Programs

Bachelor of Science. The BS degree prepares individuals to pursue advanced degrees for careers in teaching or research. Students may major in agriculture, animal science, or horticulture with a minor to complement their intended purpose.

Bachelor of Technology. The BT degree is a career specialist’s degree. Graduates are prepared for supervisory and management positions in production agriculture, horticulture, or the ornamental horticulture industry.

Associate of Technology. The two-year AT degree programs provide students with adequate skills and working knowledge to apply for entry-level positions in their area of specialization.

BS: Agriculture
Major requirements—40
AGRI118, 206, 300, 304, 308, 405; ANSI114; HORT105, plus 15 major elective credits chosen in consultation with advisor.
Cognate requirements—18
BIOL165, 166; CHEM131, 132

Animal Science Areas of Emphasis
Students may choose an area of emphasis from the following or develop a personalized program in consultation with their advisor to meet specific career goals.

Pre-Veterinary Medicine—22
AGRI137(2); ANSI340 (1 species), ANSI379, 420, 435, 440 and 445
Recommended electives for entry into veterinary college:
* BCHM421, 422; CHEM231, 232; MATH166, 167; PHYS141, 142.
* Courses may vary depending on entrance requirements of the veterinary college of choice.

Management—19
AGRI137 (2), 395; ANSI340 (2 species); ACCT121; AGRI270.
Electives can be tailored to meet a specific student’s interest, such as animal behavior, business management or marketing, journalism, or communication.

BS: Animal Science
Major requirements—40
AGRI405; ANSI114, 305, 425, plus 19–21 credits in a special area of emphasis and 6–10 major electives chosen in consultation with an advisor.
Cognate requirements—18
BIOL165, 166; CHEM131, 132

Animal Science Program Emphases
Students may choose an area of emphasis from the following or develop a personalized program in consultation with their advisor to meet specific career goals.

Management—19
AGRI137 (2), 395; ANSI340 (2 species); ACCT121; AGRI270.
Electives can be tailored to meet a specific student’s interest, such as animal behavior, business management or marketing, journalism, or communication.

BS: Horticulture
Major requirements—40
AGRI118, 240, 308, 405; HORT105, 378, plus 18 credits in a special area of emphasis and 1 credit major elective.
Cognate requirements—18
Select credits from BIOL165, 166; BOT430, 475; ZOOL459; CHEM131, 132.

Horticulture Program Emphases in BS Degree Programs
Students may choose an area of emphasis from the following or develop a personalized program in consultation with their advisor to meet specific career goals.

Landscaping Design—18
Select from the following: HORT135, 226, 228, 315, 350, 365, 375, 429, 448

Landscaping Management—18
Select from the following: HORT135, 208, 211, 212, 217, 226, 228, 315, 346, 350, 359, 360

BT: Agribusiness
Major requirements—44
AGRI118, 206, 270, 300, 304, 308, 405; ANSI114; HORT105, 378; plus 12 major elective credits chosen in consultation with advisor.
Cognate requirement—4
CHEM110
Business Emphasis—18
ACCT121, 122; BSAD341, 355; ECON226; FNCE317
BT: Horticulture
Major requirements—60
AGRI118, 240, 308, 405; HORT105, 135, 226, 228, 315, 346, 378, plus 17–18 credits in a special area of emphasis, and 7–8 major elective credits chosen in consultation with advisor.
Cognate requirement—4
CHEM110

Horticulture Areas of Emphasis in BT Degree Programs
Students may choose an area of emphasis from the following or develop a personalized program in consultation with their advisor to meet specific career goals.

Landscape Design—16
HORT350, 365, 375, 429, 448. The landscape design program emphasizes the development of technical drawing skills, an understanding of the principles of design, and a knowledge of plant material.

Landscape Management—17
HORT208, 211, 217. Select 9 credits from the following: HORT212, 350, 359, 360, 375. The landscape management emphasis features proper horticultural practice, identification of landscape plants, selection of appropriate equipment, and the concept of total maintenance.

AT: Agriculture
Major Requirements—25-36
ANSI114, 305, 340, plus 15-24 credits in a special area of emphasis (see below) and 1–2 major elective credits chosen in consultation with advisor.

Agriculture Program Emphasis in Associate Degree Programs
Students may choose an area of emphasis from the following or develop a personalized program in consultation with their advisor to meet specific career goals.

Crop Production—24
AGRI118, 206, 240, 300, 395; HORT105
Cognate requirement—4
CHEM110

Dairy Herd Management—25
AGRI270, 304, 395; ANSI250, 278, 430, 440
Cognate requirements—4
CHEM110

Veterinary Assistant—15
AGRI395; ANSI240, 379, 420
Cognate requirements—15
CHEM110; CLSC101, 102, 230, 250, 260

AT: Horticulture
Major requirements—35
AGRI118, 405; HORT105, plus 13–16 credits in a special area of emphasis (see below) and 8–11 major elective credits chosen in consultation with advisor.
Cognate requirement—4
CHEM110

Horticulture Program Emphases in Associate Degree Programs
Students may choose an area of emphasis from the following or develop a personalized program in consultation with their advisor to meet specific career goals.

Landscape Design—13
HORT135, 226, 228, 350

Landscape Management—16
HORT208, 211, 217, 226, 228, 346

Minors in Agriculture, Animal Science or Horticulture—20
Selected from AGRI, ANSI or HORT courses in consultation with advisor.

Pre-Professional Program in Veterinary Medicine
Katherine Koudele, Director
(269) 471-6299

Entrance requirements vary among the colleges of veterinary medicine. Therefore, interested students must write to the schools of choice for the most current and detailed information. A list of accredited colleges of veterinary medicine may be obtained from the American Veterinary Medical Association, 930 North Meacham Road, Schaumburg, IL 60196; http://www.avma.org. Students in consultation with their advisors in the Agriculture Department can design individualized programs of study to meet the entrance requirements of the veterinary school of choice. The required prerequisite pre-veterinary courses are usually general biology, general and organic chemistry, physics, biochemistry, mathematics, courses in animal science, and general education.

Courses
(Credits)

AGRICULTURE

AGRI118
Soil Science
Factors affecting soil formation, soil texture, particle size, pore space and their impact on soil air/water relations, and chemical characteristics of soils, including pH, ion exchange, and maintenance of soil fertility. Weekly: 3 lectures and a 3-hour lab. Spring

AGRI137
Practicum in
Fifty hours per credit of supervised practical experience in one area of concentration. May be repeated in different areas for a maximum of 6 credits. Topics to be chosen in consultation with an advisor. Fall, Spring

AGRI206
Farm Machinery
Selection and operation of farm equipment, based on the initial cost and economic performance, including factors governing the site and type of farm machines, their capacity, efficient use, adjustment and repair. Weekly: 2 lectures and a 3-hour lab. Fall
AGRI240 Alt (3)
Fundamentals of Irrigation
Design, installation, drawing, interpretation and maintenance of
plastic or metal irrigation systems and control devices for proper
sprinkler coverage. Fall

AGRI270 Alt (3)
Management of Agriculture Enterprises
An introduction to acquiring and analysis of management informa-
tion for decision making; an understanding of basic economic
principles that impact biological production systems and imple-
mentation of the principles for total quality management for
increased productivity. Fall

AGRI300 Alt (3)
Field Crop Production
Importance, distribution, economic adaptation, and botany of
leading farm crops, emphasizing rotation, seedbed preparation,
and economic production. Spring

AGRI304 Alt (3)
Forage Crop Production
Basic principles of forage crop production, emphasizing choice of
crop, establishment, growth, maintenance, harvesting, storage,
feeding, and other management decision. Spring

AGRI308 Alt (3)
Principles of Weed Control
Control of weeds in horticultural and field crops, utilizing
biological, cultural, mechanical, and chemical practices. Class
study also involves preparation and testing for pesticide
applicator’s license. Weekly: 2 lectures and a 3-hour lab. Fall

AGRI345 (1-4)
Topics in __________
A class based on selected topics of current interest in agriculture.
Repeatable in different areas.
Concepts of International Agriculture
International Ag Implementation
Horse Judging
Livestock Judging
Viticulture
Solanaceous and Vine Crops
Tree Fruit Production

AGRI395 (1-4)
Internship in __________
Supervised internship of on-the-job work experience in some field
of agriculture under the direction of the employer and evaluated
by a departmental faculty member. Students submit report of their
experience and must complete a minimum of 120 hours of work
experience for each credit earned.

AGRI405 (1)
Research Seminar
Research work in agriculture and related fields; reports given by
students, faculty, and visiting lecturers. Spring

AGRI499 (1-5)
Project in __________
Individual research in some field of agriculture under the direction
of the staff. Repeatable to 10 credits.

ANIMAL SCIENCE

ANSI114 (3)
Introduction to Animal Science
Basic farm animal anatomy, reproductive and digestive physiology,
housing, health management with information on how animal
products are processed and marketed. Efficient, effective
management is emphasized throughout course. Fall

ANSI240 $ Alt (4)
Fundamentals of Veterinary Clinical Techniques
Topics covered and skills learned include (not limited to) animal
restraint and handling, anesthesia, surgical instruments and aseptic
technique, surgical assistance, post-surgical nursing, pain manage-
ment, wound management and bandaging, euthanasia and client
bereavement, diagnostic imaging. Laboratory included.

ANSI250 $ Alt (3)
Dairy Facilities
A study of various types of milking systems, housing and manure
handling systems of dairy cattle of all ages and production levels.
Ventilation, stall and barn dimensions, and bedding will be some of
the topics covered. Weekly: 2 lectures and one 3-hour laborato-
ry. Summer

ANSI278 Alt (3)
Dairy Health and Disease
A study of the cause, prevention and treatment of infectious and
metabolic diseases of dairy cattle. Weekly: 2 lectures and one 3-
hour laboratory. Spring

ANSI305 Alt (3)
Animal Nutrition
Principles of digestion, absorption, metabolism of feeds by farm
species are examined for practical, profitable feeding. Common and
non-traditional feedstuffs, feed-related diseases and ration
formulation are included. Weekly: 3 lectures. Recommended:
CHEM110 or 131. Fall

ANSI325 $ Alt (3)
Domestic Animal Behavior
A study of the ways domestic animals communicate and interact
with conspecific and other animals, and humans. Included are:
physiological basis and development for each type of behavior;
normal and aberrant behavior manifestations in each domestic ani-
mal species; treatments for problem situations; consideration of
the effects of domestication on each species. Two lectures and one
lab per week. Fall

ANSI340 $ Alt (3)
Production/Management of __________
Production methods and management practices of domesticated
livestock species including nutrition, reproduction, housing, health
and specialized care of a particular species. Course is repeatable
for study of avian, beef cattle, dairy cattle (includes a lab), equine
(includes a lab), porcine, and wool and lamb production. Fall,
Spring

ANSI379 Alt (3)
Small Animal Health and Disease
A survey of proper handling and care, nutritional needs, and
common health problems of companion animals such as dogs,
cats, and birds. Fall
## HORTICULTURE

### HORT105 $ (5)
**Plant Science**
Intended to acquaint students with the requirements of plant growth and development. Understanding of these processes is gained by studying topics such as plant cells, tissue, and organ structure; photosynthesis, cellular respiration, plant reproduction, including flowering, fruit development, seed set, the role of hormones, and plant nutrition. Weekly: 4 lectures and a 3-hour lab. **Fall**

### HORT135 $ (4)
**Landscape Drafting and Design**
Develops proficiency in technical drafting for landscape design including symbols, title blocks, plant legends and plan organization. Principles of design, site analysis, functional diagramming, circulation, spatial planes, design schematics and plant selection are explored. Laboratory puts the design process to work in drawing plans for residential design. Weekly: 3 lectures and a 3-hour lab. **Fall**

### HORT208 $ Alt (3)
**Propagation of Horticultural Plants**
Intended to acquaint students with the processes of asexual reproduction, especially as it applies to the horticultural industry. Asexual reproduction investigates methods of clonal reproduction utilizing non-flowering plant parts such as cutting, grafting, layering, and micropropagation (tissue culture). Weekly: 2 lectures and a 3-hour lab. Recommended: HORT105. **Spring**

### HORT211 $ Alt (2)
**Landscape Equipment**
Assessment of and exposure to current equipment needed to run a landscape installation and maintenance business. Experience in physical operation of equipment, preventative maintenance and minor repair is practiced. Weekly: 1-hour lecture and a 3-hour lab. **Fall**

### HORT212 $ Alt (3)
**Floriculture Production**
Intended to acquaint students with the production and uses of bedding and potted plants. Topics covered include seed physiology and propagation, germination, production and post-production growing techniques, growing media and containers. Weekly: 2 lectures and a 3-hour lab. **Spring**

### HORT217 $ Alt (3)
**Turfgrass Management**
Principles of turfgrass management for parks, grounds, golf courses, and athletic fields. Topics include cool and warm season genera, growth and adaptation criteria, cultural considerations including irrigation, mowing, soil fertility, compaction and drainage; thatch, plant protection (weeds, insects, diseases) establishment and renovation. **Fall**

### HORT226 $ Alt (3)
**Woody Plant Identification**
Introduction to the identification and recognition of shape, size, color, texture, environmental requirements and landscape value of common deciduous and evergreen trees, shrubs and vines. **Fall**

### HORT228 $ Alt (3)
**Herbaceous Plant Identification**
Identification and recognition of shape, size, color, texture, and environmental requirements of the nonwoody plants providing color and ground cover in the landscape. **Fall**

### HORT315 $ (4)
**Landscape Construction**
Course combines weekly hands-on construction processes of installing softscapes and hardscapes with an understanding of the vast array of hardscape materials available in the form of pavers, edgings, fencing, retaining walls, decks, pools, shelters, etc. Weekly: 3 hours lecture and 3 hours lab. **Spring**

### HORT346 $ Alt (2)
**Landscape Administration and Maintenance**
Administration of a landscape business, employment and supervision of employees and record-keeping practices explored. Managing maintenance of hardscapes and softscapes in residential landscapes, parks, golf courses and corporate environments. Focuses on training in pruning, planting, cultivation and pest management. Weekly: 4 hours of lecture/lab. **Fall**

### HORT350 $ Alt (3)
**History of Landscape Design**
A study of landscape history throughout civilization and its impact upon society and the environment. The origin of landscape architectural styles and their characteristics will be explored. An intro-
perspective look at landscape design personalities through the ages and their influence upon the American landscape. **Spring**

**HORT359** $ Alt (3)

*Greenhouse Environment and Construction*

Controlling the plant environment to enhance plant growth and optimal development through temperature, humidity, light, nutrients, sanitation and carbon dioxide levels. Structures, coverings and mechanical systems used are explored to produce the most cost-effective horticultural crops. Weekly: 2 hours lecture and a 3-hour lab. **Fall**

**HORT360** $ Alt (3)

*Arboriculture*

Care of shade and ornamental trees living under environmental stress of urbanization, their legal protection and value. Includes tree anatomy and physiology, soils, nutrition and water relationships, transplanting, disease and insect control, mechanical injury and pruning to develop a healthy tree. Weekly: 2 lectures and a 3-hour lab. **Fall**

**HORT365** $ Alt (3)

*Urban Landscape Design*

Designing landscapes to meet the environmental challenges and conditions of urban spaces. Circulation patterns for conducting business, aesthetic and functional aspects of design for corporate/institutional, governmental agencies and municipal areas. Weekly: 2 lectures and a 3-hour lab. Recommended: HORT135. **Spring**

**HORT375** Alt (3)

*Landscape Estimating*

An introduction to the estimating process for landscape design, construction and maintenance work. Various schedules and forms are used to assign costs of equipment, plants, hardscape materials, labor and overhead. The many variables from project to project are explored and then formulas are applied to arrive at making landscape installations an efficient and profitable business. **Spring**

**HORT378** Alt (4)

*Integrated Pest/Disease Management*

Study of significant diseases and pests of agricultural and horticultural plant materials, including life cycles and influence of environmental conditions; determination of effective control methods for crop, ornamental and turfgrass production. **Spring**

**HORT429** $ Alt (3)

*Computer Landscape Design*

Principles and practices of computer-aided landscape design, including creating scale perimeter plot plans, using drawing tools, plant/site relationships, and graphic imaging leading to a computer-generated landscape drawing. Laboratory emphasizes skill development and proficiency in integrating software and hardware to create CAD-generated landscape designs. Prior landscape drawing course work is recommended. **Spring**

**HORT448** $ Alt (4)

*Advanced Landscape Design and Graphics*

Landscape design concepts relating to the more challenging problems of residential design. Field application of grading relating to contours, specifications, exploring deck design, planting combinations, and exercises in graphics and rendering for presentations. Weekly: 3 lectures and a 3-hour lab. Recommended: HORT135. **Spring**

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**DIGITAL MEDIA AND PHOTOGRAPHY**

Harrigan Hall, Room 227
(269) 471-3450 or (800) 909-8812
FAX: (269) 471-6655
maxwella@andrews.edu
http://www.andrews.edu/COT/

**Faculty**

Arturo S. Maxwell, *Chair*
Rodrick A. Church
Jeffrey E. Forsythe
Sharon J. Prest
David B. Sherwin
Renee A. Skeete
Dustin J. Thorne
Marc G. Ullom
Jeffery E. Wines

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Other BFA Options at Andrews University
Art Direction/Advertising
Pre-Art Therapy
Fine Art
Graphic Design

**Programs**

By the end of the sophomore year students need to complete 16 hours in their respective major. They must also submit a portfolio of their work to the department, along with a formal application to the program they are pursuing. The review is a time when faculty evaluate student progress by examining the technical and creative abilities. Students must present their portfolios to the faculty, discuss goals, and intelligently defend their work.

Applications and portfolios are reviewed by the department during the month of May, and applicants are notified no later than June 30 of acceptance into the program. For graduation students must have a cumulative GPA of 2.75 in their major.

**Bachelor of Fine Arts—72-75**

The three closely related departments of Art & Design, Communication, and Digital Media & Photography offer students an exciting opportunity to earn a collaborative Bachelor of Fine Arts degree (BFA). This degree incorporates core subjects in these three areas, with a major in the career field of choice. The degree