Andrews University

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2013 – 2014 Bulletin

Departments of Agriculture & Aviation

Berrien Springs, Michigan 49104
www.andrews.edu 800–253–2874

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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 Architecture, Art & Design (SAAD)
School of Business Administration (SBA)
School of Education (SED)
School of Health Professions (SHP)
Seventh–day Adventist Theological Seminary (SEM)

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

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
Undergraduate Upper Division	300–399	Courses usually taken during the junior year
	400–499	Courses usually taken during the senior year
Graduate Level	500–699	Courses for graduate students only
	700–999	Courses for post–masters students

PROGRAM & DEGREE INDEX

Department of Agriculture

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

Faculty
Thomas Chittick, Chair
Stanley Beikmann
Katherine Koudele

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.

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

See professional program requirements and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Social Sciences:

- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:

professional degree requirements

Computer Literacy:

- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:

professional degree requirements

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

See professional program requirements and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

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
See professional program requirements and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

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
See professional program requirements and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

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
See professional program requirements and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

Service:
- BHSC 100 – Philosophy of Service Credits: 2

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

See professional program requirements and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Social Sciences:

- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:

professional degree requirements

Computer Literacy:

- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:

professional degree requirements

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

See professional program requirements and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Social Sciences:

- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:

professional degree requirements

Computer Literacy:

- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:

professional degree requirements

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

See professional program requirements and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Social Sciences:

- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:

professional degree requirements

Computer Literacy:

- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:

professional degree requirements

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

See professional program requirements and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Social Sciences:

- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

Service:
- BHSC 100 – Philosophy of Service Credits: 2

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
See professional program requirements and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

Service:
- BHSC 100 – Philosophy of Service Credits: 2

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
See professional program requirements and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

Service:
- BHSC 100 – Philosophy of Service Credits: 2

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
See professional program requirements and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

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

See professional program requirements and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Social Sciences:

- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:

professional degree requirements

Computer Literacy:

- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:

professional degree requirements

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

See professional program requirements and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

Service:
- BHSC 100 – Philosophy of Service Credits: 2

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
See professional program requirements and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

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

See professional program requirements and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Social Sciences:

- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:

professional degree requirements

Computer Literacy:

- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:

professional degree requirements

Service:

- BHSC 100 – Philosophy of Service Credits: 2

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 — 59

- 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

Select 12 Credits From

- 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

Select 9 Credits From

- AGRI 345 – Topics in _____ Credits: 1–4
- AGRI 467 – Concepts of International Agriculture Credits: 3
- AGRI 468 – International Agricultural Implementation Credits: 3
- AGRI 498 – International Internship in_____ Credits: 1–6

Cognate requirement — 25

- ACCT 121 – Fundamentals of Accounting Credits: 3
- BHSC 230 – Research Methods I: Statistics for the Behavioral Sciences Credits: 3
- ECON 225 – Principles of Macroeconomics 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

General Education Requirements
See professional program requirements and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Social Sciences:
- ECON 225 – Principles of Macroeconomics Credits: 3 required for BT International Agriculture Development.
- Other BT degrees follow professional degree requirements.

Mathematics:
professional degree requirements

Computer Literacy:
- INFS 120 – Foundations of Information Technology Credits: 3 or pass competency test

Fitness Education:
professional degree requirements

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). 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) **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 **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) **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) **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) **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) **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) **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) **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 **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 **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 **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 **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) **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) **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 **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 **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) **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) **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) **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. **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) **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) **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) **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. **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) **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 **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) **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. **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) **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. **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. **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. **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. **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) **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) **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) **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) **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 **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) **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. **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) **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) **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) **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) **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) **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 3 hours of lab $ – Course or lab fee **Grade Mode:** Normal (A–F,I,W) **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 2 hours of lab $ – Course or lab fee **Grade Mode:** Normal (A–F,I,W) **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) **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) **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. Studio $ – Course or lab fee **Course Attribute:** Service course **Grade Mode:** Normal (A–F,I,W) **Recommended:** HORT136, 137. **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) **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) **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) **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) **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 **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 **College Code:** DAA

Department of Aviation

Seamount Building (Airpark)
269–471–3547
Fax: 269–471–6004
airinfo@andrews.edu
www.andrews.edu/aviation/

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

Programs

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

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 1.2 miles from the central campus. Students should plan to arrange their own transportation to and from the airport.

Associates

Aviation, Aviation Maintenance Emphasis AT

AT: Aviation

Students may earn an Associate of Technology degree by taking courses beyond those required for the certificate in either the flight or maintenance area. The additional courses give students a broader General Education base, prepare them better to perform the activities acquired by the certificate program, and facilitate study for an advanced degree.

Major*	40–52
General Education requirements	20–25
General electives	6–0
Total credits for degree	**66–77**
***Emphasis Options**	

Aviation Maintenance

Aviation Maintenance — 52

Total Credits: 52

Aviation Maintenance Area Courses

An Aviation Maintenance Certificate with Airframe and Powerplant ratings is required for any BT or AT maintenance option. Lab fees apply to all AVMT courses. Students are required to have a Windows–compatible PC laptop and tool set (see Department of Aviation Charges).

Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall. All first year students must pass the FAA Aviation Maintenance General test prior to entry into the Airframe or Powerplant curriculum, unless waived by the department. This and other program requirements and procedures can be referenced in the department student handbook.

Required Courses — 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

Note:

Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.

Aviation, Flight Emphasis AT

AT: Aviation

Students may earn an Associate of Technology degree by taking courses beyond those required for the certificate in either the flight or maintenance area. The additional courses give students a broader General Education base, prepare them better to perform the activities acquired by the certificate program, and facilitate study for an advanced degree.

Major*	40–52
General Education requirements	20–25
General electives	6–0
Total credits for degree	**66–77**
***Emphasis Options**	

Flight

Flight — 36
Departmental electives — 4

Total Credits: 40

Flight Area Courses

A Private Pilot Certificate, Instrument Rating, and a Commercial Certificate with Single and Multi–Engine Ratings are required for any BT or AT flight option. In addition to tuition, flight lab fees apply to all flight training courses (see Department of Aviation Charges). Students are required to produce proof of citizenship (passport or birth certificate) and 1st Class FAA medical with Student Pilot Certificate prior to entry into the Flight program, or petition the department for a waiver.

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. Contact the Department of Aviation for more details.

Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall. Flight students will be reviewed at the end of each training module, and must be approved by the department in order to continue in the flight degree program. This and other program requirements and procedures can be referenced in the department student handbook.

Required Courses — 42

- AFLT 115 – Private Pilot Ground School Credits: 4
- AFLT 118 – Flight Training 1 Credits: 3
- AFLT 120 – Applied Science for Aviation Credits: 4
- AFLT 124 – Aircraft Electricity Credits: 2
- AFLT 126 – Federal Aviation Regulations, Publications, Forms and Records Credits: 2
- AFLT 210 – Aircraft Systems Credits: 4
- AFLT 215 – Instrument Pilot Ground School Credits: 4
- AFLT 218 – Flight Training II Credits: 3

- AFLT 225 – Aircraft Fuels and Fuel Systems Credits: 2
- AFLT 305 – Commercial Pilot Ground School Credits: 4
- AFLT 316 – Turbine Engines Credits: 4
- AFLT 318 – Flight Training III Credits: 3
- AFLT 326 – Flight Training IV Credits: 3

Note:

Aviation 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.

Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.

Bachelors

Aviation, Aviation Maintenance and Business Emphasis BT

BT: Aviation

Major*	60–88
General Education requirements	41–44
General electives	23–0
Total credits for degree	**124–132**

***Emphasis Options**

General Education Requirements

See professional program requirements, see here, and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Mathematics:

professional degree requirements

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)

Social Sciences:

professional degree requirements

Fitness Education:

professional degree requirements

Aviation Maintenance and Business

Aviation Maintenance — 52
Business — 21 min.

Total Credits: 73

Aviation Maintenance Area Courses

An Aviation Maintenance Certificate with Airframe and Powerplant ratings is required for any BT or AT maintenance option. Lab fees apply to all AVMT courses. Students are required to have a Windows–compatible PC laptop and tool set (see Department of Aviation Charges).

Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall. All first year students must pass the FAA Aviation Maintenance General test prior to entry into the Airframe or Powerplant curriculum, unless waived by the department. This and other program requirements and procedures can be referenced in the department student handbook.

Required Courses — 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

Note:

Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.

Aviation, Aviation Maintenance Emphasis BT

Total Credits: 60

Aviation Maintenance Area Courses

An Aviation Maintenance Certificate with Airframe and Powerplant ratings is required for any BT or AT maintenance option. Lab fees apply to all AVMT courses. Students are required to have a Windows–compatible PC laptop and tool set (see Department of Aviation Charges).

Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall. All first year students must pass the FAA Aviation Maintenance General test prior to entry into the Airframe or Powerplant curriculum, unless waived by the department. This and other program requirements and procedures can be referenced in the department student handbook.

Required Courses — 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

Note:

Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.

Aviation Maintenance

Aviation Maintenance — 52
Departmental electives — 8

BT: Aviation

Major*	60–88
General Education requirements	41–44
General electives	23–0
Total credits for degree	**124–132**

***Emphasis Options**

General Education Requirements

See professional program requirements, see here, and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Mathematics:

professional degree requirements

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)

Social Sciences:

professional degree requirements

Fitness Education:

professional degree requirements

Aviation, Flight and Aviation Maintenance Emphasis BT

BT: Aviation

Major*	60–88
General Education requirements	41–44
General electives	23–0
Total credits for degree	**124–132**

***Emphasis Options**

General Education Requirements

See professional program requirements, see here, and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Mathematics:

professional degree requirements

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)

Social Sciences:

professional degree requirements

Fitness Education:

professional degree requirements

Flight and Aviation Maintenance

Flight — 36
Aviation Maintenance — 52

Total Credits: 88

Flight Area Courses

A Private Pilot Certificate, Instrument Rating, and a Commercial Certificate with Single and Multi–Engine Ratings are required for any BT or AT flight option. In addition to tuition, flight lab fees apply to all flight training courses (see Department of Aviation Charges). Students are required to produce proof of citizenship (passport or birth certificate) and 1st Class FAA medical with Student Pilot Certificate prior to entry into the Flight program, or petition the department for a waiver.

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. Contact the Department of Aviation for more details.

Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall. Flight students will be reviewed at the end of each training module, and must be approved by the department in order to continue in the flight degree program. This and other program requirements and procedures can be referenced in the department student handbook.

Note:

Aviation courses are to be chosen in consultation with an advisor.
Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.

Aviation Maintenance Area Courses

An Aviation Maintenance Certificate with Airframe and Powerplant ratings is required for any BT or AT maintenance option. Lab fees apply to all AVMT courses. Students are required to have a Windows–compatible PC laptop and tool set (see Department of Aviation Charges).

Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Students must maintain minimum

GPA of 2.5 in all aviation coursework and 2.25 cumulative overall. All first year students must pass the FAA Aviation Maintenance General test prior to entry into the Airframe or Powerplant curriculum, unless waived by the department. This and other program requirements and procedures can be referenced in the department student handbook.

Required Courses — 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

Note:

Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.

Aviation, Flight and Business Emphasis BT

BT: Aviation

Major*	60–88
General Education requirements	41–44
General electives	23–0
Total credits for degree	**124–132**

***Emphasis Options**

General Education Requirements

See professional program requirements, see here, and note the following **specific** requirements:

Religion:

professional degree requirements

Language/Communication:

professional degree requirements

History:

professional degree requirements

Fine Arts/Humanities:

professional degree requirements

Life/Physical Sciences:

professional degree requirements

Mathematics:

professional degree requirements

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)

Social Sciences:

professional degree requirements

Fitness Education:

professional degree requirements

Flight and Business

Flight — 42 (See required courses.)
Departmental electives — 12
Business — 21 min.

Total Credits: 75

Flight Area Courses

A Private Pilot Certificate, Instrument Rating, and a Commercial Certificate with Single and Multi–Engine Ratings are required for any BT or AT flight option. In addition to tuition, flight lab fees apply to all flight training courses (see Department of Aviation Charges). Students are required to produce proof of citizenship (passport or birth certificate) and 1st Class FAA medical with Student Pilot Certificate prior to entry into the Flight program, or petition the department for a waiver.

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. Contact the Department of Aviation for more details.

Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall. Flight students will be reviewed at the end of each training module, and must be approved by the department in order to continue in the flight degree program. This and other program requirements and procedures can be referenced in the department student handbook.

Required Courses — 42

- AFLT 115 – Private Pilot Ground School Credits: 4
- AFLT 118 – Flight Training 1 Credits: 3
- AFLT 120 – Applied Science for Aviation Credits: 4
- AFLT 124 – Aircraft Electricity Credits: 2
- AFLT 126 – Federal Aviation Regulations, Publications, Forms and Records Credits: 2
- AFLT 210 – Aircraft Systems Credits: 4
- AFLT 215 – Instrument Pilot Ground School Credits: 4
- AFLT 218 – Flight Training II Credits: 3
- AFLT 225 – Aircraft Fuels and Fuel Systems Credits: 2
- AFLT 305 – Commercial Pilot Ground School Credits: 4
- AFLT 316 – Turbine Engines Credits: 4
- AFLT 318 – Flight Training III Credits: 3
- AFLT 326 – Flight Training IV Credits: 3

Note:

Aviation 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.

Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.

Aviation, Flight Emphasis BT

BT: Aviation

Major*	60–88
General Education requirements	41–44
General electives	23–0
Total credits for degree	**124–132**

***Emphasis Options**

General Education Requirements

See professional program requirements, see here, and note the following **specific** requirements:

Religion:
professional degree requirements

Language/Communication:
professional degree requirements

History:
professional degree requirements

Fine Arts/Humanities:
professional degree requirements

Life/Physical Sciences:
professional degree requirements

Mathematics:
professional degree requirements

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)

Social Sciences:
professional degree requirements

Fitness Education:
professional degree requirements

Flight
Flight—42 (See required courses.)
Departmental electives—18

Total Credits: 60

Flight Area Courses
A Private Pilot Certificate, Instrument Rating, and a Commercial Certificate with Single and Multi–Engine Ratings are required for any BT or AT flight option. In addition to tuition, flight lab fees apply to all flight training courses (see Department of Aviation Charges). Students are required to produce proof of citizenship (passport or birth certificate) and 1st Class FAA medical with Student Pilot Certificate prior to entry into the Flight program, or petition the department for a waiver.

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. Contact the Department of Aviation for more details.

Status as an aviation major is provisional until the student demonstrates satisfactory academic and performance skills. Students must maintain minimum GPA of 2.5 in all aviation coursework and 2.25 cumulative overall. Flight students will be reviewed at the end of each training module, and must be approved by the department in order to continue in the flight degree program. This and other program requirements and procedures can be referenced in the department student handbook.

Required Courses — 42

- AFLT 115 – Private Pilot Ground School Credits: 4
- AFLT 118 – Flight Training 1 Credits: 3
- AFLT 120 – Applied Science for Aviation Credits: 4
- AFLT 124 – Aircraft Electricity Credits: 2
- AFLT 126 – Federal Aviation Regulations, Publications, Forms and Records Credits: 2
- AFLT 210 – Aircraft Systems Credits: 4
- AFLT 215 – Instrument Pilot Ground School Credits: 4
- AFLT 218 – Flight Training II Credits: 3
- AFLT 225 – Aircraft Fuels and Fuel Systems Credits: 2
- AFLT 305 – Commercial Pilot Ground School Credits: 4
- AFLT 316 – Turbine Engines Credits: 4
- AFLT 318 – Flight Training III Credits: 3
- AFLT 326 – Flight Training IV Credits: 3

Note:
Aviation 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.

Credit by exam will only be approved for new students transferring in with previous FAA certificates subject to departmental approval.

Undergraduate Minors

Aviation, Aviation Maintenance Emphasis Minor

Minor in Aviation
Requirements: A minimum of 20 credits in flight or 32 in maintenance, respectively.

Aviation Maintenance – 32
Complete either the Airframe or Powerplant License.

Aviation, Flight Emphasis Minor

Minor in Aviation
Requirements: A minimum of 20 credits in flight or 32 in maintenance, respectively.

Flight – 20

- AFLT 115 – Private Pilot Ground School Credits: 4
- AFLT 118 – Flight Training 1 Credits: 3
- AFLT 215 – Instrument Pilot Ground School Credits: 4
- AFLT 218 – Flight Training II Credits: 3

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

Certificates

FAA Certification, Airframe

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

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
Airframe and Powerplant

FAA Certification, Airframe and Powerplant

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

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
Airframe and Powerplant

FAA Certification, Powerplant

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

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
Airframe and Powerplant

Aviation

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 **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) **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) **Offering:** Fall, Spring, Summer **College Code:** DAA

AFLT 118 – Flight Training 1

Credits: 3
Sixty–five (65) hours of aircraft and simulator time leading to the airplane Private Pilot Certificate including 10 hours of cross–country flight. $ – Course or lab fee **Grade Mode:** Normal with DG (A–F,I,W,DG,DN) **Offering:** Fall, Spring, Summer **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) **Offering:** Fall **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) **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) **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 trouble–shooting of aircraft systems. (This course does not count toward FAA maintenance program credit.) $ – Course or lab fee **Grade Mode:** Normal (A–F,I,W) **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) **Offering:** Fall, Spring, Summer **College Code:** DAA

AFLT 218 – Flight Training II

Credits: 3
Sixty–five (65) hours of aircraft and simulator time leading to the airplane instrument pilot rating including 25 hours of cross–country flight needed to meet the 50–hour cross–country requirement. $ – Course or lab fee **Grade Mode:** Normal with DG (A–F,I,W,DG,DN) **Offering:** Fall, Spring, Summer **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) **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) **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) **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) **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) **Offering:** Fall, Spring, Summer **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. **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) **Offering:** Fall, alternate years **College Code:** DAA

AFLT 318 – Flight Training III

Credits: 3
Sixty–five (65) hours of single–engine flight, multi–engine flight and simulator time. The course includes preparation for the Private Pilot Multi–Engine Land rating. $ – Course or lab fee **Grade Mode:** Normal with DG (A–F,I,W,DG,DN) **Offering:** Fall, Spring, Summer **College Code:** DAA

AFLT 326 – Flight Training IV

Credits: 3
Sixty–five (65) hours of aircraft and simulator time leading to the airplane Multi–Engine and Single–Engine Commercial ratings. $ – Course or lab fee **Grade Mode:** Normal with DG (A–F,I,W,DG,DN) **Offering:** Fall, Spring, Summer **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) **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) **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) **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) **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) **Offering:** Fall, Spring, Summer **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) **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) **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) **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) **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) **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) **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) **Offering:** Fall, Spring, Summer **College Code:** DAA

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) **Offering:** Fall **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) **Offering:** Spring **College Code:** DAA

AVIA 275 – Topics in _____

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

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) **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) **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) **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) **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) **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) **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 trouble–shooting of aircraft systems. $ – Course or lab fee **Grade Mode:** Normal (A–F,I,W) **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) **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) **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 **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) **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) **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) **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) **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) **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) **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) **Offering:** Spring **College Code:** DAA