



# 2014 – 2015 Bulletin

## Departments of Agriculture & Aviation

Berrien Springs, Michigan 49104  
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## Course Prefixes and Numbers

Courses are listed by course prefix and course number. Course prefixes are listed below in alphabetical order. At the end of each prefix designation is an abbreviated symbol in parentheses for the school in which the prefix occurs. Symbols are as follows:

College of Arts and Sciences (CAS)		School of Business Administration (SBA)		School of Health Professions (SHP)	
School of Architecture, Art & Design (SAAD)		School of Education (SED)		Seventh-day Adventist Theological Seminary (SEM)	
ACCT	Accounting (SBA)	ENGM	Engineering Management (CAS)	MUED	Music Education (CAS)
AFLT	Aeronautical Flight	ENGR	Engineering (CAS)	MUHL	Music History & Literature (CAS)
AGRI	Agriculture	ENGT	Engineering Technology (CAS)	MUPF	Music Performance (CAS)
ALHE	Allied Health (CAS)	ENSL	Intensive English (CAS)	MURE	Music—Religious (CAS)
ANSI	Animal Science	FDNT	Nutrition (SHP)	NRSG	Nursing (SHP)
ANTH	Anthropology (CAS)	FILM	Film (SAAD)	NTST	New Testament Studies (SEM)
ARCH	Architecture (SAAD)	FMST	Family Studies (CAS)	OTST	Old Testament Studies (SEM)
ART	Art Studio (SAAD)	FNCE	Finance (SBA)	PHIL	Philosophy (CAS)
ARTH	Art History (SAAD)	FREN	French (CAS)	PHTH	Physical Therapy (SHP)
AVIA	Aviation	FTES	Fitness & Exercise Studies (SHP)	PHTO	Photography (SAAD)
AVMT	Aviation Maintenance	GDPC	Graduate Psychology & Counseling (SED)	PHYS	Physics (CAS)
BCHM	Biochemistry (CAS)	GEOG	Geography (CAS)	PLSC	Political Science (CAS)
BHSC	Behavioral Sciences (CAS)	GNST	General Studies (CAS)	PORT	Portuguese (CAS)
BIBL	Biblical Languages (CAS)	GRMN	German (CAS)	PREL	Public Relations (CAS)
BIOL	Biology (CAS)	GSEM	General Theological Seminary (SEM)	PSYC	Psychology (CAS)
BSAD	Business Administration (SBA)	HIST	History (CAS)	PTH	Physical Therapy – Professional & Post-Professional (SHP)
CHEM	Chemistry (CAS)	HLED	Health Education (SHP)	RELB	Religion—Biblical Studies (CAS)
CHIS	Church History (SEM)	HONS	Honors (all undergraduate)	RELG	Religion—General (CAS)
CHMN	Christian Ministry (SEM)	HORT	Horticulture	RELH	Religion—History (CAS)
CIDS	Comm & Intl Development (CAS)	IDSC	Interdisciplinary Studies (CAS)	RELP	Religion—Professional & Applied Studies (CAS)
COMM	Communication (CAS)	INFS	Information Systems (SBA)	RELT	Religion—Theology (CAS)
CPTR	Computing & Software Engineering (CAS)	INLS	International Language Studies (CAS)	SOCI	Sociology (CAS)
DSGN	Design (SAAD)	JOUR	Journalism (CAS)	SOWK	Social Work (CAS)
DSRE	Discipleship & Religious Education (SEM)	LEAD	Leadership (SED)	SPAN	Spanish (CAS)
ECON	Economics (SBA)	MAED	Mathematics Education (CAS)	SPED	Special Education (SED)
EDAL	Educational Administration & Leadership (SED)	MATH	Mathematics (CAS)	SPPA	Speech–Language Pathology & Audiology (SHP)
EDCI	Educational Curriculum & Instruction (SED)	MDIA	Media (SAAD)	STAT	Statistics (CAS)
EDFN	Educational Foundations (SED)	MKTG	Marketing (SBA)	THST	Theology & Christian Philosophy (SEM)
EDRM	Research & Measurement (SED)	MLSC	Medical Laboratory Sciences (SHP)		
EDTE	Teacher Education (SED)	MSCI	Mathematics and Science (CAS)		
EDUC	Education—General (SED)	MSSN	World Mission (SEM)		
ENGL	English (CAS)	MUCT	Music Composition & Theory (CAS)		

### COURSE NUMBERS

Non Credit	Below 100	Courses enabling the student to qualify for freshman standing
Undergraduate Lower Division	100–199	Courses usually taken during the freshman year
	200–299	Courses usually taken during the sophomore year
	300–399	Courses usually taken during the junior year
Undergraduate Upper Division	400–499	Courses usually taken during the senior year
	500–699	Courses for graduate students only
Graduate Level	700–999	Courses for post-masters students

# Program & Degree Index

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# Department of Agriculture

Smith Hall, Room 109  
269-471-6006  
Fax: 269-471-3009  
agri@andrews.edu  
www.andrews.edu/agriculture/

**Faculty**  
Clive W. Holland, Chair  
Katherine Koudele  
Garth B. Woodruff  
Agronomy Faculty - to be filled 2014-2015

**Emeritus**  
Thomas N. Chittick

**Adjunct Faculty**  
Larry H. Adams  
Jessica Balsis  
Stanley H. Beikmann  
Dayle Birney  
Jolene Birney  
Robin J. Kniebes  
M. Lee LaVanway  
Holly D. Shaffer  
Jeff Trubey  
Michael Villwock

## 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, horticulture or landscape design 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 such as crops or dairy herd management, horticulture or the landscape 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.

## Associates

### Agriculture, Crop Production Emphasis AT

#### 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.

#### AT: Agriculture - 60

Major Requirements

- ANSI 114 - Introduction to Animal Science Credits: 3
- ANSI 205 - Animal Feeds and Feeding Credits: 3
- Or ANSI 305 - Animal Nutrition Credits: 3
- ANSI 340 - Production/Management of \_\_\_\_\_ Credits: 3
- Plus 0-4 credits in a special area of emphasis (see below) and 2-5 major elective credits chosen in consultation with advisor.

#### Crop Production — 22

- AGRI 118 - Soil Science Credits: 4
- AGRI 206 - Farm Machinery Credits: 3
- AGRI 240 - Fundamentals of Irrigation Credits: 3

- AGRI 300 - Field Crop Production Credits: 3
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1-4
- HORT 105 - Plant Science Credits: 5

#### Cognate Requirement - 4

- CHEM 100 - Consumer Chemistry Credits: 4
- Or CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

#### General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

##### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

##### Service

- BHSC 100 - Philosophy of Service Credits: 2

### Agriculture, Dairy Herd Management Emphasis AT

#### 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.

#### AT: Agriculture - 35

##### Major Requirements

- ANSI 114 - Introduction to Animal Science Credits: 3
- ANSI 205 - Animal Feeds and Feeding Credits: 3
- Or ANSI 305 - Animal Nutrition Credits: 3
- ANSI 340 - Production/Management of \_\_\_\_\_ Credits: 3
- Plus 0-7 major elective credits chosen in consultation with advisor.

##### Dairy Herd Management — 19

- AGRI 270 - Management of Agriculture Enterprises Credits: 3
- AGRI 304 - Forage Crop Production Credits: 3
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1-4
- ANSI 250 - Dairy Facilities Credits: 3
- ANSI 278 - Dairy Health and Disease Credits: 3
- ANSI 340 - Production/Management of \_\_\_\_\_ Credits: 3

#### Cognate Requirement - 4

- CHEM 100 - Consumer Chemistry Credits: 4
- Or CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

#### General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

##### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

##### Service

- BHSC 100 - Philosophy of Service Credits: 2

# Horticulture, Landscape Design Emphasis AT

## 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.

### AT: Horticulture - 60

#### Major Requirements

- AGRI 118 - Soil Science Credits: 4
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1-4
- AGRI 405 - Research Seminar Credits: 1
- HORT 105 - Plant Science Credits: 5
- HORT 226 - Woody Plant Identification I Credits: 3
- HORT 227 - Woody Plant Identification II Credits: 3
- HORT 228 - Herbaceous Plant Identification Credits: 3
- Plus 0-2 major electives chosen in consultation with an advisor.

#### Landscape Design — 11

- HORT 136 - Landscape Drafting and Graphics Credits: 4
- HORT 137 - Fundamentals of Landscape Design Credits: 4
- HORT 350 - History of Landscape Architecture Credits: 3

### Cognate Requirements - 4

- CHEM 100 - Consumer Chemistry Credits: 4
- Or CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

### General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

#### Service

- BHSC 100 - Philosophy of Service Credits: 2

# Horticulture, Landscape Management Emphasis AT

## 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.

### AT: Horticulture - 35

#### Major Requirements

- AGRI 118 - Soil Science Credits: 4
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1-4
- AGRI 405 - Research Seminar Credits: 1
- HORT 105 - Plant Science Credits: 5
- HORT 226 - Woody Plant Identification I Credits: 3
- HORT 227 - Woody Plant Identification II Credits: 3
- HORT 228 - Herbaceous Plant Identification Credits: 3

- Plus 7-10 major electives chosen in consultation with an advisor.

### Landscape Management — 5

- HORT 208 - Propagation of Horticultural Plants Credits: 3
- HORT 211 - Landscape Equipment Credits: 2

### Cognate Requirements - 4

- CHEM 100 - Consumer Chemistry Credits: 4
- Or CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

### General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

#### Service

- BHSC 100 - Philosophy of Service Credits: 2

## Bachelors

### Agriculture BS

#### 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, horticulture or landscape design with a minor to complement their intended purpose.

#### BS: Agriculture

#### Major Requirements — 40

- AGRI 118 - Soil Science Credits: 4
- AGRI 206 - Farm Machinery Credits: 3
- AGRI 300 - Field Crop Production Credits: 3
- AGRI 304 - Forage Crop Production Credits: 3
- AGRI 308 - Principles of Weed Control Credits: 3
- AGRI 405 - Research Seminar Credits: 1
- ANSI 114 - Introduction to Animal Science Credits: 3
- HORT 105 - Plant Science Credits: 5
- plus 15 major elective credits chosen in consultation with advisor.

### Cognate Requirements — 18

- BIOL 165 - Foundations of Biology Credits: 5 or 4
- BIOL 166 - Foundations of Biology Credits: 5 or 4
- CHEM 131 - General Chemistry I Credits: 4
- CHEM 132 - General Chemistry II Credits: 4

### General Education Requirements

Students must take all courses designated in the BA/BS Degree Requirements of the General Education Program.

## Agriculture, Agribusiness Emphasis BT

## Bachelor of Technology

The BT degree is a career specialist's degree. Graduates are prepared for supervisory and management positions in production agriculture such as Agribusiness, crops, dairy herd management, horticulture or the landscape industry.

### BT: Agriculture - 60

#### Major Requirements

- AGRI 137 - Practicum in \_\_\_\_\_ Credits: 1–3 (2 credits needed)
- AGRI 270 - Management of Agriculture Enterprises Credits: 3
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1–4 (3 credits needed)
- AGRI 405 - Research Seminar Credits: 1

#### Agribusiness Emphasis — 33

- ACCT 121 - Fundamentals of Accounting Credits: 3
- ACCT 122 - Fundamentals of Accounting Credits: 3
- BSAD 341 - Business Law Credits: 3
- BSAD 355 - Management and Organization Credits: 3
- ECON 226 - Principles of Microeconomics Credits: 3
- FNCE 317 - Business Finance Credits: 3
- Agriculture major credits selected in consultation with an advisor from AGRI, ANSI, and HORT courses.

### Cognates - 4

- CHEM 100 - Consumer Chemistry Credits: 4
- Or CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

### General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

#### Service

- BHSC 100 - Philosophy of Service Credits: 2

## Agriculture, Animal Husbandry Emphasis BT

## Bachelor of Technology

The BT degree is a career specialist's degree. Graduates are prepared for supervisory and management positions in production agriculture such as Agribusiness, crops, dairy herd management, horticulture or the landscape industry.

### BT: Agriculture - 60

#### Major Requirements

- AGRI 137 - Practicum in \_\_\_\_\_ Credits: 1–3 (2 credits needed)
- AGRI 270 - Management of Agriculture Enterprises Credits: 3
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1–4 (3 credits needed)
- AGRI 405 - Research Seminar Credits: 1
- plus 33 (credits) major electives chosen in consultation with an advisor.

#### Animal Husbandry — 18

- ANSI 114 - Introduction to Animal Science Credits: 3
- ANSI 205 - Animal Feeds and Feeding Credits: 3
- Or ANSI 305 - Animal Nutrition Credits: 3

- ANSI 245 - Animal Breeding and Genetics Credits: 3
- Or ANSI 440 - Animal Reproduction Credits: 3
- ANSI 325 - Domestic Animal Behavior Credits: 3
- ANSI 340 - Production/Management of \_\_\_\_\_ Credits: 3
- ANSI 425 - Issues in Animal Agriculture, Research and Medicine Credits: 3

### Cognate requirement — 4

- CHEM 100 - Consumer Chemistry Credits: 4
- Or CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

### General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

#### Service

- BHSC 100 - Philosophy of Service Credits: 2

### Service Note:

- ANSI 425 - Issues in Animal Agriculture, Research and Medicine Credits: 3

## Agriculture, Crop Production Emphasis BT

## Bachelor of Technology

The BT degree is a career specialist's degree. Graduates are prepared for supervisory and management positions in production agriculture such as Agribusiness, crops, dairy herd management, horticulture or the landscape industry.

### BT: Agriculture - 60

#### Major Requirements

- AGRI 137 - Practicum in \_\_\_\_\_ Credits: 1–3 (2 credits needed)
- AGRI 270 - Management of Agriculture Enterprises Credits: 3
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1–4 (3 credits needed)
- AGRI 405 - Research Seminar Credits: 1
- Plus 23 major electives chosen in consultation with an advisor

#### Crop Production Emphasis — 28

- AGRI 118 - Soil Science Credits: 4
- AGRI 206 - Farm Machinery Credits: 3
- AGRI 240 - Fundamentals of Irrigation Credits: 3
- AGRI 300 - Field Crop Production Credits: 3
- AGRI 304 - Forage Crop Production Credits: 3
- AGRI 308 - Principles of Weed Control Credits: 3
- HORT 105 - Plant Science Credits: 5
- HORT 378 - Integrated Pest/Disease Management Credits: 4

### Cognate requirement — 4

- CHEM 100 - Consumer Chemistry Credits: 4
- Or CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

### General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course



substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

#### Service

- BHSC 100 - Philosophy of Service Credits: 2

## Animal Science, Equine Science Emphasis BS

### 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, horticulture or landscape design with a minor to complement their intended purpose.

### BS: Animal Science - 40

#### Major Requirements

- AGRI 405 - Research Seminar Credits: 1
- ANSI 114 - Introduction to Animal Science Credits: 3
- ANSI 305 - Animal Nutrition Credits: 3
- ANSI 425 - Issues in Animal Agriculture, Research and Medicine Credits: 3
- Plus 0-9 major electives chosen in consultation with an advisor.

#### Equine Science — 21

- ANSI 340 - Production/Management of \_\_\_\_\_ Credits: 3 (Equine Management)
- ANSI 440 - Animal Reproduction Credits: 3
- ANSI 445 - Physiology of Farm Animals Credits: 4
- ANSI 450 - Equine Exercise Anatomy & Physiology Credits: 3
- ANSI 455 - Equine Health and Disease Credits: 3
- AGRI 137 - Practicum in \_\_\_\_\_ Credits: 1-3 (1-2 credits needed)
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1-4 (1-2 credits needed)

### Cognate Requirements - 18

- BIOL 165 - Foundations of Biology Credits: 5 or 4
- BIOL 166 - Foundations of Biology Credits: 5 or 4
- CHEM 131 - General Chemistry I Credits: 4
- CHEM 132 - General Chemistry II Credits: 4

### General Education Requirements

Students must take all courses designated in the BA/BS Degree Requirements of the General Education Program.

## Animal Science, Management Emphasis BS

### 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, horticulture or landscape design with a minor to complement their intended purpose.

### BS: Animal Science - 40

#### Major Requirements

- AGRI 405 - Research Seminar Credits: 1

- ANSI 114 - Introduction to Animal Science Credits: 3
- ANSI 305 - Animal Nutrition Credits: 3
- ANSI 425 - Issues in Animal Agriculture, Research and Medicine Credits: 3
- Plus 0-11 major electives chosen in consultation with an advisor.

#### Management — 19

- AGRI 137 - Practicum in \_\_\_\_\_ Credits: 1-3 (2)
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1-4
- ANSI 340 - Production/Management of \_\_\_\_\_ Credits: 3 (2 species)
- ACCT 121 - Fundamentals of Accounting Credits: 3
- AGRI 270 - Management of Agriculture Enterprises Credits: 3

### Cognate Requirements - 18

- BIOL 165 - Foundations of Biology Credits: 5 or 4
- BIOL 166 - Foundations of Biology Credits: 5 or 4
- CHEM 131 - General Chemistry I Credits: 4
- CHEM 132 - General Chemistry II Credits: 4

### General Education Requirements

Students must take all courses designated in the BA/BS Degree Requirements of the General Education Program.

## Animal Science, Pre-Veterinary Medicine Emphasis BS

### 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, horticulture or landscape design with a minor to complement their intended purpose.

### BS: Animal Science - 40

#### Major Requirements

- AGRI 405 - Research Seminar Credits: 1
- ANSI 114 - Introduction to Animal Science Credits: 3
- ANSI 305 - Animal Nutrition Credits: 3
- ANSI 425 - Issues in Animal Agriculture, Research and Medicine Credits: 3
- Plus 0-9 major electives chosen in consultation with an advisor.

#### Pre-Veterinary Medicine — 21

- AGRI 137 - Practicum in \_\_\_\_\_ Credits: 1-3
- ANSI 340 - Production/Management of \_\_\_\_\_ Credits: 3 (1 species)
- ANSI 379 - Small Animal Health and Disease Credits: 3
- ANSI 420 - Canine Gross Anatomy Credits: 4
- ANSI 435 - Animal Genetics Credits: 3
- ANSI 440 - Animal Reproduction Credits: 3
- ANSI 445 - Physiology of Farm Animals Credits: 4

### Cognate Requirements - 18

- BIOL 165 - Foundations of Biology Credits: 5 or 4
- BIOL 166 - Foundations of Biology Credits: 5 or 4
- CHEM 131 - General Chemistry I Credits: 4
- CHEM 132 - General Chemistry II Credits: 4

### Recommended Pre-Veterinary Courses

Courses may vary depending on entrance requirements of the veterinary college of choice.

- BCHM 421 - Biochemistry I Credits: 4

- CHEM 231 - Organic Chemistry I Credits: 3
- CHEM 232 - Organic Chemistry II Credits: 3
- MATH 166 - College Algebra for Business Credits: 3
- MATH 167 - Precalculus Trigonometry Credits: 1
- Or MATH 168 - Precalculus Credits: 4
- PHYS 141 - General Physics I Credits: 4
- PHYS 142 - General Physics II Credits: 4

## General Education Requirements

Students must take all courses designated in the BA/BS Degree Requirements of the General Education Program.

# Horticulture, Horticultural Crop Production Emphasis BT

## Bachelor of Technology

The BT degree is a career specialist's degree. Graduates are prepared for supervisory and management positions in production agriculture such as Agribusiness, crops, dairy herd management, horticulture or the landscape industry.

### BT: Horticulture - 60

#### Major Requirements

- AGRI 118 - Soil Science Credits: 4
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1–4
- AGRI 405 - Research Seminar Credits: 1
- AGRI 499 - Project in \_\_\_\_\_ Credits: 1–5
- HORT 105 - Plant Science Credits: 5
- HORT 226 - Woody Plant Identification I Credits: 3
- HORT 227 - Woody Plant Identification II Credits: 3
- HORT 228 - Herbaceous Plant Identification Credits: 3
- HORT 350 - History of Landscape Architecture Credits: 3
- Plus 3 major electives chosen in consultation with advisor.

#### Horticultural Crop Production — 33

- AGRI 206 - Farm Machinery Credits: 3
- AGRI 240 - Fundamentals of Irrigation Credits: 3
- AGRI 270 - Management of Agriculture Enterprises Credits: 3
- AGRI 308 - Principles of Weed Control Credits: 3
- AGRI 345 - Topics in \_\_\_\_\_ Credits: 1–4
- HORT 208 - Propagation of Horticultural Plants Credits: 3
- HORT 211 - Landscape Equipment Credits: 2
- HORT 360 - Arboriculture Credits: 3
- HORT 369 - Greenhouse Environment and Production Credits: 3
- HORT 378 - Integrated Pest/Disease Management Credits: 4

The horticultural crop production emphasis prepares students for careers in the greenhouse/nursery industry or vegetable/fruit production industry.

### Cognate Requirements - 4

- CHEM 100 - Consumer Chemistry Credits: 4 OR CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

## General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

#### Service

- BHSC 100 - Philosophy of Service Credits: 2

# Horticulture, Landscape Construction Management Emphasis BT

## Bachelor of Technology

The BT degree is a career specialist's degree. Graduates are prepared for supervisory and management positions in production agriculture such as Agribusiness, crops, dairy herd management, horticulture or the landscape industry.

### BT: Horticulture - 60

#### Major Requirements

- AGRI 118 - Soil Science Credits: 4
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1–4
- AGRI 405 - Research Seminar Credits: 1
- AGRI 499 - Project in \_\_\_\_\_ Credits: 1–5
- HORT 105 - Plant Science Credits: 5
- HORT 226 - Woody Plant Identification I Credits: 3
- HORT 227 - Woody Plant Identification II Credits: 3
- HORT 228 - Herbaceous Plant Identification Credits: 3
- HORT 350 - History of Landscape Architecture Credits: 3

#### Landscape Construction Management - 36

- AGRI 240 - Fundamentals of Irrigation Credits: 3
- AGRI 270 - Management of Agriculture Enterprises Credits: 3
- HORT 136 - Landscape Drafting and Graphics Credits: 4
- HORT 137 - Fundamentals of Landscape Design Credits: 4
- HORT 208 - Propagation of Horticultural Plants Credits: 3
- HORT 211 - Landscape Equipment Credits: 2
- HORT 315 - Landscape Structures and Materials Credits: 4
- HORT 340 - Land Surveying Credits: 2
- HORT 375 - Landscape Estimating Credits: 3
- HORT 378 - Integrated Pest/Disease Management Credits: 4
- HORT 429 - Computer Landscape Design Credits: 3

The landscape construction and management emphasis features proper horticultural practice, identification of landscape plants, selection of appropriate equipment, and the concept of total maintenance.

### Cognate Requirement - 4

- CHEM 100 - Consumer Chemistry Credits: 4 OR CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

## General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

#### Service

- BHSC 100 - Philosophy of Service Credits: 2

# Horticulture, Landscape Design Emphasis BS

## 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, horticulture or landscape design with a minor to complement their intended purpose.

## BS: Horticulture - 60

### Major Requirements

- AGRI 118 - Soil Science Credits: 4
- AGRI 240 - Fundamentals of Irrigation Credits: 3
- AGRI 308 - Principles of Weed Control Credits: 3
- AGRI 405 - Research Seminar Credits: 1
- HORT 105 - Plant Science Credits: 5
- HORT 378 - Integrated Pest/Disease Management Credits: 4
- Plus 20 credits in a special area of emphasis.

### Landscape Design — 20

Select from the following:

- HORT 136 - Landscape Drafting and Graphics Credits: 4
- HORT 137 - Fundamentals of Landscape Design Credits: 4
- HORT 226 - Woody Plant Identification I Credits: 3
- HORT 227 - Woody Plant Identification II Credits: 3
- HORT 228 - Herbaceous Plant Identification Credits: 3
- HORT 315 - Landscape Structures and Materials Credits: 4
- HORT 350 - History of Landscape Architecture Credits: 3
- HORT 365 - Urban Landscape Design Credits: 3
- HORT 375 - Landscape Estimating Credits: 3
- HORT 429 - Computer Landscape Design Credits: 3
- HORT 441 - Advanced Landscape Graphics Credits: 4
- HORT 442 - Advanced Site Design Credits: 4

## Cognate Requirements - 18

Select credits from the following

- BIOL 165 - Foundations of Biology Credits: 5 or 4
- BIOL 166 - Foundations of Biology Credits: 5 or 4
- BIOL 208 - Environmental Science Credits: 4
- BIOL 475 - Biology of Bacteria Credits: 3
- CHEM 131 - General Chemistry I Credits: 4
- CHEM 132 - General Chemistry II Credits: 4
- FDNT 230 - Nutrition Credits: 3
- FDNT 240 - Nutrition Laboratory Credits: 1

## General Education Requirements

Students must take all courses designated in the BA/BS Degree Requirements of the General Education Program.

# Horticulture, Landscape Design Emphasis BT

## Bachelor of Technology

The BT degree is a career specialist's degree. Graduates are prepared for supervisory and management positions in production agriculture such as Agribusiness, crops, dairy herd management, horticulture or the landscape industry.

## BT: Horticulture - 60

### Major Requirements

- AGRI 118 - Soil Science Credits: 4
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1-4 (3 credits needed)
- AGRI 405 - Research Seminar Credits: 1
- AGRI 499 - Project in \_\_\_\_\_ Credits: 1-5
- HORT 105 - Plant Science Credits: 5
- HORT 226 - Woody Plant Identification I Credits: 3
- HORT 227 - Woody Plant Identification II Credits: 3
- HORT 228 - Herbaceous Plant Identification Credits: 3
- HORT 350 - History of Landscape Architecture Credits: 3
- Plus 3 major elective credits chosen in consultation with advisor.

### Landscape Design Emphasis - 31

The landscape design program emphasizes the development of technical drawing skills, CAD application, an understanding of the principles of design and knowledge of plants.

- HORT 136 - Landscape Drafting and Graphics Credits: 4
- HORT 137 - Fundamentals of Landscape Design Credits: 4
- HORT 315 - Landscape Structures and Materials Credits: 4
- HORT 340 - Land Surveying Credits: 2
- HORT 365 - Urban Landscape Design Credits: 3
- HORT 375 - Landscape Estimating Credits: 3
- HORT 429 - Computer Landscape Design Credits: 3
- HORT 441 - Advanced Landscape Graphics Credits: 4
- HORT 442 - Advanced Site Design Credits: 4

## Cognate Requirements - 4

- CHEM 100 - Consumer Chemistry Credits: 4 OR CHEM 110 - Introduction to Inorganic and Organic Chemistry Credits: 4

## General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

### Service

- BHSC 100 - Philosophy of Service Credits: 2

# Horticulture, Landscape Management Emphasis BS

## 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, horticulture or landscape design with a minor to complement their intended purpose.

## BS: Horticulture - 40

### Major Requirements

- AGRI 118 - Soil Science Credits: 4
- AGRI 240 - Fundamentals of Irrigation Credits: 3
- AGRI 308 - Principles of Weed Control Credits: 3
- AGRI 405 - Research Seminar Credits: 1
- HORT 105 - Plant Science Credits: 5
- HORT 378 - Integrated Pest/Disease Management Credits: 4

## Landscape Management — 20

Select from the following:

- HORT 136 - Landscape Drafting and Graphics Credits: 4
- HORT 137 - Fundamentals of Landscape Design Credits: 4
- HORT 208 - Propagation of Horticultural Plants Credits: 3
- HORT 211 - Landscape Equipment Credits: 2
- HORT 226 - Woody Plant Identification I Credits: 3
- HORT 227 - Woody Plant Identification II Credits: 3
- HORT 228 - Herbaceous Plant Identification Credits: 3
- HORT 315 - Landscape Structures and Materials Credits: 4
- HORT 350 - History of Landscape Architecture Credits: 3
- HORT 360 - Arboriculture Credits: 3

## Cognate Requirements - 18

Select credits from

- BIOL 165 - Foundations of Biology Credits: 5 or 4
- BIOL 166 - Foundations of Biology Credits: 5 or 4
- BIOL 208 - Environmental Science Credits: 4
- BIOL 475 - Biology of Bacteria Credits: 3
- CHEM 131 - General Chemistry I Credits: 4
- CHEM 132 - General Chemistry II Credits: 4
- FDNT 230 - Nutrition Credits: 3
- FDNT 240 - Nutrition Laboratory Credits: 1

## General Education Requirements

Students must take all courses designated in the BA/BS Degree Requirements of the General Education Program.

## International Agriculture Development BT

### Bachelor of Technology

The BT degree is a career specialist's degree. Graduates are prepared for supervisory and management positions in production agriculture such as Agribusiness, crops, dairy herd management, horticulture or the landscape industry.

### BT: International Agriculture Development

The Bachelor of Technology in International Agriculture Development is designed to provide students with knowledge, skills and experience to prepare them for entry-level positions in agriculture or international development or to pursue an advanced degree. Students who complete this degree will be eligible to enter the MS Community & International Development program at Andrews University with Advanced Standing.

### Major requirements — 60

- ANSI 114 - Introduction to Animal Science Credits: 3
- AGRI 118 - Soil Science Credits: 4
- AGRI 240 - Fundamentals of Irrigation Credits: 3
- AGRI 270 - Management of Agriculture Enterprises Credits: 3
- AGRI 390 - Agriculture Study Tour Credits: 1–4
- AGRI 395 - Internship in \_\_\_\_\_ Credits: 1–4
- AGRI 498 - International Internship in \_\_\_\_\_ Credits: 1–6
- HORT 105 - Plant Science Credits: 5
- HORT 208 - Propagation of Horticultural Plants Credits: 3
- ACCT 121 - Fundamentals of Accounting Credits: 3
- BHSC 230 - Research Methods I: Statistics for the Behavioral Sciences Credits: 3
- SOCI 160 - Introduction to International Development Credits: 3
- SOCI 350 - Social Policy Credits: 2
- SOCI 408 - Emergency Preparedness Credits: 2
- SOCI 421 - Development Theory & Practice Credits: 3

- SOCI 431 - Needs Assessment and Social Policy Credits: 3
- SOCI 432 - Research Methods II: Introduction Credits: 3

## Major Electives - 9

Select 9 Credits from the following courses:

- ANSI 305 - Animal Nutrition Credits: 3
- ANSI 340 - Production/Management of \_\_\_\_\_ Credits: 3
- ANSI 440 - Animal Reproduction Credits: 3
- AGRI 300 - Field Crop Production Credits: 3
- AGRI 308 - Principles of Weed Control Credits: 3
- HORT 150 - Home Horticulture Credits: 3
- HORT 310 - Commercial Vegetable Production Credits: 3
- AGRI 345 - Topics in \_\_\_\_\_ Credits: 1–4
- AGRI 467 - Concepts of International Agriculture Credits: 3
- AGRI 468 - International Agricultural Implementation Credits: 3

## General Education Requirements

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

### Social Sciences

- ECON 225 - Principles of Macroeconomics Credits: 3

### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

### Service

- BHSC 100 - Philosophy of Service Credits: 2

## Undergraduate Minors

### Agriculture Minor

#### Total Credits: 20

Selected from AGRI, ANSI or HORT courses in consultation with advisor.

### Animal Science Minor

#### Total Credits: 20

Selected from AGRI, ANSI or HORT courses in consultation with advisor.

### Horticulture Minor

#### Total Credits: 20

Selected from AGRI, ANSI or HORT courses in consultation with advisor.

## Pre-Professional

### Pre-Professional Program in Veterinary Medicine

Katherine Koudele, *Coordinator*  
269-471-6299  
Smith Hall 112

Entrance requirements vary among veterinary medical colleges. Students should check the websites of their choice for the most current requirements. Accredited veterinary schools are listed on the website of the American Veterinary Medical Association ([www.avma.org](http://www.avma.org)). Students, in consultation with their departmental advisor, can develop individualized programs to meet the entrance requirements for their preferred veterinary schools.

## Agriculture

### AGRI 118 - Soil Science

Credits: 4  
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 \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture, Lab, Lecture/Lab **Offering:** Alternate years **College Code:** DAA

### AGRI 137 - Practicum in \_\_\_\_\_

Credits: 1-3  
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. **Grade Mode:** Normal w S/DG (A-F,I,S,U,DG,W) **Repeatable:** Repeatable up to 6 credits **Schedule Type:** Practicum **Offering:** Fall, Spring **College Code:** DAA

### AGRI 206 - Farm Machinery

Credits: 3  
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 \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture, Lab **Offering:** Alternate years **College Code:** DAA

### AGRI 240 - Fundamentals of Irrigation

Credits: 3  
Design, installation, drawing, interpretation and maintenance of plastic or metal irrigation systems and control devices for proper sprinkler coverage. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

### AGRI 270 - Management of Agriculture Enterprises

Credits: 3  
An introduction to acquiring and analysis of management information for decision making; an understanding of basic economic principles that impact biological production systems and implementation of the principles for total quality management for increased productivity. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Alternate years **College Code:** DAA

### AGRI 300 - Field Crop Production

Credits: 3  
Importance, distribution, economic adaptation, and botany of leading farm crops, emphasizing rotation, seedbed preparation, and economic production. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Alternate years **College Code:** DAA

### AGRI 304 - Forage Crop Production

Credits: 3 Basic principles of forage crop production, emphasizing choice of crop, establishment, growth, maintenance, harvesting, storage and feeding. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Alternate years **College Code:** DAA

### AGRI 308 - Principles of Weed Control

Credits: 3  
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 \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture, Lab, Lecture/Lab **Offering:** Alternate years **College Code:** DAA

### AGRI 345 - Topics in \_\_\_\_\_

Credits: 1-4  
A class based on selected topics of current interest in agriculture. **Grade Mode:** Normal (A-F,I,W) **Repeatable:** Repeatable with different topics **Schedule Type:** Lecture, Blended Learning **College Code:** DAA

### AGRI 390 - Agriculture Study Tour

Credits: 1-4  
Agriculture study tours are designed to enhance and broaden the on-campus learning

experience by visiting areas of horticultural and agricultural interest and their impact on the local culture and society. Students will be expected to conduct pre-tour research on a specific topic related to the purpose of the tour and a post-tour analysis and synopsis of the tour experience. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Repeatable:** Repeatable up to 4 credits **Schedule Type:** Blended Learning **College Code:** DAA

### AGRI 395 - Internship in \_\_\_\_\_

Credits: 1-4  
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 a report of their experience and must complete a minimum of 120 hours of work experience for each credit earned. **Grade Mode:** Normal w S/DG (A-F,I,S,U,DG,W) **Repeatable:** Repeatable up to 6 credits **Schedule Type:** Practicum **College Code:** DAA

### AGRI 405 - Research Seminar

Credits: 1  
Research results or internship reports in agriculture and related fields; presentations given by students, faculty and visiting lecturers. **Grade Mode:** Normal (A-F,I,W) **Repeatable:** Repeatable up to 4 credits **Schedule Type:** Seminar **Offering:** Spring **College Code:** DAA

### AGRI 467 - Concepts of International Agriculture

Credits: 3  
A study of the relative significance of the role of external institutions and agency, financial programs for agricultural development, human resource development and agricultural education as a means of fostering worldwide agricultural development to counter-balance the threat to global food security and to overcome food deficits. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Alternate years **College Code:** DAA

### AGRI 468 - International Agricultural Implementation

Credits: 3  
The application of scientific agricultural principles of food production, utilizing cultural practices based on appropriate agricultural technologies that support a philosophy of sustainability for future generations. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Alternate years **College Code:** DAA

### AGRI 498 - International Internship in \_\_\_\_\_

Credits: 1-6  
Supervised internship of on the job international work experience in agriculture/horticulture. Students submit a report of their experience to be evaluated by a departmental faculty member and must complete 120 hours of work experience for each credit earned. **Grade Mode:** Normal w S/DG (A-F,I,S,U,DG,W) **Repeatable:** Repeatable up to 6 credits **Schedule Type:** Practicum **College Code:** DAA

### AGRI 499 - Project in \_\_\_\_\_

Credits: 1-5  
Individual research in some field of agriculture under the direction of the faculty. **Grade Mode:** Normal w S/DG (A-F,I,S,U,DG,W) **Prerequisite(s):** AGRI 405 or permission of the instructor. **Repeatable:** Repeatable up to 10 credits **Schedule Type:** Independent **College Code:** DAA

## Animal Science

### ANSI 114 - Introduction to Animal Science

Credits: 3  
Farm animal anatomy, reproductive and digestive physiology, nutrition, genetics, housing, health management and production of animal products. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### ANSI 125 - Livestock Handling Methods

Credits: 3 Principles and practices of handling livestock including proper catching, restraint, injections, tagging, grooming and hoof trimming. Weekly: 2 lectures and a 3-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

### ANSI 150 - Companion Animal Care

Credits: 3  
Principles and practices on how to choose the right pet, keep it healthy, pet grooming, training and correcting behavioral problems. Animal species covered are dogs, cats, small caged pets, birds, fish, reptiles and amphibians. Weekly: 2 lectures and a 3-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture/Lab **Offering:** Fall, alternate years **College Code:** DAA

## ANSI 205 - Animal Feeds and Feeding

Credits: 3

Classification and function of nutrients, deficiency symptoms, digestive processes, characterization of feedstuffs, and formulation of diets for domestic animals. Weekly: 2 lectures and a 3-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Recommended:** Recommended CHEM100. **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

## ANSI 245 - Animal Breeding and Genetics

Credits: 3

Basic anatomy and physiology of the reproductive systems of domestic animals, basic principles of genetics in order to make sound genetics and breeding decisions, including the manipulation of reproductive cycle, artificial insemination. Weekly: 2 lectures and a 3-hour lab \$ - Course or lab fee **Course Attribute:** Service course **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

## ANSI 250 - Dairy Facilities

Credits: 3

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 a 3-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Alternate years **College Code:** DAA

## ANSI 278 - Dairy Health and Disease

Credits: 3

Principles and practice of physical examination of dairy cattle and the causes, preventions and treatment of infectious and metabolic diseases by system. Also included are dairy cattle breeding and genetics. Weekly: one 2-hour lecture and one 3-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture, Lab **Offering:** Spring **College Code:** DAA

## ANSI 305 - Animal Nutrition

Credits: 3

Principles of feed chemistry and nutrient utilization, digestive tract anatomy and physiology including digestion, absorption, metabolism of feeds by domestic species, nutrition related diseases/ deficiencies and ration formulation. Weekly: 3 lectures **Grade Mode:** Normal (A-F,I,W) **Recommended:** CHEM 131 or higher. **Schedule Type:** Lecture, Lab **Offering:** Fall, alternate years **College Code:** DAA

## ANSI 325 - Domestic Animal Behavior

Credits: 3

Physiological basis for each type of behavior and its development, communication methods, normal and aberrant behavior in each domestic animal species as well as treatments for problem situations. Weekly: 2 lectures and 1 lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture/Lab **Offering:** Fall, alternate years **College Code:** DAA

## ANSI 340 - Production/Management of \_\_\_\_\_

Credits: 3

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 dairy cattle, equine, poultry and small livestock. Weekly: 2 lectures and 1 lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Repeatable:** Repeatable **Schedule Type:** Lecture, Lab, Lecture/Lab **Offering:** Fall, Spring **College Code:** DAA

## ANSI 379 - Small Animal Health and Disease

Credits: 3

Proper handling and care, nutritional needs, and common health problems of companion animals such as dogs, cats, birds, pocket pets, reptiles. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

## ANSI 420 - Canine Gross Anatomy

Credits: 4

Study of macroscopic skeleton, muscles, internal organs, blood vessels and nerves using preserved, latex-injected specimens. Comparisons made with the live dog through palpation. Weekly: 2 lectures and two 3-hour labs \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Recommended:** BIOL166. **Schedule Type:** Lecture, Lab, Lecture/Lab **Offering:** Fall, alternate years **College Code:** DAA

## ANSI 425 - Issues in Animal Agriculture, Research and Medicine

Credits: 3

Study of the ethical issues that challenge animal researchers, producers, caretakers, and veterinarians to treat and raise animals humanely yet effectively. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

## ANSI 430 - Lactation Physiology

Credits: 3

Anatomy and physiology of the udder, milk secretion, disease prevention and treatment, milking management and milking systems. Weekly: 2 lectures and 1 lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Recommended:** BIOL166. **Schedule Type:** Lecture, Lecture/Lab **Offering:** Spring **College Code:** DAA

## ANSI 435 - Animal Genetics

Credits: 3

Basic genetics principles, cytogenetics, immunogenetics, population genetics and quantitative genetics, biotechnology, gene mapping and the use of molecular tools to research inherited disorders using examples of veterinary medicine. **Grade Mode:** Normal (A-F,I,W) **Recommended:** BIOL166. **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

## ANSI 440 - Animal Reproduction

Credits: 3

Anatomy and physiology of farm animal reproduction including the cellular and endocrine components as well as management aspects. Weekly: 2 lectures and 1 lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Recommended:** BIOL166. **Schedule Type:** Lecture, Lab, Lecture/Lab **Offering:** Spring **College Code:** DAA

## ANSI 445 - Physiology of Farm Animals

Credits: 4

Physiology of digestive, cardiovascular, pulmonary, excretory, nervous, and skeletomuscular systems in domesticated ruminants and monogastrics. Weekly: 3 lectures and a 3-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Recommended:** BIOL166. **Schedule Type:** Lecture/Lab **Offering:** Fall, alternate years **College Code:** DAA

## ANSI 450 - Equine Exercise Anatomy & Physiology

Credits: 3

The anatomy and physiology of the limbs (shoulder and pelvic girdles, legs, feet) as well as the respiratory tract, all of which are vital to a horse's usefulness. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

## ANSI 455 - Equine Health and Disease

Credits: 3

Topics covered in depth are: the causes of infectious (e.g. tetanus, strangles) and non-infectious (e.g. laminitis, colic, injury), diseases of horses, their prevention, diagnosis and treatment. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

# Horticulture

## HORT 105 - Plant Science

Credits: 5

Introduces students to 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 \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture/Lab **Offering:** Fall **College Code:** DAA

## HORT 136 - Landscape Drafting and Graphics

Credits: 4

Introduces and develops proficiency in technical drafting for landscape design including symbols, 2-D and 3-D drawings, sections and elevations, title blocks, legends and plan organization. Studio puts graphics to work with a broad range of landscape projects represented. Studio \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Studio **Offering:** Fall **College Code:** DAA

## HORT 137 - Fundamentals of Landscape Design

Credits: 4

Introduces and develops the principles of design, design theory, site analysis, functional diagramming, circulation, spatial planes and design schematics. Course will explore both hardscape and softscape principles. Class integrates the design process in drawing plans of all sizes. Studio \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Recommended:** HORT136 **Schedule Type:** Lecture/Lab **Offering:** Spring **College Code:** DAA

## HORT 150 - Home Horticulture

Credits: 3

An introduction to the horticultural and landscape field for majors and homeowners alike, this class offers basic care of the home landscape. Landscaping with ornamental trees and shrubs, perennials and annuals or growing fruits and vegetables for the garden are included. Become skilled at pruning and training plants, diagnosing and treating insect and disease problems, fertilizing techniques, and more. Course

prepares you for home ownership and teaches life skills for creating a productive and beautiful home environment. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **College Code:** DAA

### HORT 208 - Propagation of Horticultural Plants

Credits: 3

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 micro propagation (tissue culture). Weekly: 2 lectures and a 3-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Recommended:** HORT105. **Schedule Type:** Lecture, Lab, Lecture/Lab **Offering:** Spring **College Code:** DAA

### HORT 211 - Landscape Equipment

Credits: 2

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 \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture, Lab **Offering:** Fall, alternate years **College Code:** DAA

### HORT 226 - Woody Plant Identification I

Credits: 3

Introduction to the identification and recognition of deciduous and evergreen trees. Focus will be on shape, size, color, texture, environmental requirements and the landscape value of native and cultivated trees of the northern temperate zone. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

### HORT 227 - Woody Plant Identification II

Credits: 3

Introduction to the identification and recognition of the deciduous, evergreen and broad leafed evergreen shrubs and vines of the northern. Focus will be on shape, color, size, texture, environmental requirements and the landscape value of native and cultivated shrubs and vines of the northern temperate zone. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Alternate years **College Code:** DAA

### HORT 228 - Herbaceous Plant Identification

Credits: 3

Identification and recognition of shape, size, color, texture, and environmental requirements of the nonwoody plants providing color and ground cover in the landscape. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

### HORT 310 - Commercial Vegetable Production

Credits: 3

Production and management of commercial vegetable crops; includes planting, cultural care, harvesting and post-harvesting procedures and marketing. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **College Code:** DAA

### HORT 315 - Landscape Structures and Materials

Credits: 4

Course combines lecture, drawing and hands-on labs covering an array of hardscape materials including retaining walls, decks and arbors, patios, fencing, edging, pools and more. Weekly: 2 lectures and a 3-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture/Lab **Offering:** Spring **College Code:** DAA

### HORT 340 - Land Surveying

Credits: 2

Course introduces the principles of land surveying such as measurements of distance, elevation and angles, instrumentation and mapping, and GIS. Weekly: 1 lecture and a 2-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture, Lecture/Lab **Offering:** Fall **College Code:** DAA

### HORT 350 - History of Landscape Architecture

Credits: 3

A study of landscape history throughout civilization and its impact upon society and the environment. Course will look at the origin of landscape architectural styles and characteristics, and explore the influence of historical landscape design personalities upon the American landscape. **Course Attribute:** Art History course **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### HORT 360 - Arboriculture

Credits: 3

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 \$ -

Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture, Lab, Lecture/Lab **Offering:** Fall, alternate years **College Code:** DAA

### HORT 365 - Urban Landscape Design

Credits: 3

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. \$ - Course or lab fee **Course Attribute:** Service course **Grade Mode:** Normal (A-F,I,W) **Recommended:** HORT136, 137. **Schedule Type:** Lecture, Lab, Lecture/Lab **Offering:** Spring, alternate years **College Code:** DAA

### HORT 369 - Greenhouse Environment and Production

Credits: 3

Concepts and principles of commercial plant production in the greenhouse environment. Topics include structure and environment of the greenhouse, production of bedding and potting plants and cut flowers. Weekly: 2 lectures and a 3-hour lab \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture/Lab **Offering:** Alternate years **College Code:** DAA

### HORT 375 - Landscape Estimating

Credits: 3

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. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### HORT 378 - Integrated Pest/Disease Management

Credits: 4 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. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture, Lecture/Lab **Offering:** Spring **College Code:** DAA

### HORT 429 - Computer Landscape Design

Credits: 3

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. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture/Lab **Offering:** Spring **College Code:** DAA

### HORT 441 - Advanced Landscape Graphics

Credits: 4

Advanced exploration and application of graphics applying to all aspects of landscape architecture. Working in multiple environments and media. Work will include plan view, 2D and 3D hand graphics. Products will be professional quality presentations including both artistic and verbal communication skills. Studio \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Recommended:** HORT136 and 137 **Schedule Type:** Studio **College Code:** DAA

### HORT 442 - Advanced Site Design

Credits: 4

Landscape Architecture concepts relating to the challenging problems of design. Field application through live projects encompassing all aspects of landscape architecture and presentation.

This class is focused on synthesizing significant previous class work and applying it to a real customer setting. Studio \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Recommended:** HORT136, 137, 226, 227, 228 and 441 **Schedule Type:** Studio **College Code:** DAA

# Department of Aviation

Seamount Building (Airpark)  
269-471-3547  
Fax: 269-471-6004

Dina M. Simmons

**Emerti**  
Harry Lloyd

## Mission

Andrews University's Department of Aviation develops aviation professionals, empowered to engage and lead in the adventure of the aviation industry and Christ's worldwide mission.

## Programs

For the aviation professional, the most competitive aviation program emphasizes both flight and maintenance. Therefore, the Department of Aviation strongly recommends completing a degree with both Flight and Aviation Maintenance emphases. Students wishing to enter a non-flying aviation career, may limit their specialization to Aviation Maintenance. Two programs are available: A four-year Bachelor in Aviation, and a two-year Associate in Aviation. Students may select from available emphases for their area of study.

The Airpark is located about one mile from the central campus. Students should plan to arrange their own transportation to and from the airport.

## Associates

### Aviation, Aviation Maintenance Emphasis AT

**Total Credits: 73 - 76**

**Major: Degree Requirements - 52**

#### *Aviation Maintenance*

- AVMT 108 - Applied Science for Aerospace Technicians Credits: 4
- AVMT 114 - Aircraft Basic Electricity Credits: 2
- AVMT 116 - Federal Regulations, Publications, Forms and Records Credits: 2
- AVMT 120 - Materials and Processes for Aircraft Structures Credits: 4
- AVMT 204 - Aircraft Electrical Systems Credits: 2
- AVMT 206 - Powerplant Electrical Systems Credits: 4
- AVMT 210 - Aircraft Systems Credits: 4
- AVMT 220 - Aircraft Fuels and Fuel Systems Credits: 2
- AVMT 226 - Engine Fuel Metering Systems Credits: 2
- AVMT 237 - Aircraft Hydraulic, Pneumatic, and Landing Gear Systems Credits: 4
- AVMT 304 - Aircraft Metal Structures Credits: 4
- AVMT 306 - Aircraft Non-metal Structures Credits: 2
- AVMT 308 - Aircraft Assembly, Rigging and Inspections Credits: 2
- AVMT 310 - Gas Turbine Engines Credits: 4
- AVMT 314 - Aircraft Propellers and Engine Inspections Credits: 3
- AVMT 316 - Reciprocating Engine Systems and Overhaul Credits: 7
- AVIA 200 - Aviation Forum Credits: 0 (must register each semester)

**General Education Program - 21-24**

Students must take all courses designated in the Associate Degree Requirements of the General Education Program

## Maintaining Academic Standing

airinfo@andrews.edu  
www.andrews.edu/aviation/

#### **Faculty**

Duane Habenicht, *Chair*  
James H. Doran  
Darryl V. Penney  
Randall D. Robertson  
Caleb M. Sigua

- Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall.

## Admission Requirements

- Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Maintenance majors must successfully pass all general classes as well as the general oral and practical tests before continuing on to the airframe or powerplant.
- Students are required to have a Windows-compatible PC laptop or an iPad (see Department of Aviation Charges).
- Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.
- In addition to tuition, lab fees apply to all maintenance training courses (see Department of Aviation Charges).

## Graduation Requirements

An Aviation Maintenance Certificate with both Airframe and Powerplant ratings is required for graduation.

## Resources

### *Student Handbook*

A handbook for flight and maintenance students outlining policies, operational guidelines, and general information is available from the department office or is online at the department website. Students are responsible for all policies outlined in the Department of Aviation Handbook.

### Aviation, Flight Emphasis AT

**Total Credits: 57-60**

**Major: Core Requirements - 36**

#### *Flight*

- AFLT 110 - Basic Aircraft Systems Credits: 3
- AFLT 115 - Private Pilot Ground School Credits: 4
- AFLT 121 - Flight Training 1 Credits: 2
- AFLT 122 - Flight Training 2 Credits: 2
- AFLT 215 - Instrument Pilot Ground School Credits: 4
- AFLT 220 - Meteorology Credits: 3
- AFLT 226 - Instrument Simulator Training Credits: 2
- AFLT 227 - Instrument Flight Training Credits: 2
- AFLT 305 - Commercial Pilot Ground School Credits: 4
- AFLT 321 - Commercial Flight Training 1 Credits: 2
- AFLT 322 - Commercial Flight Training 2 Credits: 2
- AFLT 323 - Commercial Flight Training 3 Credits: 2
- AFLT 324 - Commercial Flight Training 4/Certified Flight Instructor Credits: 2
- AFLT 426 - Multiengine Flight Training Credits: 1
- AVIA 200 - Aviation Forum Credits: 0 (must register each semester)
- 1 additional credit hour of Aviation Flight Elective is to be chosen in consultation with an advisor. This elective is added to the required core classes to make up the total hours required by the major.

**General Education Program - 21-24**



Students must take all courses designated in the Associate Degree Requirements of the General Education Program

## Admission Requirements

- 1st Class FAA medical with Student Pilot Certificate prior to entry into the Flight program, or petition the department for a waiver.
- Flight students are required to produce proof of citizenship (passport or birth certificate).
- For all non-U.S. citizens planning to receive flight training as part of their degree program, an additional government application to the Transportation Security Administration (TSA), which includes an FBI background check, is required for each flight class. Contact the Department of Aviation for more details.
- Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. In order to proceed in the Flight program all students must successfully pass AFLT 122 and the Private Pilot Ground School as well as complete the private pilot written and flight check ride before being accepted in to regular status in the flight program.
- Students are required to have an iPad (see Department of Aviation Charges).
- Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.
- In addition to tuition, flight lab fees apply to all flight training courses (see Department of Aviation Charges).

## Maintaining Academic Standing

- Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall.

## Graduation Requirements

A Private Pilot Certificate, Instrument Rating, and a Commercial Certificate with Single and Multi-Engine Ratings are required for AT flight option.

## Resources

### *Student Handbook*

A handbook for flight and maintenance students outlining policies, operational guidelines, and general information is available from the department office or is online at the department website. Students are responsible for all policies outlined in the Department of Aviation Handbook.

## Bachelors

# Aviation, Aviation Maintenance and Business Emphasis BT

**Total Credits: 124**

**Major: Core Requirements - 73**

### *Aviation Maintenance - 52*

- AVMT 108 - Applied Science for Aerospace Technicians Credits: 4
- AVMT 114 - Aircraft Basic Electricity Credits: 2
- AVMT 116 - Federal Regulations, Publications, Forms and Records Credits: 2
- AVMT 120 - Materials and Processes for Aircraft Structures Credits: 4
- AVMT 204 - Aircraft Electrical Systems Credits: 2
- AVMT 206 - Powerplant Electrical Systems Credits: 4
- AVMT 210 - Aircraft Systems Credits: 4
- AVMT 220 - Aircraft Fuels and Fuel Systems Credits: 2
- AVMT 226 - Engine Fuel Metering Systems Credits: 2
- AVMT 237 - Aircraft Hydraulic, Pneumatic, and Landing Gear Systems Credits: 4
- AVMT 304 - Aircraft Metal Structures Credits: 4

- AVMT 306 - Aircraft Non-metal Structures Credits: 2
- AVMT 308 - Aircraft Assembly, Rigging and Inspections Credits: 2
- AVMT 310 - Gas Turbine Engines Credits: 4
- AVMT 314 - Aircraft Propellers and Engine Inspections Credits: 3
- AVMT 316 - Reciprocating Engine Systems and Overhaul Credits: 7
- AVIA 200 - Aviation Forum Credits: 0 (must register each semester)

### *Business Requirements - 21*

Credits to be selected in consultation with adviser.

## General Education Program - 41-44

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3
- Or ART 130 - Introduction to Digital Media Credits: 3
- Or pass a college-level competency exam of equivalent skills.

### Service

- BHSC 100 - Philosophy of Service Credits: 2
- Or BHSC 300 - Philosophy of Service Fieldwork Credits: 1,2

"S" designated major course or service plan or 2 credits of fieldwork (0-2 cr)

## Undergraduate Electives - 7-10

Credits to be selected in consultation with adviser.

## Maintaining Academic Standing

- Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall.

## Admission Requirements

- Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Maintenance majors must successfully pass all general classes as well as the general oral and practical tests before continuing on to the airframe or powerplant.
- Students are required to have a Windows-compatible PC laptop or an iPad (see Department of Aviation Charges).
- Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.
- In addition to tuition, lab fees apply to all maintenance training courses (see Department of Aviation Charges).

## Graduation Requirements

An Aviation Maintenance Certificate with both Airframe and Powerplant ratings is required for graduation.

## Resources

### *Student Handbook*

A handbook for flight and maintenance students outlining policies, operational guidelines, and general information is available from the department office or is online at the department website. Students are responsible for all policies outlined in the Department of Aviation Handbook.

# Aviation, Aviation Maintenance Emphasis BT

**Total Credits: 124**

## Major: Degree Requirements - 60

### *Aviation Maintenance Requirements - 52*

- AVMT 108 - Applied Science for Aerospace Technicians Credits: 4
- AVMT 114 - Aircraft Basic Electricity Credits: 2
- AVMT 116 - Federal Regulations, Publications, Forms and Records Credits: 2
- AVMT 120 - Materials and Processes for Aircraft Structures Credits: 4
- AVMT 204 - Aircraft Electrical Systems Credits: 2
- AVMT 206 - Powerplant Electrical Systems Credits: 4
- AVMT 210 - Aircraft Systems Credits: 4
- AVMT 220 - Aircraft Fuels and Fuel Systems Credits: 2
- AVMT 226 - Engine Fuel Metering Systems Credits: 2
- AVMT 237 - Aircraft Hydraulic, Pneumatic, and Landing Gear Systems Credits: 4
- AVMT 304 - Aircraft Metal Structures Credits: 4
- AVMT 306 - Aircraft Non-metal Structures Credits: 2
- AVMT 308 - Aircraft Assembly, Rigging and Inspections Credits: 2
- AVMT 310 - Gas Turbine Engines Credits: 4
- AVMT 314 - Aircraft Propellers and Engine Inspections Credits: 3
- AVMT 316 - Reciprocating Engine Systems and Overhaul Credits: 7
- AVIA 200 - Aviation Forum Credits: 0 (must register each semester)

### *Departmental Electives - 8*

Credits to be selected in consultation with adviser.

## General Education Program - 41-44

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3
- Or ART 130 - Introduction to Digital Media Credits: 3
- Or pass a college-level competency exam of equivalent skills.

#### Service

- BHSC 100 - Philosophy of Service Credits: 2
- Or BHSC 300 - Philosophy of Service Fieldwork Credits: 1,2

"S" designated major course or service plan or 2 credits of fieldwork (0-2 cr)

## Undergraduate Electives - 20-23

Credits to be selected in consultation with adviser.

## Maintaining Academic Standing

- Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall.

## Admission Requirements

- Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Maintenance majors must successfully pass all general classes as well as the general oral and practical tests before continuing on to the airframe or powerplant.
- Students are required to have a Windows-compatible PC laptop or an iPad (see Department of Aviation Charges).
- Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.
- In addition to tuition, lab fees apply to all maintenance training courses (see Department of Aviation Charges).

## Graduation Requirements

An Aviation Maintenance Certificate with both Airframe and Powerplant ratings is required for graduation.

## Resources

### *Student Handbook*

A handbook for flight and maintenance students outlining policies, operational guidelines, and general information is available from the department office or is online at the department website. Students are responsible for all policies outlined in the Department of Aviation Handbook.

## Aviation, Flight and Aviation Maintenance Emphasis BT

### Total Credits: 129 - 132

## Major: Degree Requirements - 88

### *Aviation Maintenance - 52*

- AVMT 108 - Applied Science for Aerospace Technicians Credits: 4
- AVMT 114 - Aircraft Basic Electricity Credits: 2
- AVMT 116 - Federal Regulations, Publications, Forms and Records Credits: 2
- AVMT 120 - Materials and Processes for Aircraft Structures Credits: 4
- AVMT 204 - Aircraft Electrical Systems Credits: 2
- AVMT 206 - Powerplant Electrical Systems Credits: 4
- AVMT 210 - Aircraft Systems Credits: 4
- AVMT 220 - Aircraft Fuels and Fuel Systems Credits: 2
- AVMT 226 - Engine Fuel Metering Systems Credits: 2
- AVMT 237 - Aircraft Hydraulic, Pneumatic, and Landing Gear Systems Credits: 4
- AVMT 304 - Aircraft Metal Structures Credits: 4
- AVMT 306 - Aircraft Non-metal Structures Credits: 2
- AVMT 308 - Aircraft Assembly, Rigging and Inspections Credits: 2
- AVMT 310 - Gas Turbine Engines Credits: 4
- AVMT 314 - Aircraft Propellers and Engine Inspections Credits: 3
- AVMT 316 - Reciprocating Engine Systems and Overhaul Credits: 7
- AVIA 200 - Aviation Forum Credits: 0 (must register each semester)

### *Flight - 36*

- AFLT 110 - Basic Aircraft Systems Credits: 3
- AFLT 115 - Private Pilot Ground School Credits: 4
- AFLT 121 - Flight Training 1 Credits: 2
- AFLT 122 - Flight Training 2 Credits: 2
- AFLT 215 - Instrument Pilot Ground School Credits: 4
- AFLT 220 - Meteorology Credits: 3
- AFLT 226 - Instrument Simulator Training Credits: 2
- AFLT 227 - Instrument Flight Training Credits: 2
- AFLT 305 - Commercial Pilot Ground School Credits: 4
- AFLT 321 - Commercial Flight Training 1 Credits: 2
- AFLT 322 - Commercial Flight Training 2 Credits: 2
- AFLT 323 - Commercial Flight Training 3 Credits: 2
- AFLT 324 - Commercial Flight Training 4/Certified Flight Instructor Credits: 2
- AFLT 426 - Multiengine Flight Training Credits: 1
- 1 additional credit hour of Aviation Flight elective is to be chosen in consultation with an advisor. This elective is added to the required core classes to make up the total hours required by the major.

## General Education Program - 41-44

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3

- Or ART 130 - Introduction to Digital Media Credits: 3
- Or pass a college-level competency exam of equivalent skills.

#### Service

- BHSC 100 - Philosophy of Service Credits: 2
- Or BHSC 300 - Philosophy of Service Fieldwork Credits: 1,2

"S" designated major course or service plan or 2 credits of fieldwork (0–2 cr)

## Maintaining Academic Standing

- Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall.

## Admission Requirements

- 1st Class FAA medical with Student Pilot Certificate prior to entry into the Flight program, or petition the department for a waiver.
- Flight students are required to produce proof of citizenship (passport or birth certificate).
- For all non-U.S. citizens planning to receive flight training as part of their degree program, an additional government application to the Transportation Security Administration (TSA), which includes an FBI background check, is required for each flight class. Contact the Department of Aviation for more details.
- Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. In order to proceed in the Flight program all students must successfully pass AFLT 122 and the Private Pilot Ground School as well as complete the private pilot written and flight check ride before being accepted in to regular status in the flight program. In order to proceed in the Aviation Maintenance program students must successfully pass all general classes as well as the general oral and practical tests before continuing on to the airframe or powerplant courses.
- Students are required to have an iPad (see Department of Aviation Charges).
- Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.
- In addition to tuition, flight lab fees apply to all flight training and maintenance courses (see Department of Aviation Charges).

## Graduation Requirements

A Private Pilot Certificate, Instrument Rating, and a Commercial Certificate with Single and Multi-Engine Ratings and Aircraft Maintenance Certificate with Airframe and Powerplant rating are required for graduation.

## Resources

### Student Handbook

A handbook for flight and maintenance students outlining policies, operational guidelines, and general information is available from the department office or is online at the department website. Students are responsible for all policies outlined in the Department of Aviation Handbook.

# Aviation, Flight and Business Emphasis BT

**Total Credits: 124**

## Major: Degree Requirements - 75

### Flight - 42

- AFLT 110 - Basic Aircraft Systems Credits: 3
- AFLT 115 - Private Pilot Ground School Credits: 4
- AFLT 121 - Flight Training 1 Credits: 2
- AFLT 122 - Flight Training 2 Credits: 2
- AFLT 215 - Instrument Pilot Ground School Credits: 4
- AFLT 220 - Meteorology Credits: 3

- AFLT 226 - Instrument Simulator Training Credits: 2
- AFLT 227 - Instrument Flight Training Credits: 2
- AFLT 230 - Aerodynamics Credits: 3
- AFLT 305 - Commercial Pilot Ground School Credits: 4
- AFLT 310 - Advanced Systems Credits: 3
- AFLT 321 - Commercial Flight Training 1 Credits: 2
- AFLT 322 - Commercial Flight Training 2 Credits: 2
- AFLT 323 - Commercial Flight Training 3 Credits: 2
- AFLT 324 - Commercial Flight Training 4/Certified Flight Instructor Credits: 2
- AFLT 426 - Multiengine Flight Training Credits: 1
- AVIA 200 - Aviation Forum Credits: 0 (must register each semester)
- 1 additional hour of aviation flight elective is to be chosen in consultation with an advisor. This elective is added to the required core classes to make up the total hours required by the major.

## Business - 21

Credits to be selected in consultation with adviser.

## General Education Program - 41-44

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

#### Computer Literacy

- INFS 120 - Foundations of Information Technology Credits: 3
- Or ART 130 - Introduction to Digital Media Credits: 3
- Or pass a college-level competency exam of equivalent skills.

#### Service

- BHSC 100 - Philosophy of Service Credits: 2
  - Or BHSC 300 - Philosophy of Service Fieldwork Credits: 1,2
- "S" designated major course or service plan or 2 credits of fieldwork (0–2 cr)

## Maintaining Academic Standing

- Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall.

## Admission Requirements

- 1st Class FAA medical with Student Pilot Certificate prior to entry into the Flight program, or petition the department for a waiver.
- Flight students are required to produce proof of citizenship (passport or birth certificate).
- For all non-U.S. citizens planning to receive flight training as part of their degree program, an additional government application to the Transportation Security Administration (TSA), which includes an FBI background check, is required for each flight class. Contact the Department of Aviation for more details.
- Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. In order to proceed in the Flight program all students must successfully pass AFLT 122 and the Private Pilot Ground School as well as complete the private pilot written and flight check ride before being accepted in to regular status in the flight program.
- Students are required to have an iPad (see Department of Aviation Charges).
- Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.
- In addition to tuition, flight lab fees apply to all flight training courses (see Department of Aviation Charges).

## Graduation Requirements

A Private Pilot Certificate, Instrument Rating, and a Commercial Pilot Certificate with Single and Multi-Engine Ratings are required for graduation.

## Resources

### Student Handbook

A handbook for flight and maintenance students outlining policies, operational guidelines, and general information is available from the department office or is online at the department website. Students are responsible for all policies outlined in the Department of Aviation Handbook.

# Aviation, Flight Emphasis BT

**Total Credits: 124**

**Major: Degree Requirements - 60**

## *Flight - 60*

- AFLT 110 - Basic Aircraft Systems Credits: 3
- AFLT 115 - Private Pilot Ground School Credits: 4
- AFLT 215 - Instrument Pilot Ground School Credits: 4
- AFLT 220 - Meteorology Credits: 3
- AFLT 121 - Flight Training 1 Credits: 2
- AFLT 122 - Flight Training 2 Credits: 2
- AFLT 226 - Instrument Simulator Training Credits: 2
- AFLT 227 - Instrument Flight Training Credits: 2
- AFLT 230 - Aerodynamics Credits: 3
- AFLT 300 - Aviation Safety Management Credits: 3
- AFLT 305 - Commercial Pilot Ground School Credits: 4
- AFLT 310 - Advanced Systems Credits: 3
- AFLT 321 - Commercial Flight Training 1 Credits: 2
- AFLT 322 - Commercial Flight Training 2 Credits: 2
- AFLT 323 - Commercial Flight Training 3 Credits: 2
- AFLT 324 - Commercial Flight Training 4/Certified Flight Instructor Credits: 2
- AFLT 340 - Airspace and Air Traffic Control Credits: 3
- AFLT 410 - Aviation Law Credits: 3
- AFLT 415 - Human Factors in Aviation Credits: 3
- AFLT 426 - Multiengine Flight Training Credits: 1
- AFLT 430 - Crew Resource Management Credits: 2
- AFLT 485 - Airline Transport Pilot Ground School Credits: 3
- AVIA 200 - Aviation Forum Credits: 0 (must register each semester)
- 2 additional hours of Aviation Flight Electives are to be chosen in consultation with an advisor. These electives are added to the required core classes that make up the total hours required by the major.

**Undergraduate Electives - 23-20**

Undergraduate electives are to be chosen in consultation with an advisor.

**General Education Program - 41-44**

Students must take all courses designated in the Professional Degree Requirements of the General Education Program while noting the following approved course substitutions. If a student changes to another degree program, these course substitutions will no longer apply even if already completed.

### **Computer Literacy**

- INFS 120 - Foundations of Information Technology Credits: 3
- Or ART 130 - Introduction to Digital Media Credits: 3
- Or pass a college-level competency exam of equivalent skills.

### **Service**

- BHSC 100 - Philosophy of Service Credits: 2
- Or BHSC 300 - Philosophy of Service Fieldwork Credits: 1,2

"S" designated major course or service plan or 2 credits of fieldwork (0-2 cr)

**Maintaining Academic Standing**

- Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall.

## **Admission Requirements**

- 1st Class FAA medical with Student Pilot Certificate prior to entry into the Flight program, or petition the department for a waiver.
- Flight students are required to produce proof of citizenship (passport or birth certificate).
- For all non-U.S. citizens planning to receive flight training as part of their degree program, an additional government application to the Transportation Security Administration (TSA), which includes an FBI background check, is required for each flight class. Contact the Department of Aviation for more details.
- Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. In order to proceed in the Flight program all students must successfully pass AFLT 122 and the Private Pilot Ground School as well as complete the private pilot written and flight check ride before being accepted in to regular status in the flight program.
- Students are required to have an iPad (see Department of Aviation Charges).
- Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.
- In addition to tuition, flight lab fees apply to all flight training courses (see Department of Aviation Charges).

## **Graduation Requirements**

A Private Pilot Certificate, Instrument Rating, and a Commercial Pilot Certificate with Single and Multi-Engine Ratings and Certified Flight Instructor and Air Transport Pilot written exam are required for graduation.

## **Resources**

### *Student Handbook*

A handbook for flight and maintenance students outlining policies, operational guidelines, and general information is available from the department office or is online at the department website. Students are responsible for all policies outlined in the Department of Aviation Handbook.

## **Undergraduate Minors**

# Aviation, Aviation Maintenance Emphasis Minor

**Total Credits - 32**

## **Maintenance**

Note: A Aircraft Maintenance Certificate with either the Airframe or Powerplant Rating is required.

### *General - 12*

- AVMT 108 - Applied Science for Aerospace Technicians Credits: 4
- AVMT 114 - Aircraft Basic Electricity Credits: 2
- AVMT 116 - Federal Regulations, Publications, Forms and Records Credits: 2
- AVMT 120 - Materials and Processes for Aircraft Structures Credits: 4
- AVIA 200 - Aviation Forum Credits: 0 (must register each semester)

### *Airframe Rating - 20*

- AVMT 204 - Aircraft Electrical Systems Credits: 2
- AVMT 210 - Aircraft Systems Credits: 4
- AVMT 220 - Aircraft Fuels and Fuel Systems Credits: 2
- AVMT 237 - Aircraft Hydraulic, Pneumatic, and Landing Gear Systems Credits: 4
- AVMT 304 - Aircraft Metal Structures Credits: 4
- AVMT 306 - Aircraft Non-metal Structures Credits: 2
- AVMT 308 - Aircraft Assembly, Rigging and Inspections Credits: 2

### *Powerplant Rating - 20*

- AVMT 206 - Powerplant Electrical Systems Credits: 4
- AVMT 226 - Engine Fuel Metering Systems Credits: 2
- AVMT 310 - Gas Turbine Engines Credits: 2
- AVMT 314 - Aircraft Propellers and Engine Inspections Credits: 3
- AVMT 316 - Reciprocating Engine Systems and Overhaul Credits: 7

# Aviation, Flight Emphasis Minor

## Total Credits - 20

### Flight

Note: A Private Certificate with an instrument rating is required.

- AFLT 115 - Private Pilot Ground School Credits: 4
- AFLT 121 - Flight Training 1 Credits: 2
- AFLT 122 - Flight Training 2 Credits: 2
- AFLT 215 - Instrument Pilot Ground School Credits: 4
- AFLT 226 - Instrument Simulator Training Credits: 2
- AFLT 227 - Instrument Flight Training Credits: 2
- AVIA 200 - Aviation Forum Credits: 0 (must register each semester)
- Remaining 4 credits to be selected in consultation with adviser.

### Certificates

## FAA Certification

**FAA-Approved Instruction.** The Department of Aviation operates a Flight School under Part 61, as well as an Airframe and Powerplant Maintenance Technician School approved by the FAA under Title 14 CFR, Part 147.

**FAA Flight Certification Programs.** Qualifying students may take flight instruction for the following levels of certification:

- Private Pilot
- Instrument Rating
- Commercial Pilot
- Flight Instructor
- Multi-Engine Rating
- Multi-Engine Flight Instructor
- Instrument Flight Instructor
- Airline Transport Pilot

**FAA Aviation Maintenance Certification Programs.** Students may earn the following FAA approved certificates from the department's Part 147 Aviation Maintenance Technician School:

- Airframe
- Powerplant

## Aviation Flight

### AFLT 104 - Introduction to Aviation

Credits: 1-4

Acquaints students with the history and opportunities in aviation, such as mission flying, flight instruction, aircraft maintenance, avionics, sales, safety, and aerodynamics of flight. **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Repeatable:** Repeatable up to 4 credits **Schedule Type:** Lecture **Offering:** Fall, Spring **College Code:** DAA

### AFLT 110 - Basic Aircraft Systems

Credits: 3

The study of small aircraft systems, including: reciprocating engines, propellers and prop governors; fuel, electrical, hydraulic, pressurization, pneumatic and de-icing systems, flight controls, aircraft structures, weight and balance, and aircraft instrument systems. Also included will be pilot maintenance and a brief introduction

of the FAA requirements for maintenance, inspections and recordkeeping. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### AFLT 115 - Private Pilot Ground School

Credits: 4

Ground training to prepare students for the FAA private pilot airplane knowledge test. Topics include aerodynamics, weight and balance, Federal Aviation Regulations, navigation, meteorology, aircraft systems and performance. **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### AFLT 120 - Applied Science for Aviation

Credits: 4

Applies the sciences of mathematics and physics to the aerodynamics of flight, maintenance, weight and balance and various maintenance problems that the aircraft maintenance technician and pilot could encounter. Includes the study and use of aircraft drawings, schematics, and basic ground operations. (This course does not count toward FAA maintenance program credit.) \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### AFLT 121 - Flight Training 1

Credits: 2

This course is the first part of the private pilot flight training and includes the flight training up through solo flight. Student MUST have a Pilot Medical Certificate/Student Pilot Certificate, obtained through an Aviation Medical Examiner, prior to registering for the course. Weekly: two 1-hour lectures and three 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Corequisite(s):** The student must be currently enrolled in AFLT 115 or have passed the private pilot knowledge test. **Schedule Type:** Flight Training **Offering:** Fall **College Code:** DAA

### AFLT 122 - Flight Training 2

Credits: 2

This course is the last half of the flight training in preparation for taking the FAA Private Pilot Practical Exam. The FAA Medical and Student Pilot Certificate required in AFLT121 must be valid. Weekly: two 1-hour lectures and two 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** AFLT 121 and have passed the FAA Private pilot knowledge test. **Schedule Type:** Flight Training **Offering:** Spring **College Code:** DAA

### AFLT 124 - Aircraft Electricity

Credits: 2

A study of the fundamental basics of electricity and electronics; including electrical diagrams, calculations, sources of electrical power, direct and alternating current, aircraft storage batteries, capacitance and inductance, binary code and the basics of solid state logic. (This course does not count toward FAA maintenance program credit.) \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### AFLT 126 - Federal Aviation Regulations, Publications, Forms and Records

Credits: 2

Study of the federal regulations and manufacturer publications as they apply to aircraft design, maintenance, inspections, forms and records, and the certification and privileges/limitations of aviation maintenance technicians and pilots. (This course does not count toward FAA maintenance program credit.) \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### AFLT 210 - Aircraft Systems

Credits: 4

An in-depth study into the inspection, repair, checking, servicing and troubleshooting of the following aircraft systems; ice-and rain detection, cabin atmosphere (pressurization, heating, cooling, and oxygen), position warning systems, navigation and communication systems, and aircraft instruments and their use in troubleshooting of aircraft systems. (This course does not count toward FAA maintenance program credit.) \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AFLT 215 - Instrument Pilot Ground School

Credits: 4

Ground training to prepare the student for the FAA instrument rating airplane knowledge test. Topics include Federal Aviation Regulations, meteorology, instrument flight charts, flight planning, instrument approaches, use of navigation equipment, and FAA publications relating to instrument flight. **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Corequisite(s):** AFLT226 **Prerequisite(s):** AFLT115 **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AFLT 220 - Meteorology

Credits: 3

Meteorology provides students with a comprehensive study of the principles of

meteorology while simultaneously providing classroom and laboratory applications focused on current weather situations. It provides real experiences demonstrating the value of computers and electronic access to time sensitive data and information.

**Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years  
**College Code:** DAA

## AFLT 225 - Aircraft Fuels and Fuel Systems

Credits: 2

A study of the various types and handling of fuels used in aircraft. Includes a study of aircraft fuel systems, fuel metering methods and the inspection, checking, servicing, troubleshooting, repair and overhaul of fuel systems and their components, and fire detection and protection. (This course does not count toward FAA maintenance program credit.) \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

## AFLT 226 - Instrument Simulator Training

Credits: 2

This course is the introduction to attitude instrument flight in preparation for taking the FAA Instrument Rating. Weekly: One 1-hour lecture and two 2-hour flight blocks. The FAA Medical is required. Weekly: one 1-hour lecture and two 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Schedule Type:** Flight Training **Offering:** Spring **College Code:** DAA

## AFLT 227 - Instrument Flight Training

Credits: 2

This course completes the preparation for taking the FAA Instrument Pilot Rating Practical Exam. The FAA Medical is required. A valid instrument Airplane Written exam must be on file prior to starting this course. Weekly: two 1-hour lectures and three 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** AFLT 226 and have passed the FAA Instrument knowledge test. **Schedule Type:** Flight Training **Offering:** Spring **College Code:** DAA

## AFLT 230 - Aerodynamics

Credits: 3

The study of aerodynamic principles used in aircraft. Designed for a better understanding of basic design and devices used to improve aircraft performance. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years  
**College Code:** DAA

## AFLT 300 - Aviation Safety Management

Credits: 3

The study of physiological and psychological factors related to flight safety, emphasizing cause-and-effect of airplane accidents and their prevention. Includes a systems approach to safety program development and management. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

## AFLT 305 - Commercial Pilot Ground School

Credits: 4

Ground training to prepare the student for the FAA commercial-pilot airplane knowledge test. Topics include advanced navigation, FAR Parts 61, 91, and 135 for air taxi, complex aircraft systems, weight and balance, and performance charts. **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Corequisite(s):** AFLT321 **Prerequisite(s):** AFLT215, AFLT226 **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

## AFLT 310 - Advanced Systems

Credits: 3

The study of transport category aircraft systems, including: turbine engines, APUs, fuel, electrical, hydraulic, pneumatic, environmental control, emergency oxygen, pressurization, de-icing systems, and advanced avionics systems. Particular emphasis will be placed on preparing for airline systems ground school. **Grade Mode:** Normal (A-F,I,W) **Prerequisite(s):** AFLT 305. **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

## AFLT 316 - Turbine Engines

Credits: 4

Principles and theory of jet-engine propulsion, design, types of, and associated systems. Maintenance, overhaul, installation removal, repair, trimming, and troubleshooting of turbine engines. (This course does not count toward FAA maintenance program credit.) \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

## AFLT 321 - Commercial Flight Training 1

Credits: 2

This course is the introduction to commercial airplane flight introducing commercial pilot maneuvers, and building night and cross-country experience. The FAA Medical is required. Weekly: two 1-hour lectures and three 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** AFLT 227 **Schedule Type:** Flight Training **Offering:** Fall **College Code:** DAA

## AFLT 322 - Commercial Flight Training 2

Credits: 2

This course continues the commercial pilot training covering, upset training, tail wheel and building additional night and cross-country experience with the emphasis on solo flight. The FAA Medical is required. Weekly: two 1-hour lectures and three 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** AFLT 321 and have passed the FAA Single Engine Land Commercial knowledge test. **Schedule Type:** Flight Training **Offering:** Spring **College Code:** DAA

## AFLT 323 - Commercial Flight Training 3

Credits: 2

This course continues the student for the Commercial Pilot Rating. Complex aircraft operations are introduced and additional experience in cross-country and commercial pilot maneuvers are included. The FAA Medical is required. Weekly: two 1-hour lectures and three 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** AFLT 322 and have passed the FAA Single Engine Land Commercial knowledge test. **Schedule Type:** Flight Training **Offering:** Fall, Summer **College Code:** DAA

## AFLT 324 - Commercial Flight Training 4/Certified Flight Instructor

Credits: 2

This course completes the preparation for taking the FAA Commercial Airplane Land Pilot Rating Practical Exam and the Certified Flight Instructor Rating. Final refinement of commercial maneuvers, including right seat proficiency is included. The FAA Medical is required. Weekly: two 1-hour lectures and three 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** AFLT 323 and have passed the FAA Single Engine Land Commercial knowledge test. **Schedule Type:** Flight Training **Offering:** Spring, Summer **College Code:** DAA

## AFLT 340 - Airspace and Air Traffic Control

Credits: 3

Examines how instrument flight operations function within the FAA air traffic control system. Study of air traffic controller roles, procedures, and regulatory requirements for instrument operations in the terminal and enroute air traffic environment. **Grade Mode:** Normal (A-F,I,W) **Prerequisite/Corequisite:** AFLT 227, AFLT 321, AFLT 220 (may be taken concurrently) **Schedule Type:** Lecture **Offering:** Variable **College Code:** DAA

## AFLT 355 - Flight Instructor Ground School

Credits: 2

Ground training to prepare the student for the FAA flight instructor airplane knowledge test. Topics include techniques of teaching, analysis of maneuvers, and lesson planning. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

## AFLT 356 - Flight Instructor Flight Training

Credits: 1,2

Flight and ground training to prepare the student for the FAA flight instructor airplane practical test. Topics include the performance, teaching, and analysis of flight maneuvers required for the private and commercial airplane pilot (2 cr. for initial CFI; 1 cr. for CFI add-on). \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

## AFLT 364 - Basic and Advanced Ground Instructor

Credits: 2

Prepares the student for the FAA basic and advanced ground instructor knowledge test. Topics include techniques of teaching aerodynamics, aircraft performance, aircraft systems, weight and balance, meteorology, navigation, and regulations. **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

## AFLT 365 - Instrument Flight Instructor Ground School

Credits: 2

Prepares the student for the FAA instrument flight instructor knowledge test. Topics include techniques of teaching instrument flight, analysis of instrument maneuvers, instrument approaches, enroute operations, regulations, and lesson planning. **Grade Mode:** Normal (A-F,I,W) **Corequisite(s):** AFLT366 **Prerequisite(s):** AFLT355 **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

## AFLT 366 - Instrument Flight Instructor Flight Training

Credits: 1,2

Flight and ground training to prepare the student for the FAA instrument flight instructor airplane practical test. Topics include the performance, teaching, and analysis of attitude instruments, instrument approaches, and enroute operations. (2 cr. for initial; 1 cr. for add-on.) \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Corequisite(s):** AFLT365 **Prerequisite(s):** AFLT356 **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

## AFLT 410 - Aviation Law

Credits: 3

Legal principles governing the aviation industry, historical precedents, regulatory statutes, standards, contracts, liability and insurance. Current developments and court decisions. **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** Commercial Pilot or Maintenance Certificates. **Schedule Type:** Lecture **Offering:** Variable **College Code:** DAA

### AFLT 415 – Human Factors in Aviation

Credits: 3

Flight Physiology Effects of high altitude flight on the human body, flying and health, first aid and survival. Attention will also be given to information processing and perception in flight. **Grade Mode:** Normal (A-F,I,W) **Prerequisite(s):** FAA Commercial Pilot or Maintenance Certificates **Schedule Type:** Lecture **Offering:** Variable **College Code:** DAA

### AFLT 416 – Turbine Transition

Credits: 2

Ground and simulator training to prepare the student to work in a multiple crew aircraft operating under FAR Part 121 and 135. Topics include crew checklist usage and standard operating procedures (SOPs). \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

### AFLT 426 – Multiengine Flight Training

Credits: 1

Flight instruction in a multi-engine aircraft in preparation for the FAA multi-engine rating. The FAA Medical is required. Weekly: one 1-hour lecture and two 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** FAA Single Engine Land Commercial **Schedule Type:** Flight Training **Offering:** Fall, Spring, Summer **College Code:** DAA

### AFLT 427 – Multiengine Flight

Credits: 1

30 hours of additional experience in multiengine aircraft with a focus on cross country and instrument experience. The FAA Medical is required. Weekly: two 2-hour flight blocks \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** FAA Single Engine Land Commercial **Repeatable:** Repeatable **Schedule Type:** Flight Training **Offering:** Fall, Spring, Summer **College Code:** DAA

### AFLT 430 – Crew Resource Management

Credits: 2

Study of the effective use of resources available to the crew to achieve safe and efficient flight operations. Areas include human factors, communication, conflict resolution, leadership, teamwork, and situational awareness as applied to flight operations. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Prerequisite(s):** FAA Commercial Pilots Certificate and an Instrument Rating or by permission of the instructor. **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AFLT 467 – Multi-Engine Flight Instructor

Credits: 1,2

Flight and ground training to prepare the student for the FAA multi-engine airplane flight instructor practical test. Topics include the performance, teaching, and analysis of maneuvers and procedures for the multi-engine airplane (2 cr. for initial CFI; 1 cr. for CFI add-on). \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** Commercial Pilots Certificate with Multiengine Rating, CFI or CFII. **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

### AFLT 469 – Instrument Ground Instructor

Credits: 2

Prepares the student for the FAA instrument ground instructor knowledge test. Topics include the techniques of teaching advanced weather theory, weather reports and forecasts, instrument procedures and regulations, approaches, and enroute operations. **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** AFLT355/364 or CFI **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

### AFLT 474 – Techniques of Mission Flying

Credits: 3

Develops special piloting skills required in remote undeveloped bush operations. Topics include pilotage, dead reckoning, GPS navigation, low-level operations, terrain flying, mountain passes and canyons, cargo drops, short fields, uphill and downhill operations on primitive airstrips, maximum performance techniques, and precision airplane control. \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** Commercial Pilots Certificate **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AFLT 485 – Airline Transport Pilot Ground School

Credits: 3

Prepares the student for the FAA airline transport pilot knowledge test. Topics include air-carrier or air-taxi regulations, high altitude weather, advanced weight and balance,

and the performance and special problems in large airplane operations. **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** Commercial Pilots Certificate **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

### AFLT 486 – Airline Transport Pilot Flight Training

Credits: 3

Flight and ground training to prepare the student for the FAA airline transport pilot airplane practical test. Topics include instrument procedures, in-flight maneuvers, take-offs, landings, advanced airplane systems, and emergency procedures. \$ - Course or lab fee **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** Commercial Pilots Certificate **Schedule Type:** Lecture **Offering:** Fall, Spring, Summer **College Code:** DAA

## Aviation

### AVIA 140 – Welding Technology

Credits: 2

Oxyacetylene and electric welding processes including oxyacetylene welding, cutting, and brazing; basic shielded metal arc welding and basic gas metal arc welding. A limited amount of out-of-position welding will be stressed. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture, Lab **Offering:** Fall **College Code:** DAA

### AVIA 200 – Aviation Forum

Credits: 0

A bi-weekly seminar giving instruction in Aviation Safety and Operational Control. Required of all aviation majors. Students must register for this class each semester in residence. **Grade Mode:** Satisfactory (S,U,I,W) **Repeatable:** Repeatable **Schedule Type:** Blended Learning **Offering:** Fall, Spring **College Code:** DAA

### AVIA 250 – Machine Shop

Credits: 3,4

Basic set-up and operation of lathes, milling machines, grinders, drilling machines, and shapers; safety, machine maintenance, off-hand grinding, drill sharpening, layout, and inspection emphasized. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AVIA 275 – Topics in \_\_\_\_\_

Credits: 1–4

**Grade Mode:** Normal (A-F,I,W) **Repeatable:** Repeatable with different topics **Schedule Type:** Lecture **Offering:** Arranged **College Code:** DAA

### AVIA 285 – Project Course

Credits: 1–4

Development of a skill in a given area of technology under the supervision of the instructor. **Grade Mode:** Normal w S/DG (A-F,I,S,U,DG,W) **Prerequisite(s):** Permission of instructor. **Repeatable:** Repeatable up to 12 credits **Schedule Type:** Independent **Offering:** Fall, Spring **College Code:** DAA

### AVIA 294 – Cooperative Work Experience

Credits: 1–3

Work experience with an aviation organization or airline. A minimum of 120 hours of work required per credit. **Grade Mode:** Satisfactory w/DG (S,U,I,W,DG) **Prerequisite(s):** Permission of the department. **Repeatable:** Repeatable **Schedule Type:** Practicum **Offering:** Arranged **College Code:** DAA

### AVIA 296 – Independent Study

Credits: 1–3

Enables students to pursue topics in aviation not offered in other scheduled courses. **Grade Mode:** Normal w S/DG (A-F,I,S,U,DG,W) **Prerequisite(s):** Permission of the department. **Repeatable:** Repeatable up to 4 credits **Schedule Type:** Independent **Offering:** Arranged **College Code:** DAA

### AVIA 390 – Internship

Credits: 1–4

On-the-job internship experience for those students seeking industrial experience which cannot be simulated in a classroom setting. A range of 120–150 clock hours of work are required for each credit. Selected in consultation with the student's advisor. **Grade Mode:** Satisfactory w/DG (S,U,I,W,DG) **Repeatable:** Repeatable **Schedule Type:** Practicum **College Code:** DAA

### AVIA 395 – Practicum

Credits: 1–4

Lab or on-the-job experience to build skills in a specific area of technology. **Grade Mode:** Normal with DG (A-F,I,W,DG,DN) **Prerequisite(s):** Permission of department.

**Repeatable:** Repeatable up to 6 credits **Schedule Type:** Practicum **Offering:** Arranged  
**College Code:** DAA

### AVIA 460 - Program Continuation

Credits: 0  
Aviation students may register for this title while clearing deferred grade (DG) and/or incomplete (I) classes, or working to complete practical tests in the flight and/or maintenance programs. Registration for this title indicates full-time status. \$ - Course or lab fee **Grade Mode:** Noncredit (NC,W) **Prerequisite(s):** Permission of advisor and department chair. **Repeatable:** Repeatable **Schedule Type:** Independent **College Code:** DAA

### AVIA 470 - Project Course

Credits: 1-4  
Development of a skill in a given area of technology under the supervision of the instructor. **Grade Mode:** Normal w S/DG (A-F,I,S,U,DG,W) **Prerequisite(s):** Permission of instructor. **Repeatable:** Repeatable up to 12 credits **Schedule Type:** Independent **Offering:** Fall, Spring **College Code:** DAA

### AVIA 476 - Topics in \_\_\_\_\_

Credits: 1-4  
**Grade Mode:** Normal (A-F,I,W) **Repeatable:** Repeatable with different topics **Schedule Type:** Lecture **Offering:** Arranged **College Code:** DAA

### AVIA 495 - Independent Study

Credits: 1-3  
Enables students to pursue topics in aviation not offered in other scheduled courses. **Grade Mode:** Normal w S/DG (A-F,I,S,U,DG,W) **Prerequisite(s):** Permission of the department. **Repeatable:** Repeatable up to 4 credits **Schedule Type:** Independent **Offering:** Arranged **College Code:** DAA

## Aviation Maintenance

### AVMT 108 - Applied Science for Aerospace Technicians

Credits: 4  
Applies the sciences of mathematics and physics to the aerodynamics of flight, maintenance, weight and balance and various maintenance problems that the aircraft maintenance technician could encounter. Includes the study and use of drawings and basic ground operations. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### AVMT 114 - Aircraft Basic Electricity

Credits: 2  
A study of the fundamental basics of electricity and electronics; including electrical diagrams, calculations, sources of electrical power, direct and alternating current, aircraft storage batteries, capacitance and inductance, binary code and the basics of solid state logic. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### AVMT 116 - Federal Regulations, Publications, Forms and Records

Credits: 2  
Study of the federal regulations and manufacturer publications as they apply to aircraft design, maintenance, inspections, forms and records, and the certification and privileges/limitations of the aviation maintenance technicians. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### AVMT 120 - Materials and Processes for Aircraft Structures

Credits: 4  
Includes hand and power tool usage, aircraft hardware and materials, precision measurements, corrosion control, nondestructive testing, and fluid lines and fittings. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall **College Code:** DAA

### AVMT 204 - Aircraft Electrical Systems

Credits: 2  
Practical study of aircraft electrical systems, including installation practices, repair, troubleshooting, service, and inspections. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AVMT 206 - Powerplant Electrical Systems

Credits: 4  
A study of engine ignition and engine electrical systems (starter, generators, alternators, auxiliary electrical power units and their control circuits, engine instruments, and engine fire protection suppression systems). \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AVMT 210 - Aircraft Systems

Credits: 4  
An in-depth study into the inspection, repair, checking, servicing and troubleshooting of the following aircraft systems; ice-and rain detection, cabin atmosphere (pressurization, heating, cooling, and oxygen), position warning systems, navigation and communication systems, and aircraft instruments and their use in troubleshooting of aircraft systems. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AVMT 220 - Aircraft Fuels and Fuel Systems

Credits: 2  
A study of the various types and handling of fuels used in aircraft. Includes a study of aircraft fuel systems, fuel metering methods and the inspection, checking, servicing, troubleshooting, repair and overhaul of fuel systems and their components, and fire detection and protection. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AVMT 226 - Engine Fuel Metering Systems

Credits: 2  
A study of the engine side of the fuel systems (firewall forward). Includes an in-depth study of fuel-metering devices used on aircraft engines (carburetors, pressure carburetors, direct and continuous fuel-injection systems). Service, maintenance, repair and trouble-shooting of each different system type is covered in detail. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AVMT 228 - Maintenance: General, Airframe, or Power Plant Review

Credits: 1-3  
A review of all subjects from a selected curriculum. A minimum of five examinations per curriculum area is required. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Prerequisite(s):** All applicable curriculum subjects must have been completed. **Repeatable:** Repeatable up to 3 credits **Schedule Type:** Lecture **Offering:** Fall, Spring **College Code:** DAA

### AVMT 237 - Aircraft Hydraulic, Pneumatic, and Landing Gear Systems

Credits: 4  
Operation and maintenance of aircraft hydraulic systems, pneumatic systems, landing-gear systems, and the inspection, checking, servicing, trouble-shooting, and repair of these systems and system components. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AVMT 304 - Aircraft Metal Structures

Credits: 4  
A study and application of the processes used in the fabrication and repair of aircraft metal structures. Welding theory and practice with emphasis on weld-quality identification. Riveted, aircraft, aluminum, sheet-metal structures including the fabrication and repair of such structures. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

### AVMT 306 - Aircraft Non-metal Structures

Credits: 2  
A study of wood and fabric as used in the construction of aircraft and a study of the methods, tooling, inspection, processes, and repair of composite aircraft structures. Includes the application, identification, and functions of aircraft protective finishes. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AVMT 308 - Aircraft Assembly, Rigging and Inspections

Credits: 2  
Study of the nomenclature and design features of both fixed-wing and rotor-wing aircraft and the assembly, alignment of aircraft structures, and rigging and balancing of control system. A detailed inspection of the entire aircraft or rotorcraft is covered as it applies to the airframe 100-hour and other required inspection. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### AVMT 310 - Gas Turbine Engines

Credits: 4  
Principles and theory of jet-engine propulsion, design, types of, and associated systems. Maintenance, overhaul, installation-removal, repair, trimming, and troubleshooting of turbine engines. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Fall, alternate years **College Code:** DAA

### AVMT 314 - Aircraft Propellers and Engine Inspections



Credits: 3

Theory and limited work on propellers, both wood and metal. Encompasses fixed, adjustable, controllable, feathering, reversible, and the control of the latter by mechanical, hydromatic, or electrical control systems. The inspection practice of performing the 100-hour inspection on aircraft engines and propellers. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA

### **AVMT 316 - Reciprocating Engine Systems and Overhaul**

Credits: 7

A study of reciprocating engine theory, overhaul methods, and practices and the installation of reciprocating engines. Also includes a study of the following engine systems: exhaust, cooling, induction, and lubrication. \$ - Course or lab fee **Grade Mode:** Normal (A-F,I,W) **Schedule Type:** Lecture **Offering:** Spring **College Code:** DAA