and race, ethnicity and gender div course.

# Faculty and staff

## Administration

**Jon Witter**, PhD, Assistant Dean and Director

**Carri A. Gerber**, PhD, Associate Director

## Faculty

**Michael D. Amstutz**, PhD, The Ohio State University, Professor  
**Haley Campbell**, MS, The Ohio State University, Lecturer  
**Adem Cakmak**, PhD, Texas Tech University, Assistant Professor  
**Nathan Crook**, PhD, Bowling Green State University, Associate Professor  
**Joshua Deily**, PhD, University of Missouri, Lecturer  
**Seth Ebert**, BS, Colorado State University, Lecturer  
**D. Elder**, PhD, The Ohio State University, Associate Professor  
**Nathan Firestone**, BS, College of Wooster, Lecturer  
**Jennifer Fischer**, MA, The University of Illinois at Urbana-Champaign, Lecturer  
**Jonathon Flad**, PhD, Stanford University, Associate Professor and Chair, Division of Arts, Science and Business Technologies  
**Robby Frutchey**, MS, Iowa State University, Senior Lecturer  
**Van Ryan Haden**, PhD, Cornell University, Associate Professor  
**William Glenn Hollandsworth**, MA, Ohio University, Lecturer  
**Thomas Janini**, PhD, Kent State University, Associate Professor  
**Benjamin King**, MS, University of Akron, Lecturer  
**Subbu Kumarappan**, PhD, Michigan State University, Associate Professor  
**Forrest Lang**, MS, The Ohio State University, Lecturer  
**F. Paul Lee**, MS, Mississippi State University, Associate Professor  
**Daniel Linden**, PhD, Kansas State University, Associate Professor  
**Sara Mastellar**, PhD, University of Kentucky, Associate Professor  
**Zack Matesich**, PhD, University of Illinois at Urbana-Champaign, Assistant Professor  
**Kathleen Miller**, BS, Ashland University, Lecturer  
**Edward Nangle**, PhD, The Ohio State University, Associate Professor  
**Mitchell Ploskonka**, PhD, Michigan State University, Assistant Professor  
**Rachael Ramsler**, MS, The Ohio State University, Senior Lecturer  
**Joy Rumble**, PhD, University of Florida, Associate Professor and Chair, Plant Science and Engineering Technologies  
**Richard Steward**, MS, University of Akron, Lecturer  
**Sarah Toops**, Juris Doctor, Stanford University School of Law, Lecturer  
**Jonathon Van Gray**, PhD, Kent State University, Assistant Professor  
**Daniel C. Voltz**, PhD, Colorado State University, Associate Professor  
**Shaun Wellert**, DVM, The Ohio State University, Assistant Professor and Chair, Division of Animal Sciences and Technologies  
**Eric Williams**, PhD, Akron University, Assistant Professor  
**Karen Wimbush**, PhD, University of Missouri, Associate Professor

## Emeritus Faculty

**Gary A. Anderson**, PhD, Michigan State University  
 Professor Emeritus  
**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  
**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  
 Associate Professor Emeritus  
**Kent D. Hammond**, MS, 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  
**Teresa E. Lanker**, MEd, University of Illinois  
 Associate Professor Emeritus  
**Frederick A. Lendrum**, MS, The Ohio State University  
 Assistant Professor Emeritus  
**Robert W. McMahon**, PhD, 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  
**Jean Opliger**, MS, University of Akron  
 Associate Professor Emeritus  
**Shah Rahnama**, 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  
**Royce Thornton**, MS, Pennsylvania State University  
 Assistant Professor Emeritus  
**David A. Willoughby**, MEd, Miami University  
 Associate Professor Emeritus

## Professional and Support Staff

Aspen Adams	Stephanie Long
Laila Alharbi	Kevin Martin
Alaska Arnholt	Casey Meek
Rachel Bell	Joe Messenger
Shane Berner	Julie Morris
Kevin Brown	Tyler Morris
Abigail Burkey	Penny Nemitz
Jill Byers	Lori Nicholson
Stuart Courtney	Jason Owens
Carla Crisp	Doug Peyton
Chris Dicus	Kylie Ramirez
Lisa Dicus	Bethany Ream
David Dietrich	Jesse Rossington
Luke Dwertman	Kim Sayers
Leslie Eisberg	A. Schaad
Dawnielle Essig	Mark Schleppli
Justin Estill	Rick Schneiderman
Kelly Etzweiler	Jeanne Semilia
Sarah Everhart	Cassi Sewell
Bill Fisher	Cindy Shelly
Gregg Fogle	Anthony Smith
Jill Gallion	Dee Dee Snyder
Caroline Georskey	Chad Stanton
Lissia Gerber	Brooke Steele
Jalyn Goddard	Jeff Strouse
Keegan Hange	Cort Sutherland
Julia Hellickson	Michael Sword
Elizabeth Heltterbrand	Paige Thiel
Zoey Keith	Vanessa Toth
Kelly Kyser	Seth Walker
Nick Leach	Kathy Yoder
Katie LeMasters	

# University Calendar – Subject to change

## Autumn Semester 2025

August 23-25	Welcome Days (Sat. – Mon.)
August 26	Classes begin (Tue.)
September 1	Labor Day – no classes, offices closed (Mon.)
October 16-17	Autumn Break – no classes (Thur. – Fri.)
November 11	Veterans' Day – no classes, offices closed (Tue.)
November 26-28	Thanksgiving Break – no classes (Wed. – Fri.), offices closed (Thur. – Fri.)
December 10	Last day of regularly scheduled classes (Wed.)
December 12-18	Final examinations (Fri. – Thur.)
December 21	Autumn commencement – Columbus Campus
December 24	President's Day observed – offices closed (Wed.)
December 25	Christmas – offices closed (Thu.)

## Spring Semester 2026

January 12	Classes begin (Mon.)
January 19	Martin Luther King Jr. Day – no classes, offices closed (Mon.)
March 16-20	Spring Break (Mon. – Fri.)
April 27	Last day of regularly scheduled classes (Mon.)
April 29-May 5	Final examinations (Wed. – Tue.)
May 9	ATI commencement (Sat.) – Wooster Campus
May 10	Spring commencement (Sun.) – Columbus Campus

## Summer Term/Sessions 2026

May 11 - July 30	Summer Term (12 weeks)
May 11 - June 4	4-week Session #1
June 5 - July 2	4-week Session #2
July 6 - 30	4-week Session #3
May 11 - June 18	6-week Session #1
June 22 - July 30	6-week Session #2
May 11 - July 2	8-week Session #1
June 5 - July 30	8-week Session #2
May 25	Memorial Day
June 19	Juneteenth National Independence Day
July 3	Independence Day observed
August 3-5	Term Final examinations
August 9	Summer commencement – Columbus Campus

## Autumn Semester 2026

August 22-24	Welcome Days
August 25	Classes begin
September 7	Labor Day – no classes, offices closed
October 15-16	Autumn Break
November 11	Veterans' Day – no classes, offices closed
November 25-27	Thanksgiving Break
December 9	Last day of regularly scheduled classes
December 11-17	Final examinations
December 20	Autumn commencement – Columbus Campus
December 24	President's Day observed – offices closed
December 25	Christmas – 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](http://www.ati.osu.edu)  
E-mail: [ati@osu.edu](mailto:ati@osu.edu)

**Admissions**  
330-287-1327

**Academic Records**  
330-287-1303

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

**Financial Aid**  
330-287-1230  
[http://ati.osu.edu/financial\\_resources](http://ati.osu.edu/financial_resources)

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

**Student Resources**  
<http://ati.osu.edu/currentstudents/studentresources>

**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  
<http://cfaes.osu.edu/>

**Buckeye Link**  
614-292-0300

**Columbus campus Office for Disability Services**  
614-292-3307  
<http://slds.osu.edu/>

**Columbus campus Office of Military and Veterans Services**  
614-247-VETS (8387)  
<http://veterans.osu.edu/>

**Master Schedule of Classes**  
[www.buckeyelink.osu.edu](http://www.buckeyelink.osu.edu)