Aviation Program Mission. The mission of the Minnesota State Mankato Aviation program is to prepare principled professional aviation practitioners for responsible positions in the air transportation industry, including airline operations and management, corporate aviation, airport management, and government operations. The program aims to equip students to thrive in the rapidly changing and highly competitive fields of aviation and motivate them to engage in lifelong learning.

Advising. AVIA students will be assigned a AVIA faculty advisor following an initial or transfer orientation session. Faculty advising appointments may be scheduled through Karla Worden, Administrative Assistant in the Aviation Department Office. Mymique Baxter, College of Education Student Relations Coordinator, is also available for general education, cultural diversity, major admission and program completion (application for graduation) advisement. Students may make appointments through the College of Education Academic Advisement Office (Armstrong Hall 117). On-site airport advising is also available and hours will be posted.

Admission to Major. Coordinator for Admission to Major, Mymique Baxter, 117 Armstrong Hall.

All students must submit an unofficial transcript or DARS report (available at the Campus Hub).

Students must meet the following requirements:
- a minimum of 32 earned semester credit hours.
- a minimum cumulative GPA of 2.00.

Students may enroll in 100 and 200 aviation coursework prior to admission to major.

POLICIES/INFORMATION

Flight Lab. Flight lab completion requires evaluation by aviation faculty. Flight costs are determined on an hourly basis for aircraft and flight instruction. To obtain FAA certifications requires FAA exams which may require a fee.

Transfer of college credit and credit for certificates and/or ratings. The Minnesota State Mankato Department of Aviation bases its flight education philosophy in a four-year university degree. Consequently, students who have obtained flight certificates/ratings without earned college credit may not have satisfied the academic and flight requirements for the aviation major. Students must demonstrate that they have received the full breadth and depth of knowledge, skills, abilities, and attitudes consistent with an education received at Minnesota State Mankato. Once enrolled at Minnesota State Mankato, students are expected to complete all subsequent flight training within Minnesota State Mankato's aviation program.

Transfer credits. To satisfy aviation curriculum requirements, students with pilot certificates and ratings earned with college credit through a Council on Aviation Accreditation (CAA) accredited university may transfer those credits without demonstration of proficiency. College credits obtained through a non CAA accredited institution will be reviewed by the Department of Aviation to ensure the issuing institution follows policies and practices consistent with CAA accreditation standards. In the event credits do not transfer, students may be required to follow Credit for Experience procedures.

Prior Experience. Students entering Minnesota State Mankato with completed FAA certificates must register for and complete the requirements for the applicable ground school and flight lab courses. Prior flight experience will be evaluated by the faculty and may result in advanced standing in flight labs. Students are responsible for aircraft rental required for the evaluation.

GPA Policy. Admission to College of Education, 2.0 cumulative GPA.

P/N Grading Policy. Only elective and general education courses may be taken P/N, unless offered P/N only.

AVIATION BS

Major Common Core
AVIA 100 World of Aviation (3)
AVIA 155 Basic Pilot Theory (4)
AVIA 205 Introduction to Air Transportation (3)

Major Emphasis: Professional Flight Concentration
AVIA 151 Private Pilot Flight Lab (3)
AVIA 201 Theory of Flight (3)
AVIA 202 Principles of Air Navigation (3)
AVIA 245 Instrument Pilot Theory (3)
AVIA 251 Commercial Pilot Flight Lab (3)
AVIA 255 Advanced Pilot Theory (3)
AVIA 261 Instrument Pilot Flight Lab (3)
AVIA 339 Aerospace Propulsion (3)
AVIA 371 Multi-Engine Flight Lab (1)
AVIA 436 Advanced Flight Operations (3)
AVIA 438 Flight Engineer (3)
AVIA 440 Regional Airline Operations (3)
AVIA 450 Airline Transport Pilot (3)
AVIA 451 Airline Transport Pilot Flight Lab (2)
GEOG 217 Weather (3)

CHOOSE 1 CLUSTER
Professional Flight options
Choose one option of 6 credits
(Choose 6 credits)
AVIA 380 Flight Instructor (3)
AVIA 381 Flight Instructor Flight Lab (1)
AVIA 382 Multi-Engine Instructor Flight Lab (1)
AVIA 391 Instrument Instructor Flight Lab (1)
(Choose 6 credits)
AVIA 333 Airline Operations (3)
AVIA 442 Fundamentals of Air Traffic Control (3)

CHOOSE 1 CLUSTER
Professional Pilot electives
(Choose 16 credits)
GEOG 218 Weather Laboratory (1)
AVIA 333 Airline Operations (3)
AVIA 336 Basic Avionics and Mechanics (3)
AVIA 380 Flight Instructor (3)
AVIA 381 Flight Instructor Flight Lab (1)
AVIA 382 Multi-Engine Instructor Flight Lab (1)
AVIA 391 Instrument Instructor Flight Lab (1)
AVIA 437 Aviation Safety (4)
AVIA 442 Fundamentals of Air Traffic Control (3)
AVIA 443 Airline Dispatch (3)
AVIA 445 Aviation Resource Management (3)
AVIA 337 Avionics (3)
AVIA 455 Aircraft Performance (3)
AVIA 458 Aeromedical Factors (3)
AVIA 275 Helicopter Flight Theory (3)

Major Emphasis: Aviation Management Concentration
AVIA 334 Aviation Management (4)
AVIA 343 Airport Management (3)
AVIATION

AVIA 432 Aviation Law (3)
AVIA 435 Aviation Insurance (3)
AVIA 437 Aviation Safety (4)
AVIA 442 Fundamentals of Air Traffic Control (3)
AVIA 443 Airline Dispatch (3)
AVIA 445 Aviation Resource Management (3)

CHOOSE 2 CLUSTER

Business Foundation courses

Students either complete 28 credits of business foundation or approved minor. If the approved minor is less than 28 credits make up the difference to 28 credits from the Aviation Management electives.

ACCT 217 Survey of Financial and Managerial Accounting (4)
BLAW 200 Legal, Political, and Regulatory Environment of Business (3)
ECON 201 Principles of Macroeconomics (3)
ECON 202 Principles of Microeconomics (3)
MGMT 200 Introduction to MIS (3)
MGMT 330 Principles of Management (3)
MRKT 310 Principles of Marketing (3)
FINA 362 Business Finance (3)
IBUS 380 Principles of International Business (3)

Aviation Management electives

(Choose 12 credits)
GEOG 217 Weather (3)
GEOG 218 Weather Laboratory (1)
AVIA 333 Airline Operations (3)
AVIA 497 Aviation Internship (1-12)
AVIA 499 Individual Study in Aviation (1-6)
AVIA 336 Basic Avionics and Mechanics (3)
AVIA 201 Theory of Flight (3)
AVIA 202 Principles of Air Navigation (3)
AVIA 338 Aircraft Systems (3)
AVIA 339 Aerospace Propulsion (3)
AVIA 458 Aeromedical Factors (3)

Required Minor: None.

PROFESSIONAL PILOT CERTIFICATE (CERT)

AVIA 150 Private Pilot (4)
AVIA 201 Theory of Flight (3)
AVIA 202 Principles of Air Navigation (3)
AVIA 240 Instrument Pilot (3)
AVIA 250 Commercial Pilot (3)
GEOG 217 Weather (3)
GEOG 218 Weather Laboratory (1)

Major Restricted Electives

CHOOSE 2 CLUSTER: Helicopter or Airplane

Select one group, either the helicopter option (12 credits) or the airplane option (10 credits).

(Choose 12 credits)
AVIA 152 Private Pilot Helicopter Flight Lab (3)
AVIA 242 Instrumental Pilot Helicopter Flight Lab (3)
AVIA 252 Commercial Pilot Helicopter Flight Lab (3)
AVIA 270 Helicopter Pilot (3)

(Choose 10 credits)
AVIA 151 Private Pilot Flight Lab (3)
AVIA 251 Commercial Pilot Flight Lab (3)
AVIA 261 Instrument Pilot Flight Lab (3)
AVIA 371 Multi-Engine Flight Lab (1)

Domestic or International Students

Pick one option. The first is intended for domestic students, the second offers courses in English for Aviation for non-native English speakers. Advisor approval is necessary for your selection.

AVIA 100 World of Aviation (3)
AVIA 205 Introduction to Air Transportation (3)

(Choose 8 credits)
ENG 105 Advanced Academic English for Non-Native Speakers (4)
ENG 207 Special Topics in ESL (1-4)

AERONAUTICS MINOR

Aeronautics is minor in Aviation obtained after completing 16 required aviation core courses and 10 aviation electives. The minor provides fundamentals of the Aeronautical and Aviation sciences that may result in the candidate obtaining pilot certificates provided the required flight training is completed and all practical tests passed.

Minor Core

Aviation minor consists of 16 core credits. Choose 12 credits from the aviation minor electives.

AVIA 100 World of Aviation (3)
AVIA 155 Basic Pilot Theory (4)
AVIA 201 Theory of Flight (3)
AVIA 202 Principles of Air Navigation (3)
AVIA 205 Introduction to Air Transportation (3)
AVIA 240 Instrument Flight Theory (3)
AVIA 245 Instrument Flight Lab (3)
AVIA 251 Commercial Pilot Flight Lab (3)
AVIA 255 Advanced Pilot Theory (3)
AVIA 261 Instrument Pilot Flight Lab (3)
AVIA 333 Airline Operations (3)
AVIA 334 Aviation Management (4)
AVIA 339 Aerospace Propulsion (3)
AVIA 343 Airport Management (3)
AVIA 371 Multi-Engine Flight Lab (1)
AVIA 432 Aviation Law (3)
AVIA 436 Advanced Flight Operations (3)
AVIA 437 Aviation Safety (4)
AVIA 438 Flight Engineer (3)
AVIA 440 Regional Airline Operations (3)
AVIA 442 Fundamentals of Air Traffic Control (3)
AVIA 443 Airline Dispatch (3)
AVIA 445 Aviation Resource Management (3)
AVIA 458 Aeromedical Factors (3)

COURSE DESCRIPTIONS

AVIA 101 (3) Introduction into Aeronautics
A study of how aviation fits into our modern world, relation to business, and contribution to the economy. Study of aviation as a visible alternative in transportation.
Fall, Spring

AVIA 150 (4) Private Pilot
A study of basic aeronautical knowledge including principals of flight, aerodynamics, aviation regulations, weather, visual and instrument navigation, and emergencies. The course meets, but is not limited to, FAR part 61.105 (a, 1-6). Satisfactory completion of this course may result in an endorsement for the FAA Private Pilot written exam.
Fall, Spring

AVIA 151 (3) Private Pilot Flight Lab
Provides beginning flight student with the in-flight requirements needed to obtain the FAA Private Pilot’s Certificate.
Fall, Spring

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**AVIA 152 (3) Private Pilot Helicopter Flight Lab**  
Provides initial flight student with the in-flight training requirements needed to obtain the FAA private Pilot Helicopter Certificate.  
On-Demand  

**AVIA 155 (4) Basic Pilot Theory**  
This course covers all the knowledge material required for the FAA private pilot certification at a deeper and more academic level.  
Fall, Spring  

**AVIA 171 (1) Multi-Engine Flight Lab**  
Prepares advanced flight student with the in-flight requirements needed to obtain the FAA Multi-Engine Pilot rating.  
Pre: AVIA 151, or equivalent  
Fall, Spring  

**AVIA 201 (3) Theory of Flight**  
A study of the physics and aerodynamic principals of flight and propulsion systems. The nature of aerodynamic forces are explained. Flight principals of lighter-than-Air, airplane, glider, rotocraft and powered lift are covered in detail.  
Prereq: AVIA 101, AVIA 150  
Fall, Spring  

**AVIA 202 (3) Principles of Air Navigation**  
A study of fundamental air navigation principles and how it is applied to flight. Pilotage and dead reckoning. Great circle navigation. Charts and conformal projects. Celestial navigation systems and their operations and use.  
Pre: AVIA 150  
Spring  

**AVIA 205 (3) Introduction to Air Transportation**  
Discusses various segments of the aviation industry, their associations, their regulators, and their impact on the economy. The course uses an historical perspective as well as current industry events to enlighten students to the many career opportunities in aviation today.  
Fall, Spring  

**AVIA 240 (3) Instrument Pilot**  
A study of the aeronautical knowledge including aviation regulations, weather, instrument navigation, and instrument emergencies. The course meets, but is not limited to, FAR part 61.65 (b, 1-4). Satisfactory completion of this course may result in an endorsement for the FAA Instrument Pilot written exam.  
Pre: AVIA 150, or equivalent  
Fall, Spring  

**AVIA 241 (3) Instrument Pilot Flight Lab**  
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Instrument Pilot rating.  
Pre: AVIA 151, or equivalent  
Fall, Spring  

**AVIA 242 (3) Instrument Pilot Helicopter Flight Lab**  
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Instrument Pilot Helicopter rating.  
Pre: AVIA 152  
On-Demand  

**AVIA 245 (3) Instrument Flight Theory**  
This course covers all the knowledge material required for the FAA instrument pilot rating at a deeper and more academic level.  
Pre: AVIA 155  
Fall, Spring  

**AVIA 250 (3) Commercial Pilot**  
A study of advanced aeronautical knowledge, including aerodynamics, aviation regulations, weather, visual and instrument navigation, and emergencies. The course meets, but is not limited to, FAR part 61.125 (a, 1-4). Satisfactory completion of this course may result in an endorsement for the FAA Commercial Pilot written exam.  
Pre: AVIA 150, or equivalent  
Fall, Spring  

**AVIA 251 (3) Commercial Pilot Flight Lab**  
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Commercial Pilot’s Certificate.  
Pre: AVIA 151, or equivalent  
Fall, Spring  

**AVIA 252 (3) Commercial Pilot Helicopter Flight Lab**  
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Commercial Pilot Helicopter Certificate.  
Pre: AVIA 152, AVIA 242  
On-Demand  

**AVIA 255 (3) Advanced Pilot Theory**  
This course covers all the knowledge material required for the FAA commercial pilot certification at a deeper and more academic level.  
Pre: AVIA 155  
Fall, Spring  

**AVIA 270 (3) Helicopter Pilot**  
Study of Helicopter theory to meet FAA part 141 certification requirements for helicopter.  
Pre: AVIA 150, AVIA 250, AVIA 260  
On-Demand  

**AVIA 275 (3) Helicopter Flight Theory**  
This course covers all the knowledge areas required for the FAA helicopter private, instrument and commercial pilot certification at a deeper and more academic level.  
Pre: AVIA 155  
Variable  

**AVIA 333 (3) Airline Operations**  
Designed to cover the complex area of operation techniques and problems confronting the airlines today. Entails a study of marketing research, passenger trends, feasibility route studies, etc.  
Fall, Spring  

**AVIA 334 (4) Airline Management**  
Provides an understanding of management and financial techniques related to aviation businesses. Generally accepted and proven business techniques and proven business techniques are applied to the aviation setting.  
Fall, Spring  

**AVIA 336 (3) Aircraft Structures and Design**  
Fall  

**AVIA 337 (3) Avionics**  
Principles of Avionics are an expanded course on the theory and Applications of Aviation Electronics for future pilots and students of aviation and aeronautics. The course highlights modern synthetic displays, navigation, automatic flight control, FMS, and other essential aircraft equipment.  
Variable
AVIA 338 (3) Aircraft Systems
Hydraulic, pneumatic, electrical, pressurization, environmental, and other systems for large-transport-category aircraft are covered. Also turbine engines, primary and secondary flight controls, and miscellaneous important systems are examined. Examples of systems in large transport-category jets will be discussed from the pilot operational perspective.

AVIA 339 (3) Aerospace Propulsion
The course provides basic principles of operation and components description of the traditional and modern propulsion systems used in atmospheric and space transportation vehicles. Reciprocating engines with propellers, turbine jet engines, and chemical rockets are covered.
Spring

AVIA 340 (3) Flight Operations
Introduces students to the operating procedures, systems applications, and techniques used in high performance and turbine aircraft for corporate and regional airline operations. Emphasis is on regulations, SOP’s, aircraft systems, flight techniques, and operations of turboprop and regional jets.
Fall, Spring

AVIA 343 (3) Airport Management
Provides an understanding of management and operations techniques related to airports. Aspects of design, finance, planning and public relations are emphasized.
Spring

AVIA 380 (3) Theory of Flight Instruction
A study of the fundamentals of instruction including the learning process, effective teaching evaluation, course development, lesson planning, and instructing techniques. The course meets, but is not limited to, FAR part 61.187 (a, 1-6). Satisfactory completion of this course may result in an endorsement for the FOI and CFI-A written exam.
Pre: AVIA 150, AVIA 250, AVIA 260
Fall, Spring

AVIA 381 (1) Flight Instructor Flight Lab
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Certified Flight Instructor’s Certificate.
Pre: AVIA 251 and AVIA 241, or equivalent
Fall, Spring

AVIA 382 (1) Multi-Engine Instructor Flight Lab
Prepares advanced flight students for the in-flight requirements needed to obtain the FAA Multi-Engine Flight Instructor’s Certificate.
Pre: AVIA 251 and AVIA 241, or equivalent
Fall, Spring

AVIA 383 (1) Flight Instructor Helicopter Flight Lab
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Certified Flight Instructor Helicopter Certificate.
Pre: AVIA 252
On-Demand

AVIA 391 (1) Instrument Instructor Flight Lab
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Instrument Flight Instructor’s Certificate.
Pre: AVIA 251 and AVIA 241, or equivalent
Fall, Spring

AVIA 392 (1) Instrument Instructor Helicopter Flight Lab
Prepares advanced flight students with the in-flight requirements needed to obtain the FAA Instrument Helicopter Flight Instructor Certificate.
Pre: AVIA 242, AVIA 252
On-Demand

AVIA 393 (3) Instrument Flight Instructor
Prepares students who desire careers as instrument flight instructors. Emphasizes complete ground tutoring and flight instruction relating to instrument maneuvers, SOP’s, regulation interpretation, pilot discipline, and professional procedures. Crew resource management, LOFT, and turbine-transition flights in an advanced jet flight simulator are used.
Pre: AVIA 241, AVIA 251
Fall, Spring

AVIA 433 (3) Advanced Flight Operations
Introduces advanced professional flight students to the standardized utilization and troubleshooting of systems and techniques used in high performance turbine aircraft. Emphasis is on SOP’s, aircraft systems, flight techniques, and operations of narrow- and wide-body large transport category jets.
Pre: AVIA 340

AVIA 435 (3) Aviation Law II
This course will take an in-depth look at several legal topics that touch the aviation industry. The course will use the case study method to look at several aviation-related cases, including commercial airline accidents, pilot certificate actions, airline security violation cases, international aviation law, and several other current legal matters that involve the airline industry.
Pre: AVIA 432
Spring

AVIA 436 (3) Advanced Flight Operations
Introduces advanced professional flight students to the standardized utilization and troubleshooting of systems and techniques used in high performance turbine aircraft. Emphasis is on SOP’s, aircraft systems, flight techniques, and operations of narrow- and wide-body large transport category jets.
Pre: AVIA 340

AVIA 437 (4) Professional Pilot Flight Lab
Prepares students who desire careers as professional pilots. Emphasizes complete ground tutoring and flight instruction relating to instrument maneuvers, SOP’s, and advanced instrument flying techniques and procedures used in high performance turbine aircraft. Emphasis is on SOP’s, aircraft systems, flight techniques, and operations of narrow- and wide-body large transport category jets.
Pre: AVIA 252
On-Demand

AVIA 438 (1) Professional Pilot Flight Lab
Prepares students who desire careers as professional pilots. Emphasizes complete ground tutoring and flight instruction relating to instrument maneuvers, SOP’s, and advanced instrument flying techniques and procedures used in high performance turbine aircraft. Emphasis is on SOP’s, aircraft systems, flight techniques, and operations of narrow- and wide-body large transport category jets.
Pre: AVIA 252
On-Demand

AVIA 439 (3) Professional Pilot Theory
Introduces the technical training required for the operation of large transport-category aircraft in airline service. Aircraft performance, advanced aerodynamics, W&B, High-Altitude weather, regulations, SOP’s, and advanced instrument flying techniques and procedures are covered. This course exceeds knowledge necessary to pass the FAA written test for the Airline Transport Pilot (ATP) Certificate.
Pre: AVIA 250, AVIA 260
Fall
AVIA 455 (3) Aircraft Performance
The fundamental principles and calculation of the performance in various phases of flight: takeoff and land, climb and descent performance, maximum-range and maximum-endurance cruise, single-engine performance in multi-engine aircraft, standard atmosphere and basic subsonic and supersonic aerodynamics is covered.
Pre: AVIA 201
Variable

AVIA 458 (3) Aeromedical Factors
Covers aeromedical factors that are essential for high-altitude flying aircraft. Hypoxia, hyperventilation, dysbarism, basic gas laws. Armstrong line, vision in flight, day and night. Pressurization systems, pressurized suits, danger of loss of cabin pressure, future HSCT and LEO commercial flights.
Variable

AVIA 490 (1-10) Aviation Workshop
Variable

AVIA 497 (1-12) Aviation Internship
Supervised experience in business, industry, state or federal institutions.
Fall, Spring

AVIA 499 (1-6) Individual Study in Aviation
Allows the student an individual course of study on an aviation topic to be arranged with the department. This course will be writing intense.
Fall, Spring