

OHIO STATE  
UNIVERSITY

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AGRICULTURAL TECHNICAL INSTITUTE

# ATI

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2008–2009 Bulletin

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# The Ohio State University

## Mission and Vision Statement

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

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

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

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

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

## Nondiscrimination Policy

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

The university's Office of Human Resources / Affirmative Action, 1590 N. High St., Suite 300, Columbus, Ohio 43201-2190; 614-292-4164, is responsible for the coordination of matters relating to equal opportunity and affirmative action. United States Department of Defense regulations prohibit gay men, lesbians, and bisexuals from serving in the armed forces, including Reserved Officer Training Corps. As a result of the prohibition, ROTC programs are in violation of University Policy Number 1.10 (Issued 10/1/73).

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

## Campuses

Columbus  
Lima  
Mansfield  
Marion  
Newark  
Agricultural Technical Institute, Wooster

# Agricultural Technical Institute

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

# Agricultural Technical Institute

1328 Dover Road, Wooster, Ohio 44691-4000; 330-287-1331; 800-647-8283 (in Ohio only)  
Web site: [www.ati.osu.edu](http://www.ati.osu.edu); e-mail: [ati@osu.edu](mailto:ati@osu.edu)



## 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, engineering technologies, business, laboratory science, and the environment. Twenty-eight programs of study leading to the Associate of Applied Science, Associate of Science, or Associate of Technical Study prepare students for careers in as little as two years.

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

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

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

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

Ohio State ATI is located in a major agricultural center one and one-half miles southeast of Wooster, Ohio, and is easily accessible from any area of the state. The city serves as the Wayne County seat and is home to approximately

26,000 people. In addition to an expanding number of concerts, intramural sports, dances, and other activities held on campus, the surrounding community provides students opportunities to attend theater and cultural events, YMCA programs, movies, and fairs. Wooster is within an hour's drive of Cleveland, Akron, and Canton, which offer a variety of activities including major league sports, concerts, and shopping.

Established in 1969, Ohio State ATI has a state-wide mandate to provide comprehensive agricultural education. The institute is an administrative unit of The Ohio State University College of Food, Agricultural, and Environmental Sciences and maintains a close relationship with the Ohio Agricultural Research and Development Center (OARDC), the Ohio State University Extension (OSUE), the Ohio Department of Education, and the Ohio Board of Regents. These affiliations provide students access to additional resources and opportunities.

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

## Academic Opportunities

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

### Associate of Applied Science

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

The Associate of Applied Science degree is offered in the following areas (the three-digit code following each program will be used on question 19 of the Application for Admission):

Agricultural Commerce.....	658
Beef & Sheep Production and Management	668
Business Management .....	529
Construction Management.....	694
Crop Management and Services .....	660
Dairy Cattle Production and Management	661
Environmental Resources Management .....	547
Floral Design and Marketing.....	662
Greenhouse Production and Management..	665
Horse Production and Management.....	666
Hydraulic Power and Motion Control.....	505
Laboratory Science.....	657
Landscape Contracting and Construction..	667
Nursery Management.....	669
Power and Equipment .....	656
Swine Production and Management.....	537
Turfgrass Management .....	671

### Associate of Science

The Associate of Science 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, Environmental, and Development Economics, Animal Sciences, and Horticulture and Crop Sciences.

The Associate of Science degree option is available in the following areas (the three-digit code following each program will be used on question 19 of the Application for Admission):

Agricultural Business .....	504
Agronomy.....	511
Construction Science .....	521
Dairy Science.....	509

Environmental Resources Science ..... 527  
 Horse Science ..... 513  
 Horticultural Science ..... 514  
 Livestock Science ..... 510  
 Pre-Agricultural Communication..... 523  
 Pre-Agricultural Education..... 507  
 Pre-Food Business ..... 522  
 Undeclared..... 515

**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 45 credits. The approval process begins after enrollment with the student’s advisor.

**Certificate of Competency**

The Certificate of Competency is a 48-credit program that can be completed in nine months. These programs emphasize technical courses.

Hydraulic Service and Repair ..... 517  
 Sports/Commercial Turf Equipment ..... 518

**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. Nondegree 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.

**Conference Center: The Arden Shisler Center for Education and Economic Development**

The Ohio State ATI Business Training and Educational Services offices are housed in the Arden Shisler Center for Education and Economic Development, a full-service conference center.

The conference center’s staff can provide a number of services, including conference planning, pre-registration and on-site registration, event management and facilitation, business training and educational services, multimedia and distance learning support, and complete meeting packages.

The conference center’s distance learning technology enables clients to link multiple sites for interactive conferences or courses. All meeting rooms are fully wired for videoconferencing, distance learning, and high-speed Internet access. The center’s visual presentation and multimedia equipment includes Plasma displays, DVD technology, video/data projectors, and wireless microphone systems. Broadcast quality recording, editing and production facilities are available, as well as satellite up- and down-link services.

Facilities include ten meeting rooms, an executive conference room, a conference/banquet hall with 5000 square feet of exhibit space, a 1000-seat auditorium, a courtyard, and access to two university libraries.

# Fees and expenses

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

## Application fee \$40

Required of every student upon first application to the university. Nonrefundable and not applicable toward any other university fee. Fee for international applicant is \$50.

## Acceptance fee \$100

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

## Housing Activity fee \$13/quarter

Required of all students living on campus. Non-refundable and not applicable toward any other university fee.

## Student Orientation, Assessment, & Registration (SOAR) \$100

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

## Safety and Security fee \$15/quarter

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 \$515/quarter

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

## Publication fee \$2

Assessed Autumn Quarter only for all students in the College of Food, Agricultural and Environmental Sciences including Ohio State ATI.

## Housing processing/reservation fees \$50/\$200/\$100

New students pay a non-refundable housing processing fee of \$50. All students in campus housing are assessed: a space reservation fee of \$200, which is refunded if they complete the conditions of their lease; and a \$100 per year non-refundable fee for academic year housing.

## University fees

**The university reserves the right to change fees without notice.** Undergraduate students enrolled in any quarter or term for 12 or more 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.

## Tuition effective Autumn Quarter 2008

<i>Credit hours</i>	<i>Resident tuition*</i>	<i>Non-resident tuition</i>
1	325	693
2	406	1,142
3	489	1,592
4	651	2,122
5	814	2,653
6	976	3,183
7	1,140	3,714
8	1,302	4,244
9	1,466	4,776
10	1,628	5,306
11	1,791	5,836
12 or more	1,953	6,366

### \*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 quarter 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 any U.S. Post Office. Students wishing to indicate exempt status can request materials to do so by contacting the Public Services Area of the Office of the University Registrar, The Ohio State University, Third Floor Lincoln Tower, 1800 Cannon Drive; 614-292-8500.

## Approximate costs for Ohio State ATI 2008-2009

	One quarter	Three quarters
<b>Ohio Residents</b>		
Tuition	\$1,953	\$5,859
Campus Housing	1,780	5,340
Books and supplies*	461	1,383
Groceries/ Meals*	744	2,232
<b>Subtotal**</b>	<b>\$4,938</b>	<b>\$14,814</b>
<b>Non-Ohio Residents</b>		
Tuition	\$6,366	\$19,098
Campus Housing	1,780	5,340
Books and supplies*	461	1,383
Groceries/ Meals*	744	2,232
<b>Subtotal**</b>	<b>\$9,351</b>	<b>\$28,053</b>

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

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

## Curricular information

### Graduation requirements

To obtain a degree at Ohio State ATI a student must:

- earn a minimum of 95 quarter credit hours with a cumulative point-hour ratio of 2.00 or above;
- satisfactorily complete a prescribed curriculum;
- earn a minimum of 45 credit hours through regular course work at the institute (exclusive of the internship);
- complete an occupational internship with a grade of C (2.00) or better, if included in the degree requirements;
- complete the prescribed hours of practicum with a C (2.00) or better in each quarter of practicum enrollment; a maximum of 13 credit hours of practical experience courses (e.g. practicum and internship) will count toward graduation for Associate of Applied Science degree programs.
- file an application for the degree in accordance with institute deadlines; and
- enroll in the institute during the last quarter 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 quarter of paid full-time 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 quarters they are offered. Students interested in this opportunity should contact the course instructor.

## Associate of Applied Science

Each curriculum has minimum requirements (described on pages 8-24) that have been established with input from industry advisory committees.

Social science requirements in each program are to be met by taking one course in each of the following areas:

- Social Science – Individual Development  
G S Sc T171, T172, or T173
- Social Science – Group Processes  
G S Sc T181, T182, T183 or T184

Humanities requirement in each program is to be met by taking one course from the following:

- Gen Hum T190, T191, or T192

## 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 25-35.

## Associate of Technical Study

In addition to the general graduation requirements, students pursuing the ATS degree must meet the following requirements:

### General courses

Communication; social sciences; humanities; computers; mathematics; and biological, chemical and physical sciences..... 45 credits

### Technical studies courses

Courses chosen in consultation with an advisor ..... 50 credits

## Certificate programs

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

# Associate of Applied Science Degree programs

## Agricultural Commerce

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

### Career opportunities

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

### General courses (see pages 38-40 for course titles and descriptions)

English 110.01	First-Year English Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T114	Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Gen Stds T201	Personal & Career Orientation
Gen Biol T120	Gen. Biology w/ Applications
or T125	Gen. Botany w/ Applications
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Math T140	Technical Mathematics I
Gen Math T141	Math for Retail Technicians

### Technical courses (see pages 40-50 for course titles and descriptions)

Bus Tec T100	Introduction to Business
Bus Tec T101	Financial Accounting
Bus Tec T103	Managerial Accounting
Bus Tec T203	Word Processing Applications
Bus Tec T204	Spreadsheet Applications
Bus Tec T205	Database Applications
Bus Tec T230	Marketing of Agri. Products
Bus Tec T232	Personal Selling
Bus Tec T241	Small Business Management
Bus Tec T243	Office Management
or T248	Introduction to Cooperatives
Bus Tec T244	Human Resource Management
Bus Tec T247	Business Law for Technicians
Bus Tec T249	Fundamentals of Business Finance
Bus Tec T289.02	Practicum
Bus Tec T290.02	Occupational Internship
Technology Elective	

### Specialty areas

Students will develop a specialty of at least 10 credit hours with the approval of their advisor.

### Facilities

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

### Applied learning opportunities

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

Agricultural Commerce students must also complete an industry internship consisting of 10 weeks of full-time employment in the field of their study and interest.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Agricultural Business. See curricular information on page 25.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Beef and Sheep Production and Management

The objective of this program is to prepare individuals for successful employment in beef or sheep production or in related industries.

### Career opportunities

Beef and sheep production majors may find positions in the areas of beef or sheep production, beef or sheep service industries, and sales of related products. A variety of opportunities exist in purebred, commercial, and club calf or lamb production. Graduates are also prepared for employment in entry-level positions in agribusinesses such as livestock associations, artificial insemination centers, feed and pharmaceutical companies, and in the meat industry.

### Curriculum

The curriculum includes the principles and practical application of nutrition, reproduction, genetics, live and carcass evaluation, health, facility design, and records in efficient management of each phase of production. Business and accounting principles are also presented. Practical application is emphasized at the beef and sheep unit on the Ohio State ATI Farm Laboratory and at the beef and sheep units at OARDC.

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113	Technical Reporting
or T114	Business Communication

Gen Social Science Electives

Gen Humanities Elective

Gen Stds T201	Personal & Career Orientation
Gen Biol T120	Gen. Biology w/ Applications
Bus Tec T101	Financial Accounting (with Bus Tec T241)

or

Bus Tec T102	Farm Financial Records (with Bus Tec T240)
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
or	
Gen Math T141	Math for Retail Technicians
or	
Gen Math T145	Technical Mathematics II
or	
Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Gen Math T140	Technical Mathematics I

### Technical courses (see pages 40-50 for course titles and descriptions)

Anml Tec T222.01	Beef and Sheep Production
Anml Tec T221	Animal Anatomy and Physiology
Anml Tec T223	Judging Meat Animals
Anml Tec T225	Principles of Livestock Health
Anml Tec T240	Principles of Animal Nutrition
Anml Tec T205.01	Livestock Genetics
or	
Anml Tec T245	Genetic Principles for Farm Animal Improvement
Anml Tec T274	Beef Production II
or T276	Sheep Production
Anml Tec T289.01	Practicum
Anml Tec T290.01	Occupational Internship
Anml Tec T292.01	Leadership

Choose one from the following three courses:

Bus Tec T203	Word Processing Applications
Bus Tec T204	Spreadsheet Applications
Bus Tec T205	Database Applications
Bus Tec T240	Principles of Farm Mgmt. (with Bus Tec T102)

or

Bus Tec T241	Small Business Management (with Bus Tec T101)
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Free electives (10 credits)

### Facilities

Ohio State ATI's beef facility houses a 100-cow beef herd which includes purebred and commercial cattle. Ohio State ATI has a flock of 30 Corriedale sheep and utilizes OARDC's 300-head beef feedlot, 300-head ewe flock and associated facilities.

### Applied learning opportunities

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

Beef and sheep students also complete an industry internship consisting of 10 weeks of full-time employment in the field of their study and interest.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science degree in Livestock Science. See curricular information on page 32.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Business Management

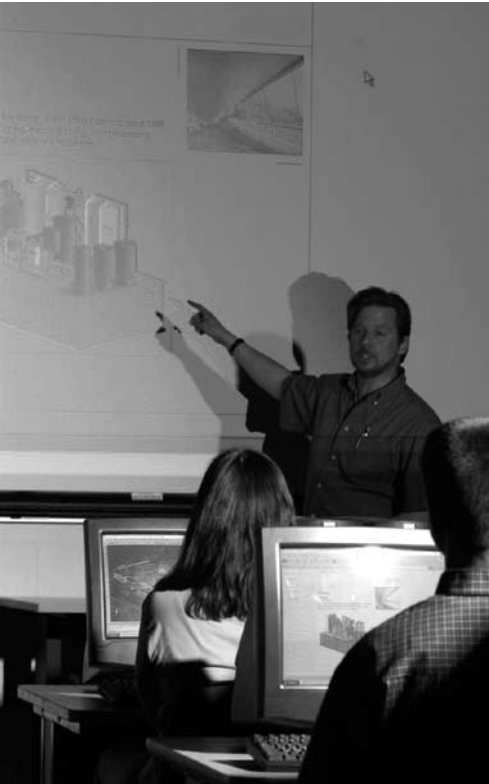
The objective of this program is to prepare individuals to assume various management positions with business firms involved in retailing, wholesaling, and manufacturing.

### Career opportunities

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

### Curriculum

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



**General courses** (see pages 38-40 for course titles and descriptions)

English 110.01	First-Year English Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T114	Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Gen Stds T201	Personal & Career Orientation
Gen Biol T120	Gen. Biology w/Applications
or	
Gen Biol T125	Gen. Botany w/Applications
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Math T140	Technical Mathematics I
Gen Math T141	Math for Retail Technicians
Gen Chem T131	Intro. Chemistry I w/ Appl.

**Technical courses** (see pages 40-50 for course titles and descriptions)

Bus Tec T100	Introduction to Business
Bus Tec T101	Financial Accounting
Bus Tec T103	Managerial Accounting
Bus Tec T203	Word Processing Applications
Bus Tec T204	Spreadsheet Applications
Bus Tec T205	Database Applications
Bus Tec T231	Fundamentals of Marketing
Bus Tec T232	Personal Selling
Bus Tec T241	Small Business Management
Bus Tec T244	Human Resource Management
Bus Tec T245	Supervisory Management
Bus Tec T247	Business Law for Technicians
Bus Tec T249	Fundamentals of Business Finance
Bus Tec T289.03	Practicum
Bus Tec T290.03	Occupational Internship
Technology Elective	
Required business electives	

### Applied learning opportunities

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

Business management students must also complete an industry internship consisting of 10 weeks of full-time employment in the field of their study or interest.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science degree in Agricultural Business. See curricular information on page 25.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Construction Management

The objective of this program is to help prepare students for management careers in construction with emphasis on residential and light commercial construction.

### Career opportunities

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

### Curriculum

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

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113	Technical Reporting
or T114	Business Communication
Bus Tec T151	General Economics
Gen Social Science Electives	
Gen Humanities Elective	
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Math T140	Technical Mathematics I
Gen Math T145	Technical Mathematics II
Gen Stds T201	Personal & Career Orientation
Tec Phys T101	Technical Physics I
Tec Phys T102	Technical Physics II

### Technical courses (see pages 40-50 for course titles and descriptions)

Bus Tec T204	Spreadsheet Applications
Bus Tec T239	Real Estate Dynamics
Eng Tech T209	Intro. to Computer Aided Design
Eng Tech T210	Advanced Computer Aided Design
Eng Tech T253	Sitework Planning & Construction
Eng Tech T254	Residential Electrical Systems
Eng Tech T255	Residential Mechanical Systems and Energy Efficient Construction
Eng Tech T256	Building Construction: Codes, Foundations and Framing
Eng Tech T257	Building Construction: Codes, Exterior Coverings, and Interior Finishes
Eng Tech T258	Estimating and Bidding
Eng Tech T259	Construction Management
Eng Tech T290.01	Occupational Internship
Eng Tech T292	Problem Solving: Career and Society Applications

Business electives  
Free elective

### Facilities

Students utilize CAD, estimating, and scheduling computer software in the computer lab. In the construction laboratory, students design, construct, test, and evaluate materials and components.

### Applied learning opportunities

Construction Management students must also complete an industry internship consisting of 10 weeks of full-time employment in a work experience related to their career interest.

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

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science degree in Construction Science. See curricular information on page 27.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Crop Management and Services

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

### Career opportunities

Graduates are employed as farm managers, farm operators, and field persons for seed companies, fertilizer and chemical companies, and grain elevators. Excellent opportunities exist in sales and custom application of farm chemicals and fertilizers.

### Curriculum

Students in the program study crop production, soil science, weed control, crop diseases, and forage crops. Emphasis is placed on a strong business core to enable students to successfully compete in an ever-changing agricultural industry.

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113	Technical Reporting
or T114	Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Gen Stds T201	Personal & Career Orientation
Gen Biol T125	Gen. Botany w/Applications
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
Gen Math T140	Technical Mathematics I

### Technical courses (see pages 40-50 for course titles and descriptions)

Bus Tec T204	Spreadsheet Applications
Bus Tec T230	Marketing of Agri. Products
Bus Tec T232	Personal Selling
or T244	Human Resource Management
Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Crp&Soil T228	Fertilizers & Soil Fertility
Crp&Soil T260	Field Crop Production
Crp&Soil T265	Diseases of Agronomic Crops
Crp&Soil T266	Weed Control in Field Crops
Crp&Soil T289	Practicum
Crp&Soil T290	Occupational Internship
Eng Tech T216	Tillage & Planting Equipment
Eng Tech T217	Harvesting Equipment
Eng Tech T225	Intro. to Geographic Info. Systems
Eng Tech T231	Farmstead Systems for Storage and Processing of Agronomic Crops
LabBioSc T218	General and Applied Entomology
<b>Take one group:</b>	
Bus Tec T101	Financial Accounting
and Bus Tec T241	Small Business Management
or	
Bus Tec T102	Farm Financial Records
and Bus Tec T240	Principles of Farm Mgmt.

### Facilities

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

### Applied learning opportunities

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

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

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Agronomy. See curricular information on page 26.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



## 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 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 program could fill the following positions: herd manager, dairy farm manager, dairy field representative, dairy technician, or sales representative in the dairy industry.

### Curriculum

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

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113	Technical Reporting
or T114	Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Gen Biol T120	Gen. Biology w/ Applications
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
or	
Crp & Soil T221	Intro. to Soils & Soil Mgmt.
or	
Gen Math T141	Math for Retail Technicians
Gen Math T140	Technical Mathematics I
Gen Stds T201	Personal & Career Orientation

### Technical courses (see pages 40-50 for course titles and descriptions)

Anml Tec T201	Dairy Cattle Milk Production
Anml Tec T202	Judging/Classifying Dairy Cattle
Anml Tec T203	Dairy Cattle Reproduction
Anml Tec T221	Animal Anatomy and Physiology
Anml Tec T240	Principles of Animal Nutrition
Anml Tec T205.03	Dairy Cattle Genetics
or	
Anml Tec T245	Genetic Principles for Farm Animal Improvement
Anml Tec T252	Dairy Cattle Health
Anml Tec T254	Dairy Cattle Feeding Mgmt.
Anml Tec T255	Dairy Facilities & Equipment

Anml Tec T257	Applied Dairy Herd Mgmt.
Anml Tec T258	Integrated Dairy Farm Business Management
Anml Tec T290.03	Occupational Internship
Anml Tec T295.02	Technology & Development in Animal Ind.
Bus Tec T101	Financial Accounting
or T102	Farm Financial Records
Technical electives: 7 credit hours to be selected in consultation with an advisor.	

### Associate of Technical Studies

Curricula for two ATS options have been developed. In the dairy equipment service technician curriculum, students will study milking equipment and dairy facility design as well as learn basic milking system installation and service skills. This option includes course work from the dairy production and management curriculum as well as the engineering technologies area.

The dairy farm supply specialist curriculum focuses on milking system design, system washing theory, cleaning and sanitizing products, mastitis and udder health, udder health products, and sales skills. This option includes course work from the dairy production and management curriculum as well as business management area.

### Facilities

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

On-site computer systems house internal herd and financial records and are online with the Dairy Herd Improvement Association's processing center.

### Applied learning opportunities

Students take Applied Dairy Herd Management (supervised, practical work experience), which provides an opportunity to apply skills learned in class.

Dairy students must also complete an industry internship consisting of 10 weeks of full-time employment in the field of their study or interest.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Dairy Science. See curricular information on page 28.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Environmental Resources Management

The objective of this program is to educate individuals regarding critical environmental issues and to prepare technicians who can help solve environmental problems by working for conservation agencies at local, state, and federal levels and for environmental businesses and industries.

### Career opportunities

Career opportunities for technical workers with environmental resources experience exist in toxic waste management, landfill and reclamation operations, recycling programs, composting facilities, waste water facilities, soil management and conservation programs, land improvement and drainage services, and with companies providing supplies and services to the industry.

### Curriculum

The curriculum emphasizes environmental resources (air, water, soil), solid waste management, sediment pollution control and design, and soil and water conservation. The study of the effects of fertilizers, manures, pesticides, biosolids, composts, and other natural and synthetic materials on water, soils, and crops is also emphasized.

**General courses** (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T114	Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Stds T201	Personal & Career Orientation
Gen Biol T120	Gen. Biology w/ Applications
or	
Gen Biol T125	Gen. Botany w/Applications
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
Gen Math T140	Technical Mathematics I
Gen Math T145	Technical Mathematics II

**Technical courses** (see pages 40-50 for course titles and descriptions)

Bus Tec T244	Human Resource Management
Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Crp&Soil T222	Soil Formation & Classification Appl.
Crp&Soil T224	Soil Physics and Mechanics Applications

Crp&Soil T229	Modeling & Managing Soil Erosion
Crp&Soil T260	Field Crop Production
Crp&Soil T266	Weed Control in Field Crops
Eng Tech T208	Technical Drafting
Eng Tech T209	Intro. to Computer Aided Design
Eng Tech T224	Soil and Water Conservation Systems
Eng Tech T225	Intro. to Geographic Information Systems
Env Sc T T210	Introduction to Ecology
Env Sc T T272	Environmental Resources in Agricultural Ecosystems
Env Sc T T274	Regulated Waste Management
Env Sc T T289	Environmental Sciences Practicum
Env Sc T T290	Occupational Internship
Technical elective	

### Facilities

Ohio State ATI laboratories are equipped to sample and analyze water, soil, fertilizers, and other environmental substances. Instruments used to make these analyses include pH meters, specific ion electrodes, soluble salt bridges, spectrophotometers, and soil water pressure extractors.

The Ohio State ATI Farm Laboratory and the newly acquired 18-hole golf course, Hawk's Nest at Ohio State ATI, provide additional external laboratories to sample and study the effects of fertilizers, manures, pesticides, biosolids, and other natural and synthetic materials on water, soils, and crops.

### Applied learning opportunities

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

Environmental Resources Management students must also complete an industry internship consisting of 10 weeks of full-time employment in the field of their study and interest.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Environmental Resources Science. See curricular information on page 29.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



## Floral Design and Marketing

The objective of this program is to educate individuals to assume design and management positions in the retail floral industry.

### Career opportunities

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

### Curriculum

The curriculum provides the principles of designing traditional and contemporary arrangements as well as specialty designs for weddings, parties, and funerals. The techniques of handling and storing flowers, greenhouse operations, outdoor gardening, and decorative uses of plants are emphasized. Principles of floral marketing are developed through a cohesive series of business courses.

### General courses (see pages 38-40 for course titles and descriptions)

- Gen Comm T111 First-Year Written Composition
- Gen Comm T112 Essentials of Oral Comm.
- Gen Comm T114 Business Communication
- Gen Social Science Electives
- Gen Humanities Elective
- Gen Stds T201 Personal & Career Orientation
- Gen Biol T125 Gen. Botany w/Applications
- Bus Tec T101 Financial Accounting
- Bus Tec T151 General Economics
- Bus Tec T202 Intro. to Microcomputer Appl.
- Gen Chem T131 Intro. Chemistry I w/ Appl.
- Gen Math T140 Technical Mathematics I
- Gen Math T141 Math for Retail Technicians

### Technical courses (see pages 40-50 for course titles and descriptions)

- Bus Tec T231 Fundamentals of Marketing
- Bus Tec T241 Small Business Management
- Hort Tec T245 Herbaceous Plants
- Hort Tec T257 Houseplants for Interior Decoration
- Hort Tec T262 Basic Floral Design
- Hort Tec T263 Post-Harvest Flower Care
- Hort Tec T264 Commercial Floral Design
- Hort Tec T265 Flowers for Celebrations I
- Hort Tec T267 Contemporary Floral Design
- Hort Tec T268 Retail Flower Shop Operation
- Hort Tec T269 Flowers for Celebrations II
- Hort Tec T290.01 Occupational Internship

### Business Electives (Select two of the following):

- Bus Tec T232 Personal Selling
- Bus Tec T233 Advertising and Promotion
- Bus Tec T244 Human Resource Management

### Technical Electives

### Facilities

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

### Applied learning opportunities

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

Floral Design and Marketing students complete an industry internship consisting of 10 weeks of full-time employment in a retail flower shop or related business. In addition, industry leaders provide specialized classroom instruction as participants in the American Institute of Floral Designers Artist-in-Residence program.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



## Greenhouse Production and Management

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

### Career opportunities

Graduates will find job opportunities in greenhouse businesses, garden centers, public horticulture, and horticultural supply companies. Graduates fill the following positions: greenhouse grower, manager, technician, and sales.

### Curriculum

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

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113 or T114	Technical Reporting Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Gen Stds T201	Personal & Career Orientation
Gen Biol T125	Gen. Botany w/Applications
Bus Tec T101	Financial Accounting
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
Gen Math T140	Technical Mathematics I

### Technical courses (see pages 40-50 for course titles and descriptions)

Bus Tec T204	Spreadsheet Applications
Bus Tec T231	Fundamentals of Marketing
Bus Tec T241	Small Business Management
Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Hort Tec T245	Herbaceous Plants
Hort Tec T246	Propagation of Nursery & Greenhouse Plants
Hort Tec T251	Greenhouse Environment Control
Hort Tec T253	Greenhouse Bedding Plant Production
Hort Tec T254	Greenhouse Pot Plant Production
Hort Tec T255	Greenhouse Perennial Production
Hort Tec T257	Houseplants for Interior Decoration
Hort Tec T274	Plant Diseases of Ornamentals & Turf
Hort Tec T289.02	Practicum
Hort Tec T290.02	Occupational Internship
LabBioSc T218	General & Applied Entomology
LabBioSc T219	Pesticides and Their Use

### Facilities

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

### Applied learning opportunities

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

Greenhouse students must also complete an industry internship consisting of 10 weeks of full-time employment in the greenhouse industry.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Horticultural Science. See curricular information on page 31.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## 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 service to the horse industry. 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, breeding farm managers, stallion managers, mare/foal managers, stable managers, breed association representatives, track employees, or sales representatives for feed or equipment companies.

### Curriculum

The curriculum includes principles and practical application of training, nutrition, reproduction, genetics, live animal evaluation, health, facility design, farrier science, and efficient farm management. Business and accounting principles are also presented. Practical application is emphasized at Ohio State ATI's horse facilities.

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113	Technical Reporting
Gen Social Science Electives	
Gen Humanities Elective	
Gen Stds T201	Personal & Career Orientation
Gen Biol T120	Gen. Biology w/ Applications
Bus Tec T101	Financial Accounting
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
or	
Gen Math T145	Technical Mathematics II
Gen Math T140	Technical Mathematics I

### Technical courses (see pages 40-50 for course titles and descriptions)

Anml Tec T211	Introduction to Horse Science
Anml Tec T212	Judging, Fitting, Showing, & Classifying Horses
Anml Tec T213	Horsemanship & Equitation
Anml Tec T214	Feeding & Nutrition of Horses
Anml Tec T221	Animal Anatomy & Physiology
Anml Tec T261	Farriering
Anml Tec T264	Horse Health
Anml Tec T265	Horse Facilities Management
Anml Tec T266	Horse Breeding & Selection
Anml Tec T289.04	Practicum
Anml Tec T290.04	Occupational Internship
Anml Tec T292.04	Practical Leadership in Horse Mgmt.
Bus Tec T241	Small Business Management
Eng Tech 215.01	Tractors & Related Equipment

### Select three courses from the following:

Anml Tec T262	Equine Exercise Science
Anml Tec T267	Adv. Horsemanship & Equitation
Anml Tec T268.01	Saddlehorse Training
Anml Tec T269	Equine Reproductive Mgmt.
Bus Tec T232	Personal Selling
Crp&Soil T262	Forage Crop Production
LabBioSc T210	Intro. to Biological Chemistry

### Applied learning opportunities

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

Horse students must also complete an industry internship consisting of 10 weeks of full-time employment in the field of their study or interest.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Horse Science. See curricular information on page 30.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

# Hydraulic Power and Motion Control

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

## Career opportunities

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

## Curriculum

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

## General courses (see pages 38-40 for course titles and descriptions)

- Gen Comm T111 First-Year Written Composition
- Gen Comm T112 Essentials of Oral Comm.
- Gen Comm T113 Technical Reporting
- or T114 Business Communication
- Bus Tec T151 General Economics
- Bus Tec T202 Intro. to Microcomputer Appl.
- Gen Social Science Electives
- Gen Humanities Elective
- Gen Chem T131 Intro. Chemistry I w/ Appl.
- Gen Math T145 Technical Mathematics II
- Gen Math T246 College Math w/ Tech. Appl.
- Gen Srds T201 Personal & Career Orientation
- Tec Phys T101 Technical Physics I
- Tec Phys T102 Technical Physics II

## Technical courses (see pages 40-50 for course titles and descriptions)

Two of the following three courses:

- Bus Tec T203 Word Processing Applications
- Bus Tec T204 Spreadsheet Applications
- Bus Tec T205 Database Applications
- Eng Tech T204 Digital Controllers
- Eng Tech T209 Intro. to Computer Aided Design
- Eng Tech T263 Metals and Metal Mfg.
- Eng Tech T273 Methods of Power Transmission
- Eng Tech T278 Electrohydraulics
- Eng Tech T279 Instrumentation & Control Systems
- Eng Tech T292 Problem Solving: Career and Society Applications
- Business elective
- Technical elective

The student must receive a grade of "C" or higher in the following courses to meet the graduation requirements in Hydraulic Power and Motion Control.

- Eng Tech T202 Basic Electricity and Electronics
- Eng Tech T203 Analog and Digital Electronics
- Eng Tech T261 Basic Pneumatic Systems
- Eng Tech T270 Fundamentals of Fluid Power
- Eng Tech T271 Fluid Power Components
- Eng Tech T272 Hydraulic Circuitry and Systems
- Eng Tech T274 Fluids, Filtration, and Fluid Conveyance
- Eng Tech T289.02 Practicum: Shop Skills
- Eng Tech T290.02 Occupational Internship

## Facilities

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

## Applied learning opportunities

Hydraulic Power and Motion Control students must complete an industry internship consisting of 10 weeks of full-time employment in the field of their study.

Hydraulic Power and Motion Control students also participate in state and national industry trade shows, meetings, and scholarship programs.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Laboratory Science

The objective of this program is to educate individuals to perform laboratory activities associated with research, quality control, and regulatory services in agriculture and non-agriculture industries.

### Career opportunities

Graduates in Laboratory Science are prepared for careers in research and development laboratories; for feed, fertilizer, or food processing companies; quality control laboratories; veterinary clinics; or for private or government analytical laboratories.

### Curriculum

Overall, the program emphasizes techniques for collecting, recording, and analyzing reliable data from samples of agricultural and non-agricultural materials.

Those interested in studying the influence of fertilization, seed varieties, production practices, and chemicals on yield and quality of the crops should select the plant option.

Those interested in the influence of nutrition, breeding, feed additives, and disease control on livestock or in working in a veterinarian's office should select the animal option.

Those interested in studying the fundamentals of ecology, environmental laws, and the chemical aspects of air, water and soil analysis should select the environmental option.

Students interested in the food industry or other areas should choose their curriculum with help from their advisor.

**General courses** (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113	Technical Reporting
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Social Science Electives	
Gen Humanities Elective	
Gen Stds T201	Personal & Career Orientation

Gen Biol T120	Gen. Biology w/ Applications
or	
Gen Biol T125	Gen. Botany w/Applications
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
Gen Math T140	Technical Mathematics I
Gen Math T145	Technical Mathematics II
LabBioSc T210	Intro. to Biological Chemistry

**Technical courses** (see pages 40-50 for course titles and descriptions)

Bus Tec T244	Human Resource Management
Env Sc T T272	Environmental Resources in Ag Ecosystems
LabBioSc T212	Introduction to the Practice of Statistics
LabBioSc T216	General Microbiology
LabBioSc T270	Intro. to Laboratory Analysis
LabBioSc T271	Instrumental Analysis
LabBioSc T272	Chromatography
LabBioSc T289.01	Practicum
LabBioSc T290.01	Occupational Internship

### Animal Option

Anml Tec T210	Intro. to Animal Agriculture
LabBioSc T274	Agricultural Research Practices
LabBioSc T276	Agricultural Products
Electives	

### Plant Option

Crp&Soil T221	Intro. to Soils and Soil Mgmt.
LabBioSc T274	Agricultural Research Practices
LabBioSc T276	Agricultural Products
Electives	

### Environmental Option

Env Sci T T210	Introduction to Ecology
Env Sci T T260	Environmental Laws and Regulations
Env Sci T T273	Air, Water, and Soil Analysis
Env Sci T T274	Regulated Waste Management
Tec Phys T101	Technical Physics I

### Applied learning opportunities

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

Laboratory Science students must also complete an industry internship consisting of 15 weeks of full-time employment in the field of their study or interest.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Landscape Contracting and Construction

The objective of this technology is to educate individuals for positions as supervisors, crew leaders, or middle level managers with landscape service businesses.

### Career opportunities

Career opportunities for technical workers in landscape planting, contracting, construction, and maintenance are available in sales, management, and production.

Graduates of the landscaping program are prepared for careers including landscape designers, grounds maintenance superintendents, landscape contractors, landscape design salespersons, landscape crew leaders, or landscape superintendents.

### Curriculum

Emphasis is placed on a thorough knowledge of landscape plant materials and their aesthetic and functional uses in relation to residential and commercial building sites. Also included in the student's training is landscape pricing and estimating and construction of outdoor complementary hardscapes such as: patios, walks, retaining walls, irrigation systems, and maintenance of home lawns.

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T114	Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Gen Stds T201	Personal & Career Orientation
Gen Biol T125	Gen. Botany w/Applications
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
Gen Math T140	Technical Mathematics I

### Technical courses (see pages 40-50 for course titles and descriptions)

Bus Tec T101	Financial Accounting
Bus Tec T244	Human Resource Management
Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Eng Tech T215.02	Hort. Power & Equipment
LabBioSc T218	General & Applied Entomology
LabBioSc T219	Pesticides & Their Use
Business Elective	

The student must earn a grade of "C" or higher in the following courses to receive an Associate of Applied Science Degree in Landscape Contracting and Construction.

Hort Tec T223	Intro. to Turfgrass Mgmt.
Hort Tec T230	Intro. to Landscape Industry Practices
Hort Tec T231	Principles of Landscape Design & Planning
Hort Tec T235	Landscape Contracting and Construction I
Hort Tec T243	Landscape Horticulture Plants & Materials I
Hort Tec T244	Landscape Horticulture Plants & Materials II
Hort Tec T245	Herbaceous Plants
Hort Tec T274	Plant Diseases of Ornamentals and Turf
Hort Tec T290.03	Occupational Internship

### Facilities

Students utilize the 50-acre campus, 75-acre Secrest Arboretum, 18-hole golf course (Hawk's Nest at Ohio State ATI), computer lab, and Landscape Design Studio to complement their class work.

Landscape students must also complete an industry internship consisting of 16 weeks of full-time employment in the field of their study and interest.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Horticultural Science. See curricular information on page 31.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



## Nursery Management

The objective of this program is to educate and prepare individuals for technical and management positions in nursery, public gardens, and garden center enterprises.

### Career opportunities

Career opportunities for technical workers in nursery operation and management are available in product development, sales management, production, and services.

Graduates of the Nursery Management program are prepared for careers as public garden personnel and managers, production superintendents, garden center managers, growers, nursery technicians or managers, plant propagators, salespersons, or storage superintendents.

### Curriculum

The curriculum emphasizes soil and soil-less media science, plant nutrition, plant propagation, plant identification and proper use, greenhouse environmental control, and irrigation and drainage for field or container production. Current nursery business management and cultural practices, and sales and marketing of nursery and garden center products are also covered.

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T114	Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Gen Stds T201	Personal & Career Orientation
Gen Biol T125	Gen. Botany w/Applications
Bus Tec 101	Financial Accounting
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
Gen Math T140	Technical Mathematics I

### Technical courses (see pages 40-50 for course titles and descriptions)

Bus Tec T241	Small Business Management
Bus Tec T244	Human Resource Management
Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Eng Tech T215.02	Hort. Power & Equipment
LabBioSc T218	General & Applied Entomology

The student must earn a grade of "C" or higher in the following courses to receive an Associate of Applied Science Degree in Nursery Management.

Hort Tec T241	Intro. to Nursery Production
Hort Tec T242	Principles of Nursery Mgmt.
Hort Tec T243	Landscape Horticulture Plants & Materials I
Hort Tec T244	Landscape Horticulture Plants & Materials II
Hort Tec T245	Herbaceous Plants
Hort Tec T246	Propagation of Nursery & Greenhouse Plants
Hort Tec T251	Greenhouse Environmental Control
Hort Tec T274	Plant Diseases of Ornamentals & Turf
Hort Tec T289.04	Practicum
Hort Tec T290.04	Occupational Internship

### Applied learning opportunities

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

Nursery students must also complete an industry internship consisting of 15 weeks of full-time employment in the field of their study or interest.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Horticultural Science. See curricular information on page 31.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Power and Equipment

The objective of this program is to prepare students for careers involving the purchase, utilization, maintenance, repair, and sale of off-road machinery.

### Career opportunities

Career opportunities are available with agricultural and industrial dealerships, manufacturers, contractors, and fleet operations.

### Curriculum

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

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113	Technical Reporting
or T114	Business Communication
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Social Science Electives	
Gen Humanities Elective	
Gen Srds T201	Personal & Career Orientation
Gen Chem T131	Intro. Chemistry I w/ Appl.
Tec Phys T101	Technical Physics I
Tec Phys T102	Technical Physics II
Gen Math T140	Technical Mathematics I
Gen Math T145	Technical Mathematics II

### Technical courses (see pages 40-50 for course titles and descriptions)

Two of the following three courses:

Bus Tec T203	Word Processing Applications
Bus Tec T204	Spreadsheet Applications
Bus Tec T205	Database Applications
Eng Tech T243	Mobile Heating & Air Conditioning
Eng Tech T245	Engine Diagnosis & Repair
Eng Tech T250	Welding and Metal Fabrication
Eng Tech T273	Methods of Power Transmission
Eng Tech T274	Fluids, Filtration, and Fluid Conveyance
Eng Tech T280	Equipment Dealership Mgmt.
Eng Tech T292	Problem Solving: Career and Society Applications

Technical electives  
Business elective

The student must receive a grade of "C" or higher in the following courses to meet the graduation requirements in Power and Equipment.

Eng Tech T202	Basic Electricity and Electronics
Eng Tech T205	Vehicle Electrical and Electronic Systems
Eng Tech T241	Intro. to Power and Equipment
Eng Tech T248	Diesel Engine Systems
Eng Tech T249	Performance of Mobile Power Units
Eng Tech T262	Basic Hydraulic Systems
Eng Tech T289.02	Practicum: Shop Skills
Eng Tech T290.03	Occupational Internship

### 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

Agricultural/industrial Power and Equipment students must complete an industry internship consisting of 10 weeks of full-time employment in the field of their study and interest.

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

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.





## Swine Production and Management

The objective of this program is to prepare individuals for successful employment in pork production or in related industries.

### Career opportunities

Swine production majors may find positions in areas of pork production, pork industry service, and sales of related products. A variety of opportunities exist in seedstock (purebred and breeding companies) and commercial production. Graduates are prepared for employment in entry level management positions on independently owned or corporate pork production units. Additional employment opportunities exist in agribusinesses such as research laboratories, cooperatives, breed associations, artificial insemination centers, feed and pharmaceutical companies, and meat processors.

### Curriculum

The curriculum includes principles and practical application of nutrition, reproduction, genetics, live animal and carcass evaluation, health, facility design, and production records in efficient management of each phase of pork production. Business and accounting principles are also presented. Practical application is emphasized at the swine farrow-to-finish unit at the Ohio State ATI Farm Laboratory.

**General courses** (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113	Technical Reporting
or T114	Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Gen Stds T201	Personal & Career Orientation
Gen Biol T120	Gen. Biology w/ Applications
Bus Tec T101	Financial Accounting (with Bus Tec T241)
or	
Bus Tec T102	Farm Financial Records (with Bus Tec T240)
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Math T140	Technical Mathematics I
Gen Chem T132	Intro. Chemistry II w/ Appl.
or	
Gen Math T141	Math for Retail Technicians
or	
Gen Math T145	Technical Mathematics II

**Technical courses** (see pages 40-50 for course titles and descriptions)

Anml Tec T221	Animal Anatomy and Physiology
Anml Tec T222.02	Swine Production I
Anml Tec T223	Judging Meat Animals
Anml Tec T225	Principles of Livestock Health
Anml Tec T240	Principles of Animal Nutrition
Anml Tec T205.01	Livestock Genetics
or	
Anml Tec T245	Genetic Principles for Farm Animal Improvement
Anml Tec T277	Swine Production II
Anml Tec T289.02	Practicum
Anml Tec T290.02	Occupational Internship
Anml Tec T292.02	Leadership
Bus Tec T241	Small Business Management (with Bus Tec T101)
or	
Bus Tec T240	Principles of Farm Mgmt. (with Bus Tec T102)

Choose one from below:

Bus Tec T203	Word Processing Applications
Bus Tec T204	Spreadsheet Applications
Bus Tec T205	Database Applications

**Free electives** (8 credits) — Allows students to take courses in other areas of interest.

### Facilities

Ohio State ATI's swine facility houses a 100-sow farrow-to-finish operation, including a 16-crate farrowing house, hot and cold nursery, and a finishing floor.

### Applied learning opportunities

Students take practicum (supervised, practical work experience at the ATI swine farm) which provides an opportunity to apply skills learned in class.

Swine students must also complete an industry internship consisting of 10 weeks of full-time employment in the field of their study and interest.

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Livestock Science. See curricular information on page 32.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Turfgrass Management

The objective of this program is to educate individuals for technical and management positions in the golf course industry.

### Career opportunities

Career opportunities exist with golf courses, lawn care services, sod farms, parks, 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, lawn care manager, sod farm manager, turf research technician, or sales representative within the turf industry.

### Curriculum

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

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T112	Essentials of Oral Comm.
Gen Comm T113	Technical Reporting
or T114	Business Communication
Gen Social Science Electives	
Gen Humanities Elective	
Gen Biol T125	Gen. Botany w/Applications
Gen Stds T201	Personal & Career Orientation
Bus Tec T101	Financial Accounting
Bus Tec T151	General Economics
Bus Tec T202	Intro. to Microcomputer Appl.
Gen Chem T131	Intro. Chemistry I w/ Appl.
Gen Chem T132	Intro. Chemistry II w/ Appl.
Gen Math T140	Technical Mathematics I

### Technical courses (see pages 40-50 for course titles and descriptions)

Bus Tec T244	Human Resource Management
Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Eng Tech T219	Landscape, Nursery, & Turfgrass Equipment
Eng Tech T222	Irrigation & Drainage for Landscape/Nursery/Turf
Eng Tech T240	Engine Basics
Hort Tec T220	Intro. to the Golf Course Mgmt. Industry

Hort Tec T245	Herbaceous Plants
Hort Tec T249	Woody Landscape Plant Materials for Turf Managers
LabBioSc T218	General & Applied Entomology
LabBioSc T219	Pesticides and Their Uses

The student must earn a grade of "C" or higher in the following core courses to receive an Associate of Applied Science Degree in Turfgrass Management.

Hort Tec T223	Intro. to Turfgrass Mgmt.
Hort Tec T225	Turf Practices
Hort Tec T227	Golf Course Organization & Mgmt.
Hort Tec T272	Principles of Weed Science in Horticultural Crops
Hort Tec T274	Plant Diseases of Ornamentals & Turf
Hort Tec T289.05	Practicum
Hort Tec T290.05	Occupational Internship

### Facilities

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

### Applied learning opportunities

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

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

### Other degree options

Students interested in earning a bachelor's degree may be interested in the Associate of Science program in Horticultural Science. See curricular information on page 31.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

# Associate of Science Degree programs

## Agricultural Business

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

### Career opportunities

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

### Curriculum

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

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
Agr Comm 390	Oral Expression in Agriculture
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Chemistry 101	Elementary Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
Mathematics 130	Mathematical Analysis for Business I
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies

### Technology courses (see pages 40-50 for course titles and descriptions)

Bus Tec T101	Financial Accounting
Bus Tec T103	Managerial Accounting
Bus Tec T232	Personal Selling
Bus Tec T241	Small Business Management
Bus Tec T244	Human Resource Management
Bus Tec T248	Introduction to Cooperatives
Bus Tec T249	Fundamentals of Business Finance

### Elective courses

Choose from the following general courses:

Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Chemistry 102	Elementary Chemistry

Or choose other Ohio State ATI courses in consultation with your advisor (Bus Tec T231, Fundamentals of Marketing, recommended).

### Other degree options

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

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Agronomy

The objective of the Agronomy program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Crop Science with an emphasis on agronomic crops or to prepare for employment in agricultural business.

### Career opportunities

Graduates with a BS in Crop Science will find careers as independent crop producers; professional agricultural consultants; technical representatives for seed, fertilizer, equipment and agrichemical companies; and other related careers.

### Curriculum

The curriculum of the agronomy program allows the student to take technical courses in crop production along with general education courses required for the Bachelor of Science degree in Crop Science.

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Chemistry 101	Elementary Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
Mathematics 148	Algebra and Trigonometry and Their Applications
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies

### Technology courses (see pages 40-50 for course titles and descriptions)

Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Crp&Soil T222	Soil Formation & Classification Appl.
Crp&Soil T228	Fertilizers & Soil Fertility
Crp&Soil T260	Field Crop Production
Crp&Soil T262	Forage Crop Production
Crp&Soil T265	Diseases of Agronomic Crops
Crp&Soil T266	Weed Control in Field Crops
Crp&Soil T289	Practicum in Crop Production
LabBioSc T216	General Microbiology
LabBioSc T218	General & Applied Entomology

### Elective courses

Choose from the following general courses:

Agr Comm 390	Oral Expression in Agriculture
Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Chemistry 102	Elementary Chemistry

Or choose other Ohio State ATI courses in consultation with your advisor.

### Other degree options

An Associate of Applied Science degree is available in Crop Management and Services. See curricular information on page 12.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Construction Science

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

### Career opportunities

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

### Curriculum

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

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Chemistry 101	Elementary Chemistry
Chemistry 102	Elementary Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
Mathematics 148	Algebra and Trigonometry and Their Applications
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies

### Technology courses (see pages 40-50 for course titles and descriptions)

Bus Tec T202	Intro. to Microcomputer Appl.
Bus Tec T204	Spreadsheet Applications
Eng Tech T209	Intro. to Computer Aided Design
Eng Tech T210	Advanced CAD
Eng Tech T253	Sitework Planning and Construction
Eng Tech T254	Residential Electrical Systems
Eng Tech T255	Residential Mechanical Systems and Energy Efficient Construction
Eng Tech T256	Building Construction: Codes, Foundations and Framing
Eng Tech T257	Building Construction: Codes, Exterior Coverings and Internal Finishes
Eng Tech T258	Estimating and Bidding
Eng Tech T259	Construction Management
Eng Tech T290.01	Internship
Eng Tech T292	Problem Solving: Career and Society Applications
Tech Phys T101	Technical Physics I
Tech Phys T102	Technical Physics II

### Other degree options

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

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



## Dairy Science

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

### Career opportunities

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

### Curriculum

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

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Chemistry 101	Elementary Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
Mathematics 148	Algebra and Trigonometry and Their Applications
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies

### Technology courses (see pages 40-50 for course titles and descriptions)

Anml Tec T201	Dairy Cattle Milk Production
Anml Tec T203	Dairy Cattle Reproduction
Anml Tec T221	Animal Anatomy & Physiology
Anml Tec T240	Principles of Animal Nutrition
Anml Tec T245	Genetic Principles for Farm Animal Improvement
or	
Anml Tec T205.03	Dairy Cattle Genetics
Anml Tec T252	Dairy Cattle Health
Anml Tec T257	Applied Dairy Herd Management
Anml Tec T290.03	Occupational Internship

### Elective technology courses (7-9 credits)

Choose from:

Anml Tec T202	Judging & Classifying Dairy Cattle
Anml Tec T210	Intro. to Animal Agriculture
Anml Tec T254	Dairy Cattle Feeding Management
Anml Tec T255	Dairy Facilities and Equipment
Anml Tec T258	Integrated Dairy Farm Business Management

### Elective courses

Choose from the following general courses:

Agr Comm 390	Oral Expression in Agriculture
Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Chemistry 102	Elementary Chemistry

Or choose other Ohio State ATI courses in consultation with your advisor.

### Other degree options

An Associate of Applied Science degree is available in Dairy Cattle Production and Management. Also available are Associate of Technical Studies programs in dairy equipment, service technician, and dairy farm supply specialist. See curricular information on page 13.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



## Environmental Resources Science

The objective of the Environmental Resources Science program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree in Environmental Science; Forestry and Urban Forestry; Fisheries and Wildlife Management; or Human Dimensions in Natural Resources in the School of Natural Resources at The Ohio State University.

### Career opportunities

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

### Curriculum

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

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Chemistry 121	General Chemistry I
Chemistry 122	General Chemistry II
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
Mathematics 148	Algebra and Trigonometry and Their Applications
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies

### Technology courses (see pages 40-50 for course titles and descriptions)

Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Crp&Soil T228	Fertilizers and Soil Fertility
Eng Tech T224	Soil and Water Conservation Systems
ENR 201	Intro. to Environmental Science
ENR 203	Society and Natural Resources

### Elective courses

Choose from a list of transferable courses that includes:

Agr Comm 390	Oral Expressions in Agriculture
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Select additional transferable Ohio State ATI courses in consultation with your advisor.

### Other degree options

An Associate of Applied Science degree is available in Environmental Resources Management. See curricular information on page 14.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



## Horse Science

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

### Career opportunities

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

### Curriculum

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

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Chemistry 101	Elementary Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
Mathematics 148	Algebra and Trigonometry and Their Applications
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies

### Technology courses (see pages 40-50 for course titles and descriptions)

Anml Tec T211	Introduction to Horse Science
Anml Tec T212	Judging, Fitting, Showing & Classifying Horses
Anml Tec T213	Horsemanship and Equitation
Anml Tec T214	Feeding and Nutrition of Horses
Anml Tec T261	Farriering
Anml Tec T264	Horse Health
Anml Tec T265	Horse Facilities Management
Anml Tec T266	Horse Breeding and Selection
Anml Tec T267	Advanced Horsemanship & Equitation
Anml Tec T268.01	Saddle Horse Training
Anml Tec T269	Equine Reproduction Mgmt.
Anml Tec T289.04	Horse Production & Mgmt. Practicum
Anml Tec T292.04	Leadership Practicum

### Elective courses

Choose from the following general courses:

Agr Comm 390	Oral Expression in Agriculture
Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Chemistry 102	Elementary Chemistry

Or choose other Ohio State ATI courses in consultation with your advisor.

### Other degree options

An Associate of Applied Science degree is available in Horse Production and Management. See curricular information on page 17.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.





## Horticultural Science

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

### Career opportunities

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

### Curriculum

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

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Chemistry 101	Elementary Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
H&CS 200	The Science of Growing Plants
Mathematics 148	Algebra and Trigonometry and Their Applications
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies

### Technical courses (see pages 40-50 for course titles and descriptions)

Hort Tec T223	Intro. to Turfgrass Mgmt.
Hort Tec T243	Landscape Horticulture Plants and Materials I
Hort Tec T245	Herbaceous Plants
Hort Tec T251	Greenhouse Environment Control

### Elective courses

Choose from a list of transferable courses that includes:

Agr Comm 390	Oral Expression in Agriculture
Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Chemistry 102	Elementary Chemistry

Select additional transferrable Ohio State ATI courses in consultation with your advisor.

### Other degree options

Associate of Applied Science degrees are available in Greenhouse Production and Management (page 16), Landscape Contracting and Construction (page 20), Nursery Management (page 21), and Turfgrass Management (page 24).

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Livestock Science

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

### Career opportunities

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

### Curriculum

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

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Chemistry 101	Elementary Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
Mathematics 148	Algebra and Trigonometry and Their Applications
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies

### Technical courses (see pages 40-50 for course titles and descriptions)

#### Core

Anml Tec T210	Introduction to Animal Agriculture
Anml Tec T221	Animal Anatomy and Physiology
Anml Tec T225	Principles of Livestock Health
Anml Tec T240	Principles of Animal Nutrition
Anml Tec T245	Genetic Principles for Farm Animal Improvement
or	
Anml Tec T205.01	Livestock Genetics

#### Beef Science

Anml Tec T222.01	Beef and Sheep Production I
Anml Tec T274	Beef Production II
Anml Tec T289.01	Practicum in Beef Production

#### Sheep Science

Anml Tec T222.01	Beef and Sheep Production I
Anml Tec T276	Sheep Production
Anml Tec T289.01	Practicum in Sheep Production

#### Swine Science

Anml Tec T222.02	Swine Production I
Anml Tec T277	Swine Production II
Anml Tec T289.02	Practicum in Swine Production

### Elective courses

Choose from the following general courses:

Agr Comm 390	Oral Expression in Agriculture
Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Chemistry 102	Elementary Chemistry
Psych 100	General Psychology
Anml Tec T223	Judging Meat Animals

Or choose other Ohio State ATI courses in consultation with your advisor.

### Other degree options

Associate of Applied Science degrees are available in Beef and Sheep Production and Management (page 9) and Swine Production and Management (page 23).

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Pre-Agricultural Communication

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

### Career opportunities

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

### Curriculum

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

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Chemistry 101	Elementary Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
Mathematics 148	Algebra and Trigonometry and Their Applications
or	
Mathematics 130	Mathematical Analysis for Business
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies
General Education Elective	

### Technology courses (see pages 40-52 for course titles and descriptions)

Agr Comm 200	Intro. to Agricultural Communication
Agr Comm 300	Publication Design and Production
Agr Comm 390	Oral Expression in Agriculture

### Elective courses

A minimum of 23 transferable elective credits are required including the minor. Students will select a minor in consultation with their advisor.

General elective courses:

Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Chemistry 102	Elementary Chemistry
ENR 201	Intro. to Environmental Science
Psych 100	General Psychology

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



## Pre-Agricultural Education

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

### Career opportunities

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

### Curriculum

The curriculum of the Pre-Agricultural Education program will focus on the agricultural science/production specialization.

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Chemistry 101	Elementary Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
H&CS 200	The Science of Growing Plants
History 151	American Civilization to 1877
Mathematics 148	Algebra and Trigonometry and Their Applications
Music 250	Music Cultures of the World
Psych 100	General Psychology
Rural Soc 105	Introduction to Rural Sociology

### Technology courses (see pages 40-52 for course titles and descriptions)

AEE 230	Intro. to Agricultural and Extension Education
AEE 280	Early Field Experience in Ag. & Extension Ed.
AEE 342	Fundamentals of Personal and Professional Leadership
Anml Tec T210	Intro. to Animal Agriculture
Anml Tec T240	Principles of Animal Nutrition
Crp&Soil T221	Intro. to Soils and Soil Mgmt.
Eng Tech T240	Engine Basics

### Elective courses

Choose from the following general courses:

Agr Comm 390	Oral Expression in Agriculture
Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Chemistry 102	Elementary Chemistry

Or choose other Ohio State ATI courses in consultation with your advisor.

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.

## Pre-Food Business

The objective of the Pre-Food Business program at Ohio State ATI is to allow students to complete the first half of a Bachelor of Science degree program in Food Business Management at The Ohio State University.

### Career opportunities

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

### Curriculum

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

### General courses (see pages 50-52 for course titles and descriptions)

Agr Comm 367	Ag. Issues in Contemporary American Society
AED Econ 200	Principles of Food & Resource Economics
Biology 113	Bio Sci: Energy Transfer and Development
Chemistry 101	Elementary Chemistry
or	
Chemistry 121	General Chemistry
Chemistry 102	Elementary Chemistry
or	
Chemistry 122	General Chemistry
English 110.01	First-Year English Composition
English 291	U.S. Literature: 1865 to Present
FAES 100	FAES Survey
History 151	American Civilization to 1877
Mathematics 130	Mathematical Analysis for Business
or	
Mathematics 148	Algebra and Trigonometry and Their Applications
Music 250	Music Cultures of the World
Rural Soc 105	Introduction to Rural Sociology
Rural Soc 378	Social Groups in Developing Societies

### Technology courses (see pages 40-52 for course titles and descriptions)

Bus Tec T101	Financial Accounting
Bus Tec T231	Fundamentals of Marketing
Bus Tec T241	Small Business Management
Bus Tec T244	Human Resource Management
LabBioSci T216	General Microbiology
Food Sci 201	Science of Food
or	
Biology 114	Bio Sci: Form, Function, Diversity & Ecology
Bus Tec T103	Managerial Accounting
Bus Tec T230	Marketing of Agri. Products

### Elective courses

Choose from the following general courses:

Agr Comm 390	Oral Expression in Agriculture
Bus Tec T248	Introduction to Cooperatives
Psych 100	General Psychology

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



# Certificate Programs

## Hydraulic Service and Repair

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

### Career opportunities

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

Graduates can enter the work force as a system assembler, component 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 courses** (see pages 38-40 for course titles and descriptions)

- Gen Comm T111 First-Year Written Composition
- Gen Math T140 Technical Mathematics I
- Gen Math T145 Technical Mathematics II
- General Social Science Elective
- Gen Stds T201 Personal & Career Orientation

**Technical courses** (see pages 40-50 for course titles and descriptions)

- Bus Tec T202 Intro. to Microcomputer Appl.
- Bus Tec Elective
- Eng Tech T202 Basic Electricity and Electronics
- Eng Tech T250 Welding and Metal Fabrication
- Eng Tech T270 Fundamentals of Fluid Power
- Eng Tech T271 Fluid Power Components
- Eng Tech T273 Methods of Power Transmissions
- Eng Tech T274 Fluids, Filtration, and Fluid Conveyance
- Eng Tech T289.03 Practicum: Component Rebuilding
- Eng Tech T289.02 Practicum: Shop Skills
- Eng Tech Elective

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



## Sports/Commercial Turf Equipment

The Sports/Commercial Turf Equipment Certificate of Competency program prepares individuals with the technical skills needed for maintaining, troubleshooting, repairing, and rebuilding commercial turf equipment. This new program is one of a very few of its type in the country and is attracting the attention of leaders in the green and equipment 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 facilities. Assigned positions include equipment service manager at a golf course, country club, or park; or as a sales representative or service technician with a manufacturer, wholesaler, or dealer. Students may choose to pursue an Associate of Applied Science degree at a later time.

### Curriculum

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

### General courses (see pages 38-40 for course titles and descriptions)

Gen Comm T111	First-Year Written Composition
Gen Comm T113	Technical Reporting
Gen Math T140	Technical Mathematics I
Gen Social Science	Elective
Gen Stds T201	Personal & Career Orientation

### Technical courses (see pages 40-50 for course titles and descriptions)

Bus Tec T202	Intro. to Microcomputer Appl.
Eng Tech T202	Basic Electricity and Electronics
Eng Tech T219	Landscape, Nursery and Turfgrass Equipment
Eng Tech T240	Engine Basics
Eng Tech T247	Compact Diesel Engines
Eng Tech T250	Welding and Metal Fabrication
Eng Tech T260	Power Transmission for Turf Equipment
Eng Tech T262	Basic Hydraulic Systems
Eng Tech T289.02	Practicum: Shop Skills
Hort Tec T223	Intro. to Turfgrass Mgmt.
	Technical Elective

For additional information, call Ohio State ATI at 1-330-287-1331 or 1-800-647-8283.



# Course offerings

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

## Explanation of a course listing

<b>A</b>	<b>T224 Livestock Nutrition U 4</b>
<b>B</b>	A study of the fundamental nutrient needs of an animal.
<b>C</b>	Su, Au, Wi, Sp Qtrs. 3 cl, 1 3-hr lab. Prereq: Eligible for Math T140 or Math 104; T221 or T210; or T222.01 or T224.02.
<b>D</b>	<b>T224.01</b> <b>T224.02</b>

### **A Course number: T224**

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:** Livestock Nutrition

**Instructional level:** U—Undergraduate

**Credit hours:** 4

### **B Course description:**

A study of the fundamental nutrient needs of an animal.

### **C Quarters of offering:**

Su—Summer; Au—Autumn; Wi—Winter; Sp—Spring

**Classroom and laboratory hours:** 3 cl, 1 3-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):** Eligible for Math T140 or Math 104; T221 or T210; or T222.01 or T224.02. 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.

Additional information affecting enrollment: Students may enroll in either or both decimal subdivisions.

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

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

### **D Decimal subdivisions:**

T224.01 Beef/Sheep Nutrition

T224.02 Swine Nutrition

The decimal numbers are subdivisions of the generic number (T224). These subdivisions may also carry the information described in A, B, and C. When registering for a course with decimals, students must use the desired subdivision rather than the generic number.

## General Courses

### General Studies

#### **T100 Learning Strategies for Success U 3**

Focus on aiding students to develop self-awareness, positive attitudes, and learning strategies to improve their academic performance.

Au, Wi, Sp Qtrs. 3 1-hr cl. Credit will not count toward graduation in any degree program.

#### **T201 Personal and Career Orientation U 1**

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, Wi Qtrs. 1 cl.

### General Studies: Biology

#### **T120 General Biology with Applications U 4**

A basic course intended to provide a foundation, emphasizing principles and applications of biology.

Au, Wi Qtrs. 3 cl, 1 2-hr lab. Not open to students with credit for Biology 113.

#### **T125 General Botany with Applications U 5**

Introduction to the fundamental structures and processes of plants including plant anatomy, physiology, morphology, reproduction, and genetics.

Au, Wi, Sp Qtrs. 4 cl, 1 2-hr lab. Not open to students with credit for Hort 300.

#### **T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

### General Studies: Chemistry

#### **T131 Introductory Chemistry I with Applications U 4**

Develops the basic concepts of atomic structure, bonding, molecular structure, chemical reactions, solutions, equilibrium, acids and bases, and redox.

Au, Wi, Sp Qtrs. 3 cl, 1 1-hr rec, 1 2-hr lab. Prereq or concur: Gen Math T140. Not open to students with credit for T101.

#### **T132 Introductory Chemistry II with Applications U 4**

Emphasis on structure, naming, physical and chemical behavior of organic molecules which pertain to agriculture and related areas.

Au, Wi, Sp Qtrs. 3 cl, 1 1-hr rec, 1 2-hr lab. Prereq: T131 or Chem 101. Not open to students with credit for T102.

#### **T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

### General Studies: Communication Skills

#### **T100 Improving College Reading U 3**

A course for practicing strategies designed to improve textbook comprehension, vocabulary, and critical reading, as well as to encourage lifelong reading and learning.

Au, Wi Qtrs. 3 cl, 1 1-hr rec. Credit will not count toward graduation in any degree program. Course required based on placement test.

#### **T101 Developing Basic Writing Skills U 3**

Instruction to develop writing and usage skills through practice.

Au, Wi Qtrs. 3 cl, 1 1-hr rec. Prereq: ACT score and/or placement test. Credit will not count toward graduation in any degree program.

#### **T102 Developing Written Expression U 3**

Instruction to improve the writing process as it relates to effective written expression.

Au, Wi Qtrs. 3 cl, 1 1-hr rec. Prereq: ACT score and/or placement test or T101. Credit will not count toward graduation in any degree program.



**T111 First-Year Written Composition U 3**

A writing course to help the student develop critical thinking and writing skills necessary for success in college and a career.

Au, Wi, Sp Qtrs. 3 cl. Prereq: ACT score and/or placement test or T102.

**T112 Essentials of Oral Communication U 3**

Surveys the components and functions of oral communication and provides practice in applying effective oral skills to informal and job-related situations.

Su, Au, Wi, Sp Qtrs. 3 cl. Course taught as a full-quarter course Au, Wi, and Sp. Course taught as a 5-week term course in Sp and Su.

**T113 Technical Reporting U 3**

Principles and practices of technical reporting in the global setting with emphasis on practical applications in educational and professional environments.

Au, Wi, Sp Qtrs. 3 cl. Prereq: T111 or English 110.01. Not open to students with credit for T114 or Agr Comm 367.

**T114 Business Communication U 3**

Principles and practices of business communications in the global setting with emphasis on practical applications involving reading, speaking, and writing.

Au, Wi, Sp Qtrs. 3 cl. Prereq: T111 or English 110.01. Not open to students with credit for T113 or Agr Comm 367.

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies in specialized programs.

Arr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

**General Studies: Humanities****T190 Humanities as a Window on Cultural Pluralism U 3**

This multidisciplinary course seeks to introduce students to art, literature, architecture, and music in their cultural contexts during the first half of the twentieth century.

Au, Sp Qtrs. 3 cl. Prereq or concur: Gen Comm T111

**T191 World Music Cultures U 3**

Develops an understanding and appreciation of music from various cultures within their cultural context.

Au, Wi Qtrs. 2.15-hr cl. Prereq or concur: Gen Comm T111. Not open to students with credit for Music 250.

**T192 World Religions U 3**

Develops an understanding of eastern and western religious thought and practice in their cultural context.

Wi, Sp Qtrs. 3 cl. Prereq or concur: Gen Comm T111

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies in specialized programs.

Arr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

**General Studies: Mathematics****T103 Developing Arithmetic and Beginning Algebra Skills U 5**

Foundation course in arithmetic and beginning algebra skills with emphasis on obtaining competencies necessary for success in subsequent mathematics courses.

Au, Wi, Qtrs. 5 cl. Not open to students with credit for Tec Math T101.

**T140 Technical Mathematics I U 5**

Algebra and geometry fundamentals with emphasis on application involving measurement, percents, two and three-dimensional geometry, and direct and inverse proportion.

Au, Wi, Sp Qtrs. 5 cl. Prereq: T103 with a C (2.00) or better or placement test or permission of instructor.

**T141 Mathematics for Retail Technicians U 4**

Mathematics of business and finance, including ratios, discounts, mark-ups, commissions, statistics, graphing, interest, annuities, amortization, and sinking funds.

Sp Qtr. 4 cl. Prereq: T140 or equiv. Not open to students with credit for Tec Math T106.

**T145 Technical Mathematics II U 5**

A study of technical applications and computational methods involving variation, simultaneous and quadratic equations, graphing, logarithms, and trigonometry.

Au, Wi, Sp Qtrs. 5 cl. Prereq: T140 with a C- or better or permission of instructor.

**T246 College Mathematics with Technical Applications U 5**

A study of topics in college algebra, trigonometry, analytic geometry, and a brief introduction to technical calculus with emphasis on applications.

Au Qtr. 5 cl. Prereq: T145.

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies in specialized programs.

Arr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

**General Studies: Social Sciences****T170† Learning and Leadership U 3**

A study of individual differences and styles in preparation for group leadership in the residence hall staff or as a peer tutor.

3 cl. Prereq: Permission of instructor.

**T171 Personal Development U 3**

A course to help a person develop an understanding of individual growth and development, human behavior, and the establishment of human relationships.

Au, Wi, Sp Qtrs. 3 cl. Not open to students with credit for G S Sc T152.

**T172 Personal Development and Service Learning U 3**

A study of human development, learning styles, tutoring techniques to prepare students for field experience in tutoring.

Au, Wi, Sp Qtrs. 2 cl, 1 3-hr lab. Not open to students with credit for T261. Off-campus field experience working in community agencies.

**T173 Life Span Psychology U 3**

Overview of the stages of human physical, emotional, and social development from infancy through late adulthood.

Su, Au, Wi, Sp Qtrs., 3 cl. Not open to students with credit for T295.01. Course taught as a full-quarter course Au, Wi, and Sp. Course taught as a 5-week term course in Sp and Su.

**T181 Society and Culture U 3**

A study of human group interactions, the organization of social groups, and the impact of groups on individual action.

Au, Wi, Sp Qtrs. 3 cl. Not open to students with credit for T153.

**T182 Marriage & Family Relationships U 3**

A study of personal relationships in marriage with special attention to premarital, spousal, and parent-child interaction.

Au, Wi, Sp Qtrs. 3 cl. Not open to students with credit for T160.

**T183 Amish Society and Culture in the USA U 3**

A study of basic sociological theory with an emphasis on comparing and contrasting dominant US culture and Amish subculture, particularly those of Ohio.

Sp Qtr. 3 cl. Not open to students with credit for T255.

**T184 Hispanic Language and Culture in the Workplace U 3**

Develop a basic Spanish vocabulary for the U.S. workplace with an understanding of the influence of Latino culture on workplace relationships in order to improve the working environment.

Au, Wi Qtrs. 3 cl.

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies for students in specialized programs.

Arr. Prereq: Permission of instructor. Repeatable to 10 cr hrs.

**T295 Seminar Series U 3**

Topics of interest on problems and issues facing society.

Su, Au, Wi, Sp Qtrs. 3 cl, 1 rec. Prereq: Permission of instructor. Requires viewing PBS programming. Repeatable to a maximum of 15 cr hrs.

**T298† Study Tour U 1-15**

Specific content, location, quarter(s) of offering, and prerequisites vary; contact technology office for details.

Prereq: Permission of instructor. Repeatable for different titled study tours only.

**T298.01 Domestic**

**T298.02 Foreign**

## Technical Physics

**T101 Technical Physics I U 4**

Principles and applications of forces, motion, energy, matter, heat, and thermodynamics

Wi, Sp Qtrs. 3 cl, 1 rec, 1 2-hr lab. Prereq: Gen Math T145 or Math 148; concur: Gen Math T145 or Math 148 and permission of instructor.

**T102 Technical Physics II U 4**

Continuation of T101. Principles and applications of electricity and magnetism, mechanical waves and sound, electromagnetic radiation and light, and nuclear energy.

Au, Sp Qtr. 3 cl, 1 2-hr lab. Prereq: T101.

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

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

## Technical Courses Animal Sciences Technology

**T201 Dairy Cattle Milk Production U 5**

Principles of milk production management with emphasis on mammary function, milking concepts, udder health, milk composition and quality, herd records, and milk marketing.

Au Qtr. 4 cl, 1 rec, 1 3-hr lab.

**T202 Judging and Classifying Dairy Cattle U 2**

Comparative evaluation and classification of dairy cattle according to functional type, conformation, breed characteristics, and profit.

Au Qtr. 2 3-hr labs.

**T203 Dairy Cattle Reproduction U 4**

A study of reproduction in dairy cattle including anatomy, physiology, estrus control and detection, artificial insemination, gestation, diseases, records, and improved management practices.

Wi Qtr. 3 cl, 1 3-hr lab.

**T204† Principles of Dairy Cattle Nutrition U 4**

Study of the nutritional needs of dairy cattle and of the principles and practices involved in providing balanced rations of various feedstuffs to meet these needs.

3 cl, 1 3-hr lab. Prereq: T221 recommended.

**T205 Breeding for Livestock Improvement U 4**

Wi Qtr. 4 cl, 1 2-hr recitation.

**T205.01 Livestock Genetics**

Principles of inheritance and the genetic improvement of livestock through cyto-qualitative and population genetics, utilizing breeding, values, selection, and mating.

Prereq: Recommended Gen Math T140, Gen Biol T120.

**T205.03 Dairy Cattle Genetics**

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

Prereq: Gen Math T140; T221 and Gen Biol T120 recommended.

**T206\* Dairy Cattle Presentation U 2**

Principles and skills practiced in fitting and presenting dairy cattle.

Sp Qtr. 1 cl, 1 2-hr lab. Course will be taught during even-numbered years.

**T210 Introduction to Animal Agriculture U 5**

Introduction to animal agriculture; its purpose, terms, products, problems, and basic management principles.

Au, Sp Qtrs. 4 cl, 1 2-hr lab. Not open to students with credit for Anim Sci 200.

**T211 Introduction to Horse Science U 3**

Fundamental survey of the development, function, behavior, production, and management of horses.

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

**T212 Judging, Fitting, Showing, and Classifying Horses U 3**

Comparative evaluation and classification of horses according to type, conformation, breed characteristics, and performance; introduction to fitting and showing horses.

Wi Qtr. 1 cl, 2 3-hr lab.

**T213 Horsemanship and Equitation U 3**

Fundamentals of equitation; designed to develop a unity between rider and horse through control, dressage, and schooling of the horse as a mount.

Au Qtr. 1 cl, 2 3-hr lab. Concur: T289.04 or T292.04. Horse science or horse production and management majors or permission of instructor.

**T214 Feeding and Nutrition of Horses U 3**

A study of the nutritional needs of horses and of the principles and practices involved in providing balanced rations of various feedstuffs to meet these needs.

Au Qtr. 2 cl, 1 2-hr lab. Prereq: T211; Gen Math T140 or Math 104 or Math placement level M or N or L.

**T221 Animal Anatomy and Physiology U 4**

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

Wi, Sp Qtrs. 3 cl, 1 rec, 1 2-hr lab. Prereq: Gen Biol T120 recommended.

**T222 Introduction to Animal Science U 4**

An overall look at the livestock industry with regard to meat production and marketing.

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

**T222.01 Beef and Sheep Production I**

An overview of the ruminant meat animals, their needs, our need for them, and the opportunities involved in their production.

**T222.02 Swine Production I**

Basic principles of management and production of a swine breeding and feeding operation.

**T223 Judging Meat Animals U 5**

Principles of live animal selection and carcass evaluation of beef, sheep, and swine.

Sp Qtr. 3 cl, 3 rec., 2 3-hour labs

**T224† Livestock Nutrition U 4**

A study of the fundamental nutrient needs of an animal.

3 cl, 1 3-hr lab.

**T224.01 Beef/Sheep Nutrition**

A study of the fundamental nutrient needs of beef and sheep and their relation to nutrient content of feedstuffs.

Prereq: Eligible for Gen Math T140 or Math 104; T221 or T210; or T222.01 or T224.02

**T224.02 Swine Nutrition**

The principles of swine nutrition: digestion, feedstuffs, and limiting ingredients.

**T225 Principles of Livestock Health U 4**

The study of immunology, the prevention and treatment of common pathogenic diseases, and other factors influencing animal health in contemporary livestock operations.

Wi Qtr. 3 cl, 1 2-hr lab.

**T226 Cattle and Sheep Pregnancy, Parturition, and Newborn Care U 2**

Processes and procedures involved in fetal development, pregnancy detection, parturition, and associated obstetrics and care of newborn.

Wi Qtr. 2 2-hr lab.

**T240 Principles of Animal Nutrition U 4**

A study of the nutrient needs of farm animals and the principles/practices involved in providing balanced rations of various feedstuffs to meet these needs.

Au, Wi Qtrs. 3 cl, 1 3-hr lab. Prereq: T210 or T221; Gen Math T140 or Math 104 or Math placement level M or N or L.

**T245 Genetic Principles for Farm Animal Improvement U 5**

Principles of inheritance and the genetic improvement of farm animals through cellular, qualitative, and population genetics; utilizing breeding value, selection, and mating systems.

Wi Qtr. 3 cl, 1 2-hr recitation, 1 2-hr lab. Prereq: Gen Biol T120 or Biology 113; Gen Math T140 or Math 104 or Math placement level M or N or L. Industry applications presented in species specific recitations for beef cattle, dairy cattle, sheep, and swine.

**T252 Dairy Cattle Health U 4**

Study of dairy cattle health, including disease recognition, treatment, and prevention programs, and its relationship to growth, performance, and reproduction.

Sp Qtr. 3 cl, 1 3-hr lab.

**T254 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.

Wi Qtr. 2 cl, 1 rec, 1 3-hr lab. Prereq: T240.

**T255 Dairy Facilities and Equipment U 3**

Design and management of dairy cattle facilities and associated equipment, emphasizing animal handling and housing, environmental control, milking centers, feeding systems, waste management, and utilities.

Sp Qtr. 2 cl, 1 2-hr rec., 1 3-hr lab. Prereq: T201 and Gen Math T140 or Math 104 or Math placement level M or N or L. 1- or 2-day field trips to dairy farms, may include Saturdays.

**T257 Applied Dairy Herd Management U 5**

Experiences in applying, directing and evaluating dairy herd management procedures and practices at the Ohio State ATI dairy farm. Su, Au, Wi, Sp Qtrs. Prereq: T201, T202, T203, T240, and T252; prereq or concur T245 or T205.03; and permission of instructor. Students may not enroll for more than 15 credits while taking this course. A grade of C or better is required to meet graduation requirements.

**T258 Integrated Dairy Farm Business Management U 5**

The study of dairy farm business management integrating financial principles and strategy with husbandry practices; emphasis placed on problem solving.

Sp Qtr. 2 1.5-hr cl, 1 1.5-hr rec, 2 2-hr labs. Prereq: Bus Tec T101 or T102 and T151 or AED Econ 200, 2nd yr standing and a minimum of 15 cr hrs in anml tec course work.

**T261 Farriering U 3**

Study of anatomy and physiology of the equine hoof; proper care of the hoof, gait analysis, and shoeing principles.

Sp Qtr. 2 cl, 1 2-hr lab. Prereq: T221 recommended.

**T262 Equine Exercise Science U 4**

The study of conditioning the equine athlete using the basic principles of exercise physiology, energetics, kinetics, and sports medicine.

Sp Qtr. 3 cl, 1 3-hr lab. Prereq: T211, T214; T221 recommended; T289.04 concurrent.

**T264 Horse Health U 3**

Survey of the health and soundness of a horse and its relationship to growth, performance, and reproduction with emphasis on a horse health program.

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

**T265 Horse Facilities Management U 3**

A study of the functional requirements, design development operation, and maintenance of horse housing and training facilities.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: T211, Bus Tec T101 or T102.

**T266 Horse Breeding and Selection U 3**

Introductory principles of equine breeding management with emphasis on applied equine reproductive physiology, breeding methods, breeding stock management, and basic genetics.

Wi Qtr. 2 cl, 1 2-hr lab. Prereq: T221 or Gen Biol T120 or Biology 113 recommended.

**T267 Advanced Horsemanship and Equitation U 3**

Advanced equitation with an emphasis on competitive riding and showing.

Wi Qtr. 1 cl, 2 3-hr labs. Prereq: T213 with a grade of C or better; concur T289.04 or T292.04.

**T268 Horse Training U 4**

2 cl, 2 2-hr labs

**T268.01 Saddle Horse Training**

A study of the principles, theory, and procedures involved with the training of horses from halter breaking to a finished performer.

Sp Qtr. Prereq: T211, T267 with a grade of C or better; concur T289.04 or T292.04.

**T269 Equine Reproduction Management U 4**

Advanced principles of equine breeding management with emphasis on applied equine reproductive physiology, genetic inheritance, management of problem mares and stallions, and applied breeding technology.

Sp Qtr. 3 cl, 1 3-hr lab. Prereq: T211 and T266; concur T289.04 or T292.04.

**T274 Beef Production II U 5**

Advanced principles of management of a beef breeding and feedlot enterprise, coordinating production programs and evaluating economic performance.

Sp Qtr. 4 cl, 1 3-hr lab. Prereq: T210 or T222.01, T225, T240; prereq or concur T245 or T205.01.

**T276 Sheep Production U 5**

Study of the management, health, feeding, breeding, housing, and marketing of sheep.

Wi Qtr. 4 cl, 1 3-hr lab. Prereq: T222.01.

**T277 Swine Production II U 5**

Advanced principles of management of a swine breeding and feeding enterprise, coordinating production programs, and evaluating economic performance.

Sp Qtr. 4 cl, 1 3-hr lab. Prereq: T222.02.

**T289 Practicum in Animal Industries U 1-2**

Practical experience in supervised animal laboratories with emphasis on developing and improving competencies related to classroom activities and career objectives.

Su, Au, Wi, Sp Qtrs. Arr. Each decimal subdivision is repeatable to a maximum of 7 cr hrs. A grade of C or better is required to meet graduation requirements.

**T289.01 Beef/Sheep Production and Management**

**T289.02 Swine Production and Management**

**T289.03 Dairy Cattle Production and Management**  
Prereq: Permission of instructor.

**T289.04 Horse Production and Management**

**T290 Animal Industries Internship U 3-6**

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

Su, Au, Wi, Sp Qtrs. Arr. Each decimal subdivision is repeatable to a maximum of 7 cr hrs. A grade of C or better is required to meet graduation requirements.

**T290.01 Beef/Sheep Production and Management**

Prereq: T222.01, 2 cr hrs of T289.01, 2.00 CPHR or above, or permission of instructor.

**T290.02 Swine Production and Management**

Prereq: T222.02, 2 cr hrs of T289.02, 2.00 CPHR or above, or permission of instructor.

**T290.03 Dairy Cattle Production and Management**

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

**T290.04 Horse Production and Management**

Prereq: T211, 2 cr hrs of T289.04, 2.00 CPHR or above, or permission of instructor.

**T292 Practical Leadership in Animal Industries U 1-2**

Leadership experience in supervised animal laboratories with emphasis on personnel and enterprise management.

Au, Wi, Sp Qtrs. Arr. Each decimal subdivision is repeatable to a maximum of 5 cr hrs. A grade of C or better is required to meet graduation requirements.

**T292.01 Beef/Sheep Production and Management**

Prereq: T289.01 and permission of instructor.

**T292.02 Swine Production and Management**

Prereq: T289.02 and permission of instructor.

**T292.03 Dairy Cattle Production and Management**

Prereq: T289.03 and permission of instructor.

**T292.04 Horse Production and Management**

Prereq: T289.04 and permission of instructor.

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies for students in specialized programs.

Arr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

**T295 Seminar U 1-5**

Current trends, issues, and technology in animal industries.

Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. Each decimal subdivision is repeatable to a maximum of 10 cr hrs. This course is graded S/U.

**T295.01 Trends and Issues in Animal Industries**

Current trends and issues facing animal industry officials, managers, employees, and other affected individuals.

**T295.02 Technology and Development in Animal Industries**

In-depth study of the latest technology and developments in animal industries.

## Business Technology

**T100 Introduction to Business U 3**

Overview of the principles of management, marketing, human resource management, financial, and computer information principles.

Au Qtr. 3 1-hr lec.

**T101 Financial Accounting U 5**

A study of the basic concepts, techniques, procedures, and principles of accounting commonly used in business to prepare financial statements.

Su, Au, Wi, Sp Qtrs. 4 cl, 1 2-hr lab. Not open to students with credit for T102.

**T102 Farm Financial Records U 4**

A study of basic principles involved in keeping and analyzing farm records from the farm management viewpoint.

Au Qtr. 3 cl, 1 2-hr lab. Not open to students with credit for T101.

**T103 Managerial Accounting U 4**

Managerial use and interpretation of financial data for the purposes of planning and controlling cost.

Au Qtr. 3 cl, 1 2-hr lab. Prereq T101 and prereq or concur: T151 or AED Econ 200.

**T141 Personal Financial Management U 1**

Personal financial strategies that will enable individuals to manage their financial resources.

Au, Wi, Sp Qtrs. 1 cl.

**T151 General Economics U 5**

Study of macro- and micro-economic principles applicable to business, agriculture, and personal financial decision-making.

Au, Wi, Sp Qtrs. 5 cl. Prereq or concur: Tec Math T102 or Gen Math T140.

**T202 Introduction to Microcomputer Applications U 1**

A study of word processing, spreadsheets, and database as decision management aids.

Au, Wi, Sp Qtrs. 1 2-hr cl.

**T203 Word Processing Applications U 1**

A study of the features and capabilities of a professional word processor.

Au, Wi, Sp Qtrs. 1 2-hr cl. Prereq: T202 or concur. Course always taught as a five-week term course.

**T204 Spreadsheet Applications U 1**

A study of the features and capabilities of professional spreadsheets (Lotus 1-2-3 or comparable).

Su, Au, Wi, Sp Qtrs. Prereq: T202 or concur. Course taught as a full-quarter course Su. Course taught as a five-week term course in Au, Wi and Sp.

**T205 Database Applications U 1**

A study of the features and capabilities of a database as a decision management aid.

Su, Au, Wi, Sp Qtrs. 1 2-hr cl. Prereq: T202 or concur. Course taught as a full-quarter course Su. Course taught as a five-week term course in Au, Wi and Sp.

**T206 Introduction to Web Design U 1**

Principles of planning, designing, developing, implementing and maintaining a web page.

Wi Qtr. 1 2-hr cl.

**T230 Marketing of Agricultural Products U 3**

A study of the agencies, functions, principles, and problems involved in the marketing of agricultural products.

Au Qtr. 3 cl. Prereq: T151 or concur.

**T231 Fundamentals of Marketing U 3**

A general survey of the field of marketing including functions, policies, problems, structure, and strategies.

Su, Au, Wi Qtrs. 3 cl. Prereq or concur: T151 or AED Econ 200.

**T232 Personal Selling U 4**

A study of the basic principles and concepts of personal selling with emphasis on practical application and personal interaction.

Au, Wi, Sp Qtrs. 3 cl, 1 2-hr rec.

**T233 Advertising and Promotion U 4**

The theory of retail advertising and its practical application, with emphasis on planning, implementation, control, merchandise projection, and supportive promotional techniques.

Wi Qtr. 3 cl, 1 2-hr lab.

**T239 Real Estate Dynamics U 3**

Aspects of real estate that affect ownership and marketing of real estate as marketable product investment and personal use property.

Sp Qtr. 3 1-hr cl.

**T240 Principles of Farm Management U 4**

A study of the economic and management principles involved in the buying, financing, organizing, operating, and administering of an agricultural production unit.

Sp Qtr. 3 cl, 1 2-hr lab. Prereq or concur: T151 or AED Econ 200 and Bus Tec T101 or T102.

**T241 Small Business Management U 4**

A study of small business management focusing on establishing and operating a small entrepreneurial enterprise.

Au, Wi, Sp Qtrs. 3 cl, 1 2-hr lab. Prereq: T101 or T102. Prereq or concur: T151 or AED Econ 200. Not open to students with credit for T240.

**T243 Office Management U 3**

A study of the responsibilities of the office manager in a modern business office.

Wi Qtr. 2 cl, 1 2-hr lab.

**T244 Human Resource Management U 4**

Principles and practices of recruitment, training, evaluating, and compensating employees.

Au, Wi, Sp Qtrs. 4 cl.

**T245 Supervisory Management U 3**

A study of leadership principles used by supervisors to build skills, improve productivity, resolve conflict, and manage diversity.

Sp Qtr. 3 cl.

**T247 Business Law for Technicians U 4**

A study of legal principles, contracts, negotiable instruments, leases, sales, product liability, and consumer protection.

Au Qtr. 4 cl.

**T248 Introduction to Cooperatives U 3**

Business organizations, role of government in American business; emphasis on history, legal basis, organization, and operation of cooperatives.

Wi Qtr. 3 cl.

**T249 Fundamentals of Business Finance U 4**

A study of basic finance principles such as financial institutions, time value of money, financial analysis, risk and return, budgeting, and investments.

Sp Qtr. 3 cl, 1 2-hr lab. Prereq: T101 or T102, and prereq or concur: T151 or AED Econ 200.

**T289 Practicum in Business Technology U 1-6**

Practical experience in supervised business laboratories, with emphasis on developing and improving competencies related to classroom and career activities.

Su, Au, Wi, Sp Qtrs. Arr. Prereq: Permission of technology coordinator. Repeatable to a maximum of 6 cr hrs. A grade of C or better is required to meet graduation requirements.

**T289.02 Practicum in Agricultural Commerce and Office Management**

**T289.03 Practicum in Business Management**

**T290 Business Internship U 3-6**

Experience of employment in a business structured to provide varied occupational experiences; supervised by a business employer and coordinated by faculty.

Su, Au, Wi, Sp Qtrs. Arr. Prereq: 2.00 CPHR and permission of technology coordinator. Repeatable to a maximum of 12 cr hrs. A grade of C or better is required to meet graduation requirements.

**T290.02 Agricultural Commerce and Office Management Internship****T290.03 Business Management Internship****T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies in specialized studies.

Arr. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs.

## Crop and Soil Technology

**T220\* Organic Farming and Gardening U 3**

A study of organic production methods in agriculture including crop management, pest control, and marketing of certified organic products.

Wi Qtr. 3 cl. Field trips to include Saturdays. Course offered odd-numbered years.

**T221 Introduction to Soils and Soil Management U 4**

An introduction to soil physical, chemical, biological properties, and plant nutrition with an overview of soil management practices including drainage, irrigation, tillage, and erosion control.

Au, Wi, Sp Qtrs. 3 cl, 1 2-hr lab. Prereq or concur: Gen Math T140 or Math 104 or Math placement level M or N or L, and Gen Chem T131 or Chem 101 or 121.

**T222\* Soil Formation and Classification Applications U 3**

A study of soil genesis, morphology, and classification, including the preparation and interpretation of soil maps and reports for appropriate land uses.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: T221. Course will be taught even-numbered years.

**T224\* Soil Physics and Mechanics Applications U 3**

A study of soil physics and soil mechanics and their agronomic and engineering applications.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: T221. Course will be taught odd-numbered years.

**T228 Fertilizers and Soil Fertility U 3**

Study of fertilizer and lime manufacture, recommendations, application, and fate in soil and application of animal wastes and municipal sludge on agricultural crops.

Wi Qtr. 2 cl, 1 3-hr lab. Prereq: T221.

**T229\* Modeling and Managing Soil Erosion U 3**

Study of soil erosion by water and wind utilizing mathematical models to describe the erosion process.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: T221. Not open to students with credit for Env Sc T T229. Course will be taught odd-numbered years.

**T260 Field Crop Production U 3**

A study of the economic importance, adaptation, cultural practices, harvesting, and cost analysis for producing the major field crops grown in Ohio.

Wi Qtr. 2 cl, 1 2-hr lab. Prereq or concur: T221.

**T262 Forage Crop Production U 3**

Adaptation, utilization, and culture of those crops grown for hay, pasture, silage, and hayage.

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

**T265 Diseases of Agronomic Crops U 3**

A study of the symptoms, identification, cause, and control for the major agronomic plant diseases.

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

**T266 Weed Control in Field Crops U 4**

Principles of biological, chemical, and cultural control of weeds in field crops; emphasis on herbicide characteristics.

Au Qtr. 3 cl, 1 2-hr lab. Prereq: Gen Chem T132 and Gen Biol T125 or permission of instructor. Not open to students with credit for Hort Tec T272.

**T289 Practicum in Crop and Soil Technology U 1-6**

Practical experience in supervised agronomic laboratory, with emphasis on developing and improving competencies related to classroom and career activities.

Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 6 cr hrs. A grade of C or better is required to meet graduation requirements.

**T290 Crop and Soil Internship U 3-6**

Experience of employment on a commercial farm or crop service business structured to provide varied occupational experiences, supervised by an industry employer and coordinated by faculty.

Su, Au, Wi, Sp Qtrs. Arr. Prereq: 2.00 CPHR and permission of technology coordinator. Repeatable to a maximum of 12 cr hrs. A grade of C or better is required to meet graduation requirements.

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies for students in specialized programs.

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

## Engineering Technology

**T202 Basic Electricity and Electronics U 3**

Principles of AC and DC electricity and electronics with emphasis on components, operations, and applications.

Sp Qtr. 2 cl, 1 2-hr lab. Prereq: Gen Math T140. The student must receive a grade of "C" or higher to meet graduation requirements in Hydraulic Power and Motion Control and Power and Equipment.

**T203 Analog and Digital Electronics U 3**

An introduction to analog and digital electronics with emphasis on industry applications.

Au Qtr. 2 cl, 1 2-hr lab. Prereq: T202 and Gen Math T145. The student must receive a grade of "C" or higher to meet graduation requirements in Hydraulic Power and Motion Control.

**T204 Digital Controllers U 3**

A study of digital controllers concentrating on Programmable Logic Controllers and dedicated microcontrollers.

Wi Qtr. 2 cl, 1 2-hr lab. Prereq: T203. Concur: T278

**T205 Vehicle Electrical and Electronic Systems U 3**

A study of various electrical and electronic systems utilized in off-road machinery.

Au Qtr. 2 cl, 1 2-hr lab. Prereq: T202 and Gen Math T145. The student must receive a grade of "C" or higher to meet graduation requirements in Power and Equipment.

**T208 Technical Drafting U 2**

Basic principles and application of sketching, drawing, and drafting.

Wi Qtr. 2 2-hr labs.

**T209 Introduction to Computer Aided Design U 2**

Introduction to the principles and applications of technical drawing using computer-aided design (CAD) software.

Au, Wi, Qtrs. 1 cl, 1 3-hr lab. Basic computer skills required. Previous experience with mech drawing or eng graphics or drafting or equiv recommended.

**T210 Advanced CAD U 2**

Principles and applications of advanced features of microcomputer based CAD systems.

Sp Qtr. 1 cl, 1 3-hr lab. Prereq: T209.

**T215 Power Units and Equipment U 4**

A study of power units and equipment with emphasis on operation, maintenance, and management.

**T215.01 Tractors and Related Equipment**

A study of tractors, power units and agricultural machinery with emphasis on operation, service, maintenance and adjustment for safe and efficient operation.

Sp Qtr. 2 cl, 2 2-hr labs. Not open to students with credit for T215.02 or T215.04.

**T215.02 Horticultural Power and Equipment**

Operation, maintenance, and management of horticultural power units and equipment.

Au Qtr. 2 cl, 2 2-hr labs. Not open to students with credit for T215.01 or T215.04

**T216 Tillage and Planting Equipment U 3**

Safety procedures, principles, and methods of adjusting, repairing, and operating machinery used for tillage, crop planting, and chemical application.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: T215.01 or placement test.

**T217 Harvesting Equipment U 3**

Safety procedures, principles, and methods of adjusting, repairing, and operating machinery used for harvesting agricultural crops.

Au Qtr. 2 cl, 1 3-hr lab. Prereq: T215.01 or placement test.

**T219 Landscape, Nursery, and Turfgrass Equipment U 4**

Principles, adjustments, repair, safety, and operation of equipment used in the landscape, nursery, and turfgrass industries.

Wi Qtr. 2 cl, 2 2-hr labs. Prereq: T240.

**T221 Surveying and Mapping U 3**

Surveying techniques, procedures, and use of equipment for land measurement and mapping.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: Gen Math T140 or Math placement level M or N or L. Not open to students with credit for T205.

**T222 Irrigation and Drainage for Landscape/Nursery/Turf U 3**

Principles of selection, installation, maintenance, and operation of equipment and materials used in ornamental horticulture irrigation and drainage systems.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: Gen Math T140 or Math 104. Not open to students with credit for T224. Course taught as a five-week term course.

**T224 Soil and Water Conservation Systems U 5**

Introduction to erosion control, irrigation, drainage, and wetland systems with an emphasis on land surveying and mapping, system selection, and design.

Sp Qtr. 3 cl, 2 3-hr labs. Prereq: Crp & Soil T221.

**T225 Introduction to Geographic Information Systems U 3**

A study of spatial relationships using global positioning and geographic information systems in urban and rural landscapes.

Sp Qtr. 1 cl, 2 2-hr labs. Prereq: Gen Math T140 or Math 104 or Math placement level M or N or L.

**T231\* Farmstead Systems for Storage and Processing of Agronomic Crops U 4**

A study of practical methods of on-farm handling, processing, and storage of cereal, field, and forage crops.

Wi Qtr. 2 cl, 2 2-hr labs. Prereq: Tec Math T102 or Gen Math T140. Course will be taught even-numbered years.

**T240 Engine Basics U 4**

A study of the theory of operation, service, maintenance, and repair of small single- and multiple-cylinder engines.

Au, Wi Qtrs. 2 cl, 2 2-hr labs. Prereq or concur: Gen Math T140 or Math 104 or Math placement level M or N or L.

**T241 Introduction to Power and Equipment U 3**

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

Au Qtr. 2 cl, 1 3-hr lab. The student must receive a grade of "C" or higher to meet graduation requirements in Power and Equipment.

**T243 Mobile Heating and Air Conditioning U 2**

Principles, operation, maintenance, service, and repair of mobile heating and air conditioning components and systems.

Sp Qtr. 1 cl, 1 2-hr lab. Prereq: Tec Math T105 or Gen Math T145.

**T245 Engine Diagnosis and Repair U 4**

An advanced study of multiple cylinder diesel engine diagnostic techniques including repair and rebuilding procedures.

Wi Qtr. 2 cl, 2 3-hr labs. Prereq: T240 or T241.

**T247 Compact Diesel Engines U 3**

A study of the theory, principles of operation, service, maintenance, and repair of compact diesel engines.

Wi Qtr. 2 cl, 1 3-hr lab. Prereq: T240 or T241. Not open to students with credit for T248.

**T248 Diesel Engine Systems U 4**

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

Wi Qtr. 2 cl, 2 2-hr labs. Prereq: T205 and T245. The student must receive a grade of "C" or higher to meet graduation requirements in Power and Equipment.

**T249 Performance of Mobile Power Units U 2**

Operator comfort and safety, ballast, traction, hitching, engine power ratings, fuel efficiency, and other factors affecting the performance of mobile power units.

Sp Qtr. 1 cl, 1 2-hr lab. Prereq: T248 and Gen Math T145. The student must receive a grade of "C" or higher to meet graduation requirements in Power and Equipment.

**T250 Welding and Metal Fabrication U 4**

A study of basic welding and metal fabrication including materials, equipment, and techniques.

Au, Sp Qtrs. 2 cl, 2 2-hr labs. Prereq or concur: Gen Math T140 or Math 104 or Math placement M, N or L.



**T253 Sitework Planning and Construction U 3**

Principles and procedures of sitework planning and construction involving residential lots and developments.

Sp Qtr. 2 cl, 1 2-hr lab. Prereq: Gen Math T140 or Math 104 or Math placement level M or N or L.

**T254 Residential Electrical Systems U 4**

Principles, equipment, and applications of residential electrical power, illumination, security, and communications systems.

Au Qtr. 3 cl, 1 3-hr lab. Prereq: Gen Math T145 or Math 148, or Math placement level M or N or L.

**T255 Residential Mechanical Systems and Energy Efficient Construction U 4**

Principles, equipment, and applications of residential plumbing, heating, ventilation, and air conditioning systems and energy efficient construction.

Au Qtr. 3 cl, 1 2-hr lab. Prereq: Gen Math T145 or Math 148; Tec Phys T101.

**T256 Building Construction: Codes, Foundations and Framing U 5**

Principles, materials, and methods of residential construction with emphasis on building codes, foundations, floors, and framing.

Au Qtr. 3 cl, 2 3-hr labs. Prereq or concur: Gen Math T140 or Math 104 or Math placement level M or N or L, and Gen Comm T111 or English 110.01.

**T257 Building Construction: Codes, Exterior Coverings and Interior Finishes U 5**

Principles, materials, and methods of residential construction with emphasis on building codes, exterior coverings, and interior finishes.

Wi Qtr. 3 cl, 2 3-hr labs. Prereq or concur: Gen Math T140 or Math 104 or Math placement level M or N or L, and Gen Comm T111 or English 110.01.

**T258 Estimating and Bidding U 3**

Principles and practices of construction estimating and bidding.

Wi Qtr. 2 cl, 1 rec, 1 2-hr lab. Prereq: T256, T257, Bus Tec T204 and 2nd yr standing.

**T259 Construction Management U 3**

Principles and practices of construction project and business management.

Sp Qtr. 2 cl, 1 2-hr lab. Prereq: T258 and 2nd yr standing.

**T260 Power Transmission for Turf Equipment U 3**

A comparison of power transmission by mechanical and fluid means. Laws of power transmission and mechanisms used are discussed and evaluated.

Wi Qtr. 2 cl, 1 3-hr lab. Prereq: T240.

**T261 Basic Pneumatic Systems U 3**

Principles, operation, maintenance, service, and application of pneumatic components and systems used for control and automation on industrial equipment.

Au Qtr. 2-hr cl, 1 2-hr lab. Prereq: Gen Math T145. The student must receive a grade of "C" or higher to meet graduation requirements in Hydraulic Power and Motion Control.

**T262 Basic Hydraulic Systems U 3**

Principles, operation, maintenance, service, and repair of hydraulic components and systems used on industrial and mobile equipment.

Sp Qtr. 2 cl, 1 2-hr lab. Prereq: Gen Math T140 or Math 104 or Math placement level M or N or L. The student must receive a grade of "C" or higher to meet graduation requirements in Power and Equipment. Not open to students with credit for T270.

**T263 Metals and Metal Manufacturing U 3**

Introduction to metals and the metal manufacturing industry, including materials, equipment, processes, and products.

Wi Qtr. 2 cl, 1 2-hr lab. Prereq or concur: Tec Math T102 or Gen Math T140.

**T270 Fundamentals of Fluid Power U 3**

An introduction to the fluid power industry, its past and future, and the principles of fluid power system operation.

Au Qtr. 2 cl, 1 2-hr lab. Not open to students with credit for T262. The student must receive a grade of "C" or higher to meet graduation requirements in Hydraulic Power and Motion Control.

**T271 Fluid Power Components U 3**

Detailed investigation of pumps, motors, valves, and cylinders involving principles of operation and performance characteristics.

Wi Qtr. 2 cl, 1 2-hr lab. Prereq: T262 or T270; prereq or concur: Gen Math T140 or Math 104 or Math placement level M or N or L. The student must receive a grade of "C" or higher to meet graduation requirements in Hydraulic Power and Motion Control.

**T272 Hydraulic Circuitry and Systems U 3**

A study of how fluid power components are integrated into a complete system including performance characteristics and energy efficiency.

Au Qtr. 2 cl, 1 2-hr lab. Prereq: T270; prereq or concur: Gen Math T145. The student must earn a grade of "C" or higher to meet graduation requirements in Hydraulic Power and Motion Control.

**T273 Methods of Power Transmission U 3**

Comparison of power transmission by mechanical, electrical, and fluidic means; laws of power transmission and mechanisms used are discussed.

Wi Qtr. 2 cl, 1 2-hr lab. Prereq or concur: Gen Math T140 or Math 104 or Math placement level M or N or L.

**T274 Fluids, Filtration, and Fluid Conveyance U 3**

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

Sp Qtr. 2 cl, 1 2-hr lab. Prereq: T262 or T271 or permission of instructor. The student must receive a grade of "C" or higher to meet graduation requirements in Hydraulic Power and Motion Control.

**T278 Electrohydraulics U 3**

Interface of electricity and electronics with hydraulics to form a controlled power transmission system.

Wi Qtr. 2 cl, 1 2-hr lab. Prereq: T203 and T272, and Bus Tec T202 and T204; concur: Eng Tech T204.

**T279 Instrumentation and Control Systems U 3**

Techniques and equipment used for instrumentation of fluid power systems for purposes of data acquisition and control.

Sp Qtr. 1 cl, 2 2-hr labs. Prereq: T204 and T278.

**T280 Equipment Dealership Management U 3**

Organization and operation of equipment dealerships with emphasis on the service and parts departments and original equipment manufacturer and distributor marketing.

Wi Qtr. 3 cl. Prereq: 3 cr hrs in agr bus or bus tec.

**T289 Practicum in Engineering Technologies**

Supervised practical experience with emphasis on developing and improving competencies related to classroom and career activities.

Au, Wi, Sp Qtrs. Arr. Prereq: Permission of instructor. A grade of "C" or better is required to meet graduation and certificate requirements.

**T289.01 Construction Management U 1**

Repeatable to a maximum of 7 cr hrs. This course is available for EM credit.

**T289.02 Shop Skills U 2**

Repeatable to a maximum of 7 cr hrs. This course is available for EM credit.

**T289.03 Component Rebuilding U 3**

Repeatable to a maximum of 7 cr hrs. This course is available for EM credit.

**T290 Engineering Technologies Internship**

Employment in engineering technologies, structured to provide varied occupational experiences; supervised by an industry employer and coordinated by faculty.

Su, Au, Wi, Sp Qtrs. Arr. Prereq: Nine cr hrs of required eng tech courses; 2.00 CPHR, and permission of instructor. A grade of "C" or better is required to meet graduation requirements.

**T290.01 Construction Management U 3-6**

Repeatable to a maximum of 12 cr hrs.

**T290.02 Hydraulic Power and Motion Control U 3-6**

Repeatable to a maximum of 12 cr hrs.

**T290.03 Power and Equipment U 3-6**

Repeatable to a maximum of 12 cr hrs.

**T292 Problem Solving: Career and Society Applications U 3**

A multi-discipline, capstone problem-solving course with emphasis on the application of problem solving and related topics in career and society settings.

Sp Qtr. 3 cl. Prereq: 2nd yr standing.

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies for students in specialized programs.

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

## Environmental Sciences Technology

**T210 Introduction to Ecology U 3**

A basic foundation in ecology, including the distribution and abundance of species, population dynamics, community ecology, energy flow and nutrient cycling.

Wi Qtr. 3 cl. Prereq: Gen Biol T120 or T125.

**T260 Environmental Laws and Regulations U 3**

A study of major U.S. environmental laws and regulations affecting air, water, land, toxic substances, and waste management.

Wi Qtr. 3 cl. Prereq: T210 or permission of instructor.

**T272\* Environmental Resources in Agricultural Ecosystems U 3**

Environmental resource management in agriculture with emphasis on field sample collection and laboratory analysis of soil, water, and animal wastes.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: Gen Math T140 or Math 104 and Gen Chem T131 or Chem 101 or 121. Course will be taught in even-numbered years.

**T273\* Air, Water, and Soil Analysis U 4**

Field sampling and laboratory analysis of air, water, and soil using EPA guidelines and procedures.

Sp Qtr. 2 cl, 2 3-hr labs. Prereq: LabBioSc T271 and T272. Course will be taught odd-numbered years.

**T274\* Regulated Waste Management U 3**

Characteristics of hazardous materials in industrial society: sources, handling, disposal, and environmental effects and regulations.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: Gen Chem T132, or permission of instructor. Course will be taught even-numbered years.

**T289 Practice in Environmental Sciences Technology U 1-6**

Practical experience in supervised environmental and conservation activities with emphasis on developing and improving competencies related to classroom and career objectives.

Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 6 cr hrs. A grade of "C" or better is required for graduation requirements.

**T290 Environmental Sciences Internship U 3-6**

Experience of employment in the environmental and conservation industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty.

Su, Au, Wi, Sp Qtrs. Arr. Prereq: 2.00 CPHR and permission of technology coordinator. Repeatable to maximum of 12 cr hrs. A grade of "C" or better is required for graduation requirements.

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies for students in specialized programs.

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

**T295 Seminar U 2**

Not open students with credit for Alli Agr T295.

**T295.01 Living With Our Planet Earth**

Provides an up-to-date look at global environmental challenges confronting humanity by examining major environmental issues through a variety of case studies.

Au Qtr. 2 cl. This course requires viewing PBS programming. Not open to students with credit for Alli Agr T295.01.

## Horticultural Technology

**T220 Introduction to the Golf Course Management Industry U 1**

Introductory course for first-year students in Turfgrass Management Technology, with emphasis on career identification, career preparation, and placement in the golf course management industry.

Au Qtr. 1 cl.

**T223 Introduction to Turfgrass Management U 3**

An introduction to turfgrasses and their establishment and culture.

Au, Sp Qtrs. 3 cl, 1 2-hr lab. Prereq or concur: Gen Math T 140 or Math 104 or Math placement level M or N or L. The student must receive a grade of "C" or higher to meet graduation requirements in Landscape Contracting and Construction and Turfgrass Management.

**T225 TurfPractices U 3**

A study of culture practices useful for maintenance of fine turfgrass with special emphasis on mathematical calculations and chemical applications.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: Gen Math T140 or Math 104 or Math placement level M or N or L. The student must receive a grade of "C" or higher to meet graduation requirements in Turfgrass Management. Course always taught as a five-week term course.

**T227 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, Wi Qtrs. 2 cl, 1 3-hr lab. Prereq: T272 or T274, T290.05 and LabBioSc T218. The student must receive a grade of "C" or higher to meet graduation requirements in Turfgrass Management.

**T230 Introduction to Landscape Industry Practices U 2**  
Basic horticultural skills, tools, equipment, terminology, and cultural practices and procedures of the landscape contracting and construction industry and profession.

Au Qtr. 2 cl. The student must receive a grade of "C" or higher to meet graduation requirements in Landscape Contracting and Construction.

**T231 Principles of Landscape Design and Planning U 3**  
A beginning course in landscape drafting, design, and planning emphasizing proper planning procedures and considerations, drafting techniques and design representation.

Au, Wi Qtrs. 2 cl, 1 3-hr lab. Prereq: T243 and T244; T245 recommended. The student must receive a grade of "C" or higher to meet graduation requirements in Landscape Contracting and Construction.

**T235 Landscape Contracting and Construction I U 4**  
The techniques and use of materials for construction and installing various landscape plantings, features, and structures such as garden terraces, walks, fences, mounds, pools and streams, irrigation, and outdoor lighting.

Wi Qtr. 2 cl, 2 3-hr lab. Prereq: Tec Math T102 or Gen Math T140. The student must receive a grade of "C" or higher to meet graduation requirements in Landscape Contracting and Construction.

**T241 Introduction to Nursery Production U 4**  
Introductory course covering commercial nursery production operations and management to establish or develop a production nursery covering field grown and container grown nursery stock.

Au Qtr. 2 cl, 2 3-hr lab. Prereq: T244, Gen Biol T125. Recommended T245. The student must receive a grade of "C" or higher to meet graduation requirements in Nursery Management.

**T242 Principles of Nursery Management U 4**  
Principles of nursery management with an emphasis on the marketing, production and scheduling, and construction and design of facilities.

Sp Qtr. 2 cl, 2 3-hr lab. Prereq: T241. The student must receive a grade of "C" or higher to meet graduation requirements in Nursery Management.

**T243 Landscape Horticulture Plants and Materials I U 3**  
Study of deciduous shade trees and narrowleaf evergreen trees including their identification, growth habits, ornamental features, environmental adaptation, utilization, and management in the landscape.

Au, Sp Qtrs. 2 cl, 1 3-hr lab. The student must receive a grade of "C" or higher to meet graduation requirements in Landscape Contracting and Construction and Nursery Management.

**T244 Landscape Horticulture Plants and Materials II U 3**  
Study of deciduous flowering trees, shrubs, vines, and broadleaf evergreens including their identification, growth habits, ornamental features, environmental adaptations, utilization, and landscape management.

Su, Wi Qtrs. 2 cl, 1 3-hr lab. Prereq: T243. The student must receive a grade of "C" or higher to meet graduation requirements in Landscape Contracting and Construction and Nursery Management.

**T245 Herbaceous Plants U 3**  
The identification, culture and use of herbaceous plants, including annuals, perennials, bulbs, ornamental grasses and other specialty plants.

Su, Wi, Sp Qtrs. 2 cl, 1 3-hr lab. The student must receive a grade of "C" or higher to meet graduation requirements in Landscape Contracting and Construction and Nursery Management.

**T246 Propagation of Nursery and Greenhouse Plants U 4**  
Principles, techniques, methods, materials, and facilities used by commercial horticulturists to propagate plants with emphasis upon propagation of floral and greenhouse plants.

Wi, Sp Qtrs. 3 cl, 1 3-hr lab. Prereq: Biol Tec T102 or Gen Biol T125. The student must receive a grade of "C" or higher to meet the graduation requirements in Nursery Management.

**T248† Garden Center Management U 3**  
Basic garden center operation: garden center history, site selection, layout and design, plant selection, displays and merchandising, customer relations, and advertising.

2 cl, 1 3-hr lab.

**T249 Woody Landscape Plant Materials for Turf Managers U 3**

Identification, cultural practices, and use of woody trees, shrubs, vines, and groundcovers.

Au, Sp Qtrs. 2 cl, 1 3-hr lab. Not open to students with credit for T243 or T244.

**T251 Greenhouse Environment Control U 4**  
Principles and practices of greenhouse operation and management including construction, heating, cooling, watering, fertilization, photoperiodism, root media, pest control, light, temperature, and growth regulators.

Au, Wi Qtrs. 3 cl, 1 3-hr lab. The student must receive a grade of "C" or higher to meet the graduation requirements in Nursery Management.

**T253 Greenhouse Bedding Plant Production U 4**  
Principles and practices of bedding plant production, including seed quality, sowing and germination; vegetative propagation; flat and hanging basket production; pests and pathogens; and marketing.

Wi Qtr. 3 cl, 1 3-hr labs. Prereq: T251.

**T254 Greenhouse Pot Plant Production U 4**  
Principles and practices of potted plant production, including propagation, planting, production techniques, floral induction treatments, plant height regulation, insect and disease management.

Sp Qtr. 3 cl, 1 3-hr lab. Prereq: T251 and T253.

**T255 Greenhouse Perennial Plant Production U 3**  
Principles and practices of greenhouse perennial plant production, including propagation, vernalization, photoperiodic treatments, greenhouse production techniques, insect pests, diseases, and marketing.

Au Qtr. 2 cl, 1 3-hr lab. Prereq: T251 and T253.

**T257 Houseplants for Interior Decoration U 4**  
Identification, culture, and use of plants grown and displayed in indoor living areas and conservatories.

Wi Qtr. 3 cl, 1 3-hr lab.

**T258 Commercial Interior Plantscaping U 3**  
Principles and practices of the acclimatization, installation, maintenance, rotation, and design of interior plantscapes; pests and diseases; legal aspects and identification of interior plantscaping species.

Wi Qtr. 2 cl, 1 3-hr lab. Prereq or concur: T257.

**T262 Basic Floral Design U 4**

A basic course dealing with principles and elements of floral design and techniques for creating flower arrangements and corsages.

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

**T263 Post-Harvest Flower Care U 1**

Principles and practices of post-harvest flower care from producer to consumer with emphasis on identification, proper care, and handling at the retail level.

Sp Qtr. 1 cl

**T264 Commercial Floral Design U 4**

An intermediate course dealing with arrangements sold daily in traditional flower shops. Design skill, speed, creativity, pricing, and salability are emphasized.

Wi Qtr. 2 cl, 2 3-hr lab. Prereq: T262.

**T265 Flowers for Celebrations I U 4**

A specialized course dealing with consulting, planning, organizing, and creating floral designs and decor for celebrations, with emphasis on wedding bouquets and flowers to wear.

Au Qtr. 2 cl, 2 3-hr labs. Prereq: T264. Not open to students with credit for Hort Tec T266.

**T267 Contemporary Floral Design U 3**

An advanced course emphasizing the artistic nature of floral design; contemporary American, European, and Japanese styles and trends are covered.

Sp Qtr. 1 cl, 2 3-hr labs. Prereq: T269.

**T268 Retail Flower Shop Operation U 3**

Principles and practices in management and operation of the retail flower shop.

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

**T269 Flowers for Celebrations II U 4**

A specialized course dealing with consulting, planning, organizing, and creating floral designs and decor for wedding ceremonies and receptions, parties, and celebrations of life (funerals).

Wi Qtr. 2 cl, 2 3-hr labs. prereq: T265

**T272 Principles of Weed Science in Horticulture Crops U 4**

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

Au, Sp Qtrs. 3 cl, 1 2-hr lab. Prereq: Gen Chem T132 and Gen Biol T125 or permission of instructor. Not open to students with credit for Crp & Soil T266. The student must receive a grade of "C" or higher to meet the graduation requirements in Turfgrass Management.

**T274 Plant Diseases of Ornamentals and Turf U 3**

Principles and practices in diagnosing and treating plant diseases on woody ornamentals and turf.

Su, Au, Wi Qtrs. 2 cl, 1 3-hr lab. Prereq: T243 or T245 or T249; Gen Biol T125 recommended. The student must receive a grade of "C" or higher to meet the graduation requirements in Landscape Contracting and Construction, Nursery Management, and Turfgrass Management. Course taught as a full-quarter course Au and Wi. Course taught as a five-week term course in Su.

**T276 Outdoor Gardening U 3**

Fundamentals of basic gardening with emphasis on planning, planting, and maintaining decorative utilitarian gardens.

Sp Qtr. 2 cl, 1 3-hr lab.

**T278 Arboriculture U 3**

Specialized course in tree culture emphasizing selection, planting, general maintenance activities, and diagnosis and management of tree problems.

Au, Sp Qtrs. 2 cl, 1 3-hr lab. Prereq: Gen Biol T125; prereq or concur: T243 or T249.

**T289 Practicum in Horticultural Industries U 1-2**

Practical experience in supervised horticultural laboratories, with emphasis on developing and improving competencies related to classroom and career activities.

Su, Au, Wi, Sp Qtrs. Arr. Repeatable to a maximum of 7 cr hrs. A grade of "C" or higher is required to meet graduation requirements.

**T289.01 Practicum in Floral Design and Marketing**

Prereq: T262 and permission of instructor.

**T289.02 Practicum in Greenhouse Production and Management**

**T289.03 Practicum in Landscape Construction and Contracting**

**T289.04 Practicum in Nursery Management**

**T289.05 Practicum in Turfgrass Management**

**T290 Horticultural Industries Internship U 3-6**

Experience of employment in the horticultural industry, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty.

Su, Au, Wi, Sp Qtrs. Arr. A grade of C or better is required to meet graduation requirements. Repeatable to a maximum of 12 cr hrs.

**T290.01 Floral Design and Marketing Internship**

Prereq: T264 and 2.00 CPHR or above.

**T290.02 Greenhouse Production and Management Internship**

Prereq: T251 with a grade of C or better and 2.00 CPHR or above.

**T290.03 Landscape Construction and Contracting**

Prereq: T230, T243, and T244 with a grade of C or better in each, CPHR 2.00

**T290.04 Nursery Management Internship**

Prereq: T243, and T244 with a grade of C or better in each, CPHR 2.00

**T290.05 Turfgrass Management Internship**

Prereq: T223 with a grade of C or better, T289.05, and 2.00 CPHR. Prereq or concur: T225.

**T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue studies not otherwise offered.

Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Not open to students with credit for Plnt Tec T293. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies for students in specialized programs.

Arr. Prereq: Permission of instructor. Not open to students with credit for Plnt Tec T293. Repeatable to a maximum of 10 cr hrs.

## Laboratory and Bioscience Technology

**T210 Introduction to Biological Chemistry U 5**

An introductory course in biochemistry, which covers the structure, function and metabolism of carbohydrates, lipids, nucleic acids, amino acids and enzymes.

Au Qtr. 5 cl. Prereq: Gen Chem T132.

**T212 Introduction to the Practice of Statistics U 5**

A study of statistical techniques used to analyze data, with emphasis on applications, statistical reasoning and data analysis using statistical software.

Au Qtr. 5 cl. Prereq of concur: Gen Math T145 or Math 148 or placement test.

**T216 General Microbiology U 4**

Fundamental characteristics of micro-organisms and their role in the environment, with special emphasis on applications in agriculture and natural resources.

Sp Qtr. 2 cl, 2 3-hr lab. Prereq: Gen Biol T120 or T125 or Biology 113.

**T218 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 emphasizing chemicals and their applications.

Su, Au, Wi, Sp Qtrs. 2 cl, 1 3-hr lab. Course taught as a full-quarter course in Au, Wi and Sp. Course taught as a five-week term course in Su.

**T219 Pesticides and Their Use U 3**

A study of the classification of pesticides, their mode of action, physiological effects, persistence in the environment, benefits, hazard, use, performance, and regulation.

Au, Wi, Sp Qtrs. 3 cl. Prereq: Gen Chem T132 or Chem 102 recommended.

**T270 Introduction to Laboratory Analysis U 4**

Introduction to the basic principles and techniques used by laboratory technicians.

Au Qtr. 2 cl, 2 2-hr lab. Prereq or concur: Gen Math T140 and Gen Chem T131.

**T271\* Instrumental Analysis U 3**

Techniques, procedures, methods of sample collection and preparation, and theory of application and operation for various analytical instruments.

Wi Qtr. 1 cl, 2 3-hr labs. Prereq: T270. Course will be taught in even-numbered years.

**T272\* Chromatography U 3**

Techniques, procedures, and methods used in sample preparation, analysis, and data collection and analysis using various chromatographic techniques and instruments.

Wi Qtr. 1 cl, 2 3-hr labs. Prereq: T270. Course will be taught in odd-numbered years.

**T273 Animal Health and Advanced Laboratory Techniques U 3**

A study of the proper techniques of analyzing animal specimens and surrounding environment to aid animal researchers and veterinarians.

Sp Qtr. 2 cl, 1 3-hr lab.

**T274\* Agricultural Research Practices U 3**

A study of the management of agricultural research including animal, environmental, and plant studies with emphasis on research design, data collection, and analysis.

Sp Qtr. 2 cl, 1 3-hr lab. Prereq: Gen Math T140. Course will be taught in even-numbered years.

**T276 Agricultural Products U 3**

A study of the screening, quality control, research, and other aspects related to the science of production in agriculture.

Sp Qtr. 3 cl, 1 2-hr lab. Prereq: T270.

**T289 Practicum in Laboratory and Bioscience Technology U 1-6**

Practical experience in supervised chemistry and bioscience laboratories with emphasis on developing and improving competencies related to classroom and career activities.

Au, Wi, Sp Qtrs. Arr. Repeatable to maximum of 6 cr hrs. A grade of "C" or higher is required to meet graduation requirements.

**T289.01 Practicum in Laboratory Science****T290 Laboratory and Bioscience Internship U 3-6**

Experience of employment in chemical and biological industries, structured to provide varied occupational experiences, supervised by an industry employer, and coordinated by faculty.

Au, Wi, Sp Qtrs. Arr. Prereq: 2.00 CPHR and permission of technology coordinator. A grade of "C" or higher is required to meet graduation requirements.

**T290.01 Laboratory Science Internship****T293 Individual Studies U 1-5**

Designed to give students an opportunity to pursue special studies not otherwise offered.

Su, Au, Wi, Sp Qtrs. Prereq: Permission of instructor. Repeatable to a maximum of 10 cr hrs in any combination of technologies. This course is graded S/U.

**T294 Group Studies U 2-5**

Group studies for students in specialized programs.

Arr. Prereq: Permission of instructor. Repeatable to maximum of 10 cr hrs.

## Associate of Science Courses

### Agricultural Communication

**200 Introduction to Agricultural Communication U 5**

History and development of mass communication and its application in agriculture. Examination of career opportunities and skills needed to enter the profession.

Au Qtr. 2 2.5-hr cl. Open only to major in agr comm or written permission of instructor. Limited to freshmen, sophomores, and transfer students. Prereq for J Comm 221 for agr comm majors only.

**300† Publication Design and Production U 5**

Application of layout and design principles to produce print and/or electronic documents for various audiences.

Wi Qtr. 2 2.5-hr cl.

**367 Agricultural Issues in Contemporary American Society U 5**

Development of skills in reading, writing, speaking, listening, critical thinking, and appreciation of diversity in agriculture and the United States society.

Wi, Sp Qtrs. 1 2-hr lec, 2 1.5-hr rec. Prereq: English 110 or 111 or equiv, soph standing; or permission of instructor. GEC/second writing and social diversity course.

**390 Oral Expression in Agriculture U 4**

Oral expression theory and practice in an agricultural environment.

Wi, Sp Qtrs. 2 2-hr cl, 1 2-hr lab. Prereq: Second writing course.

## Agricultural, Environmental, and Development Economics

### 200 Principles of Food and Resource Economics U 5

Microeconomic principles applied to allocation issues in the production, distribution, and consumption of food and natural resource use.

Wi, Sp Qtrs. 5 cl. Not open to students with credit for H200, or Econ 200. This course available for EM Credit. BER/GEC/LAR course. SS Admis Cond course.

## Agricultural and Extension Education

### 230 Introduction to Agricultural and Extension Education U 3

Examining and synthesizing the historical and philosophical foundations of education, extension education, and career-technical education, and relevant career options.

Wi Qtr. 2 1.5 hr cl. Not open to students with credit for 280 prior to Wi 2004.

### 280 Early Field Experience in Agricultural and Extension Education U 2

Experiencing career options in agricultural and extension education.

Au Qtr. Arr. Prereq: 230; or 230D concurrently by permission of instructor. Not open to students with credit for 280 prior to Wi 2004. Off campus field experience. 280 is required for teacher education licensure majors only.

### 342 Fundamentals of Personal and Professional Leadership U 5

Designed to develop an understanding of leadership with particular emphasis on theory and practice relative to effective functioning as leaders.

Sp Qtr. 3 1.5 hr cl.

## Biology

### 113 Bio Sci: Energy Transfer and Development U 5

Exploration of biology and biological principles; evolution and the origin of life, cell structure and function, bioenergetics, and genetics. A broad introduction to biology comprises both Biology 113 and 114.

Au Qtr. 3 cl or 2 1.5-hr cl, 1 3-hr lab, 1-hr rec. Prereq: Chem 101 or 121 or H201. Not open to students with credit for H115. This course and 114 provide a comprehensive two-quarter sequence in general biology. This course is available for EM credit. GEC bio sci course. NS Admis Cond course.

### 114 Bio Sci: Form, Function, Diversity, and Ecology U 5

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 113 and 114.

Wi Qtr. 4 cl, 1 3-hr lab. Prereq: 113. Not open to students with credit for H116. This course is available for EM credit. GEC bio sci course. NS Admis Cond course.

## Chemistry

### 101 Elementary Chemistry U 5

Introductory general chemistry for non-science majors, including dimensional analysis, atomic structure, bonding, chemical reactions, states of matter, solutions, chemical equilibrium, and acids and bases.

Au, Wi Qtrs. 4 cl, 3 lab hrs. Prereq: Eligibility to enroll in Math 116. Not open to students with credit for 121, H201, or 204. Safety glasses must be worn in lab. This course is available for EM credit, with permission. GEC phys sci course. NS Admis Cond course.

### 102 Elementary Chemistry U 5

Introductory organic and biological chemistry, including saturated and unsaturated hydrocarbons, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines, stereoisomerism, carbohydrates, lipids, proteins, and nucleic acids.

Sp Qtr. 4 cl, 3 lab hrs. Prereq: 101. Safety glasses must be worn in lab. This course is available for EM credit, with permission. GEC phys sci course. NS Admis Cond course.

### 121 General Chemistry U 5

First course for science majors and engineering students, covering dimensional analysis, atomic structure, the mole, stoichiometry, chemical reactions, thermo chemistry, electron configuration, periodicity, bonding, and molecular structure.

Sp Qtr. 4 cl, 3 lab hrs. Prereq: One unit of high school chem and eligibility to enroll in Math 150. Not open to students with credit for H201 or 204. Safety glasses must be worn in lab. This course is available for EM credit, with permission. GEC phys sci course. NS Admis Cond course.

### 122 General Chemistry U 5

Continuation of 121 for science majors, covering acids and bases, redox reactions, gases, liquids, solids, solutions, colligative properties, kinetics, and chemical equilibrium.

Au Qtr. 4 cl, 3 lab hrs. Prereq: 121 or completion of 101 with a grade of A or A- and eligibility to enroll in Math 150. Not open to students with credit for 125 or H202 or 205. Safety glasses must be worn in lab. This course is available for EM Credit, with permission. GEC phys sci course. NS Admi Cond course.

## English

### 110 First-Year English Composition

Practice in the fundamentals of expository writing, as illustrated in the student's own writing and in the essays of professional writers.

Au, Wi Qtrs. No prereq except when testing determines 052, 053, 106, 107, 109.01, 109.02, 110.03 or EDU T&L 108.01 to be required. Not open to students with credit for 110, 110C, 110L, 110W, H110, 111, H111 or H167. This course is available for EM credit only through the AP program. GEC first writing course.

### 110.01 First-Year English Composition U 5

Prereq: English placement level 4 or 109.02 or EDU T&L 108.01. Not open to students with credit for 110, 110.02 or 110.03.

### 291 U.S. Literature: 1865 to Present U 5

Introductory study of significant works of U.S. literature from 1865 to the present.

Wi Qtr. Prereq: 110 or 111 or equiv. Either 290 or 291 is required of non-honors English majors. GEC arts and hums lit course.

## Environment and Natural Resources

### 201 Introduction to Environmental Science U 5

Introduction to environmental science, the ecological foundation of environmental systems, and the ecological impacts of environmental degradation by humans.

Au Qtr. 4 cl, 1 dis.

### 203 Society and Natural Resources U 5

Introduction to interactions between humans, natural resources, and ecosystems from a social science perspective.

Sp Qtr. 4 cl, 1 dis.

## Food, Agricultural and Environmental Sciences

### 100 Food, Agricultural and Environmental Sciences Survey U 1

Academic requirements; University procedures; grading system, resources; student rights and responsibilities; overview of academic areas of study.

Au, Wi Qtrs. 2 cl. Not open to students with credit for 101, Arts Col 100, Arts&Sci 100, Engineer 100, Home Ec 100, Nat Res 100, or UVC 100 or H100.

## History

### 151 American Civilization to 1877 U 5

The political, constitutional, social, and economic development of the United States from the colonial period through the era of Reconstruction.

Au, Wi Qtrs. Prereq or concur: English 110 or 111. Not open to students with credit for 150.01. This course is available for EM credit. GEC historical survey course. SS Admis Cond course.

### 152 American Civilization since 1877 U 5

The political, constitutional, social, and economic development of the United States from the era of Reconstruction to the present.

Sp Qtr. Prereq: 151 and prereq or concur: English 110.01 or 111. Not open to students with credit for 150.02. This course is available for EM credit. GEC historical survey course. SS Admis Cond course.

## Horticulture and Crop Science

### 200 The Science of Growing Plants U 5

Study of the environmental, genetic, and cultural factors which influence the cultivation of plants for food, fiber, ornamental, and landscape uses.

Wi Qtr. 5 cl. Prereq: Biology 101 or 113 or H115 or PCMB 101 or Chem 101 or 121 or H201. This course is available for EM credit. NS Admis Cond course. BER/LAR course. GEC bio sci course.

## Mathematics

### 104 Basic College Mathematics U 5

Systems of equations, arithmetic of polynomials, rational expressions, factoring, fractional equations, inequalities, exponents, quadratic equations, absolute values, functions, and graphs.

Au, Wi, Sp Qtrs. 5 cl. Prereq: 050 or satisfactory score on Ohio State Math placement test or permission of dept. Not open to students with credit for 130 or 148 or 150 or 151. Credit may not count toward graduation in some degree programs.

### 130 Mathematical Analysis for Business I U 4

Equations, inequalities, absolute value, polynomial functions, matrices, applications to business.

Wi Qtr. 4 cl. Prereq: 104 or placement M or N on the OSU Math placement test, or written permission of department. Not open to students with credit for 150 or higher numbered mathematics courses. This course is available for EM credit.

### 148 Algebra and Trigonometry and Their Applications U 4

Applications from chemistry, physics and biology involving integer and rational exponents, solving and graphing linear and quadratic equations, systems of equations, trigonometry of acute angles, vectors and exponential equations.

Au, Wi, Sp Qtrs. 4 cl. Prereq: 104 or satisfactory score on Ohio State Math placement test. Not open to students with credit for 150 or higher numbered mathematics course.

## Music

### 250 Music Cultures of the World U 5

A survey of musical cultures outside the Western European tradition of the fine arts.

Wi, Sp Qtrs. 5 cl. Not open to students with credit for Music 140. GEC arts and hums VPA course and global focus course. VPA Admis Cond course.

### 251† The World of Classical Music U 5

An introduction to the world of classical music and to its genres, composers, styles, societies and historical periods.

5 cl. Not open for credit to music majors. Not open to students with credit for Music 141, H251. A musical background is not required. GEC arts and hums VPA course and western (non-US) course. VPA Admis Cond course.

## Psychology

### 100 General Psychology U 5

Introductory psychology, a prerequisite to advanced courses; the application of scientific method to behavior; topics include learning, motivation, perception, personality, physiological basis of behavior.

Au, Sp Qtrs. 5 cl. SS Admis Cond course. This course is available for EM credit. GEC soc sci individuals and groups course. GEC social diversity in U.S. course.

## Rural Sociology

### 105 Introduction to Rural Sociology U 5

Principles of society, major social institutions, and social change; emphasizes social changes in rural life, rural organizations, population, and family living.

Au, Wi Qtrs. 5 cl. Not open to students with credit for Sociol 101 or 201. BER/GEC/LAR course. SS Admis Cond course.

### 378 Social Groups in Developing Societies U 5

Discussion of different life experiences, statuses, and behavior of people in major social groupings in developing societies.

Au, Wi Qtrs. 2.2-hr cl. Prereq: 5 cr hrs in rural soc, sociol, or related social science; or permission of instructor. BER/GEC/LAR course.



# Faculty and staff

## Administration

**Stephen G.P. Nameth**, Director  
**Steven M. Neal**, Associate Director  
**Rhonda Billman**, Assistant Director

## Faculty

**Michael D. Amstutz**, PhD, The Ohio State University, Associate Professor  
**Gary A. Anderson**, PhD, Michigan State University, Professor  
**John Arnold**, MS, The Ohio State University, Assistant Professor  
**Shirley E. Badger**, MS, University of Akron, Assistant Professor  
**Roger Baur**, PhD, The Ohio State University, Associate Professor  
**Bruce Cubberley**, MS, University of Wisconsin-Madison, Assistant Professor  
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**Wesley A. Greene**, PhD, Cornell University, Associate Professor, Chair, Division of Agricultural and Engineering Technologies  
**Nels Hansen**, PhD, Texas A&M, Assistant Professor  
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**Robert W. McMahon**, PhD, Iowa State University, Associate Professor  
**Emil Miller**, MA, University of Akron, Assistant Professor  
**Stephen G.P. Nameth**, PhD, University of California, Riverside, Professor  
**Steven M. Neal**, PhD, University of Nebraska, Professor  
**Carrick Pickworth**, MS, Virginia Polytechnic Institute and State University, Assistant Professor  
**Debra Powell**, PhD, University of Kentucky, Assistant Professor  
**Shah Rahnama**, PhD, University of Arizona, Professor and Chair, Division of Arts and Science and Business Technologies  
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**Larry G. Steward**, MS, Virginia Polytechnic Institute and State University, Associate Professor  
**Royce Thornton**, MS, Pennsylvania State University, Assistant Professor  
**Daniel C. Voltz**, PhD, Colorado State University, Associate Professor  
**David A. Willoughby**, MEd, Miami University, Associate Professor  
**Karen Wimbush**, PhD, University of Missouri, Associate Professor  
**Allen Zimmerman**, MS, The Ohio State University, Professor

## Emeritus Faculty

**Michael L. Borger**, PhD, Pennsylvania State University, Associate Professor Emeritus  
**Ronald J. Borton**, PhD, Michigan State University, Associate Professor Emeritus  
**Thomas L. Bowman**, PhD, Michigan State University, Associate Professor Emeritus

**Ella G. Copeland**, MALS, Rosary College, Assistant Professor Emeritus  
**Dan D. Garrison**, Director Emeritus  
**Kent D. Hammond**, MS, Michigan State University, Associate Professor Emeritus  
**Frank L. Jennings**, MBA, University of Akron, Assistant Professor Emeritus  
**Frederick A. Lendrum**, MS, The Ohio State University, Assistant Professor Emeritus  
**Arnold L. Mokma**, PhD, Michigan State University, Associate Professor Emeritus  
**David A. Munn**, PhD, The Ohio State University, Associate Professor Emeritus  
**Clyde E. Opliger**, PhD, Clemsom University, Associate Professor Emeritus  
**John G. Roberts**, MS, Westminster College, Associate Professor Emeritus  
**Charles E. Stock**, MS, The Ohio State University, Assistant Professor Emeritus  
**Sigel G. Stocker**, PhD, The Ohio State University, Assistant Professor Emeritus  
**Samuel J. Woods**, PhD, Purdue University, Associate Professor Emeritus  
**Tommy L. Zimmerman**, PhD, Pennsylvania State University, Associate Professor Emeritus

## Professional and Support Staff

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Shawn Cleveland	Gail Miller
John Clos	Rick Mitchell
Gary Coffing	Patricia Munn
Tom Cole	Art Myers
Stuart Courtney	Karen Myers
Judy Cox	Richard Nester
Gary Crocker	Mike Pattison
Deb Curie	Pat Paxton
Janice Elliott	Amy Peebles
Sarah Elvey	Michael Priest
Gregory Ferrell	Kristen Purdy
Kristin Foy	Kathie Reid
Jill Gallion	Andrew Remillard
Tina Gerber	Hannah Roscoe-Metzger
Tom Gilt	Kim Sayers
Jamie Harty	Alden Sewell
Jeanne Haught	Matthew Shilling
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Barbara LaMoreaux	Bill Whitmore
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Charles Lepold	Gloria Wirt
Kathy Maksymicz	Sharon Wolf
Chris McCormack	Bruce Woodruff
Casey Meek	Gary Wortman
Terry Meek	Mark Yoders

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# University Calendar

## Subject to change

### Autumn Quarter 2008

September 21-23	Welcome Days (Sun., Mon., Tues.)
September 24	Classes begin (Wed.)
November 11	Veterans' Day—no classes, offices closed (Tues.)
November 27	Thanksgiving Day—no classes, offices closed (Thurs.)
November 28	Columbus Day observed—no classes, offices closed (Fri.)
December 5	Last day of regularly scheduled classes (Fri.)
December 8-10	Final examinations (Mon.-Wed.)
December 14	Autumn commencement, 2 p.m. (Sun.) - Columbus Campus
December 25	Holiday—offices closed (Thurs.)
December 26	Holiday—offices closed (Fri.)

### Winter Quarter 2009

January 1	New Year's Day—offices closed (Thurs.)
January 5	Classes begin (Mon.)
January 19	Martin Luther King Day—no classes, offices closed (Mon.)
March 13	Last day of regularly scheduled classes (Fri.)
March 16-18	Final examinations (Mon.-Wed.)
March 22	Winter commencement, 2 p.m. (Sun.) - Columbus Campus

### Spring Quarter 2009

March 30	Classes begin (Mon.)
May 25	Memorial Day—no classes, offices closed (Mon.)
June 5	Last day of regularly scheduled classes (Fri.)
June 8-10	Final examinations (Mon.-Wed.)
June 13	ATI commencement, 11 a.m. (Sat.) - Fisher Auditorium, OARDC
June 14	Spring commencement, 2 p.m. (Sun.) - Columbus Campus

### Summer Quarter 2009

June 22	Quarter and first-term classes begin (Mon.)
July 3	Independence Day observed—no classes, offices closed (Fri.)
July 22	Last day of regularly scheduled classes for first-term courses (Wed.)
July 23-24	Final examinations for first-term courses only (Thurs. and Fri.)
July 27	Second-term classes begin (Mon.)
August 24	Last day of regularly scheduled classes for quarter and second-term courses (Mon.)
August 25-26	Final examinations for quarter and second-term courses (Tues. - Wed.)
August 30	Summer Commencement, 2 p.m. (Sun.), Columbus Campus
September 7	Labor Day—offices closed (Mon.)

### Autumn Quarter 2009

September 20-22	Welcome Days (Sun., Mon., Tues.)
September 23	Classes begin (Wed.)

## Phone numbers and web sites

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

**Admissions**  
330-287-1327  
www.ATIadmissions.osu.edu

**Academic Records**  
330-287-1303

**Fees & Deposits**  
330-287-1286

**Financial Aid**  
330-287-1214  
www.ati.osu.edu/financial\_aid.html

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

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

**Business Training/Educational Svcs**  
Shisler Conference Center  
1625 Wilson Road  
Wooster, OH 44691  
330-287-7511  
www.shislercenter.ohio-state.edu

**Columbus campus**  
**Office of Undergraduate Admissions**  
Enarson Hall  
154 West 12th Avenue  
Columbus, OH 43210  
614-292-3980  
www.osu.edu

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

**Residency Office**  
**University Registrar**  
614-292-8500  
www.ureg.ohio-state.edu

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

**Office of Veterans Affairs**  
614-292-3453  
hr.osu.edu/vet/contact.htm

**Master Schedule of Classes**  
www.ureg.ohio-state.edu/courses/



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