
COURSE DESCRIPTIONS BY COURSE DISCIPLINE PREFIX

AIR NAVIGATION

AER-110 **Air Navigation** **3 (2-2)** **Fall**

Prerequisites:

Corequisites:

This course covers the basic elements of air navigation, fundamentals of pilotage and dead reckoning, and the use of a plotter, computer, and aerial charts. Topics include pilotage, dead reckoning, radio navigation, LORAN, Global Positioning Systems, and the use of FAA publications. Upon completion, students should be able to interpret aeronautical charts and apply navigational principles. (1997 SU)

AIR TRAFFIC CONTROL

AER-211 **Air Traffic Control** **2 (2-0)** **Fall**

Prerequisites:

Corequisites:

This course provides a detailed analysis of all aspects of air traffic control. Emphasis is placed on an in-depth analysis of air traffic control, including utilization of the air traffic environment based on the pilot's and controller's perspective. Upon completion, students should be able to operate an aircraft within the national airspace system under FAA air traffic control. (1997 SU)

AIR TRANSPORT PILOT

AER-212 **Air Transport Pilot** **3 (3-0)** **AND**

Prerequisites: AER-160^S, AER-170^S

Corequisites:

This course provides advanced study for the professional pilot. Topics include an in-depth study of B-727/737 weight and balance, high altitude weather, Part 121 FARs, and performance considerations of large aircraft. Upon completion, students should be able to calculate weight and balance of large aircraft, determine performance data, and apply high altitude weather principles. (1997 SU)

AIR TRANSPORTATION

AER-217 **Air Transportation** **3 (3-0)** **Spring**

Prerequisites:

Corequisites:

This course covers the development and present status of the air transportation system. Topics include federal legislation, characteristics and classification of air carriers, development of the air traffic control system, and the organization and function of the FAA. Upon completion, students should be able to relate the knowledge acquired to career development. (1997 SU)

AIRCRAFT STRUCTURES

AER-119 Aircraft Structures 2 (2-0) AND

Prerequisites:

Corequisites:

This course introduces aircraft airframes and associated appliances. Emphasis is placed on strength of materials, aircraft standards, type certificate data sheets, basic airframe construction, and weight and balance fundamentals. Upon completion, students should be able to analyze strength of materials data and apply their analysis to semi-monocoque, full-cantilever, and truss-type airframes. (1997 SU)

AIRPORT MANAGEMENT

AER-220 Airport Management 2 (2-0) AND

Prerequisites:

Corequisites:

This course examines the major functions of airport management and the concepts underlying airport planning and construction. Topics include forecasting volumes and airport size and design, including master planning, location requirements, site selection, runway configuration, zoning laws, and other considerations. Upon completion, students should be able to demonstrate basic airport management skills including an understanding of the socioeconomic effect of airports on the community. (1997 SU)

AVIATION LAWS AND FARs

AER-112 Aviation Laws and FARs 2 (2-0) Spring

Prerequisites:

Corequisites:

This course provides an in-depth study of the state, federal, and international regulations forming the structure of aviation law. Emphasis is placed on Federal Aviation Regulations Parts 61, 91, and 135 with additional emphasis on legal issues in aviation law. Upon completion, students should be able to apply legal principles and interpret federal air regulations. (1997 SU)

AVIATION MANAGEMENT

AER-114 Aviation Management 3 (3-0) Spring

Prerequisites:

Corequisites:

This course covers operation of a flight department on a cost-effective basis and analysis of profit and loss statements. Topics include flight operations costs, aircraft acquisition analysis and cost comparisons, costs versus revenue, and break-even points. Upon completion, students should be able to calculate cost of flight operations and apply monthly and annual budget analysis. (1997 SU)

AVIATION METEOROLOGY

AER-111 Aviation Meteorology 3 (3-0) Fall

Prerequisites:

Corequisites:

This course covers the atmosphere, interpretation and measurement of meteorological elements, and the effects of such on aircraft operations and performance. Topics include heat exchanges in the atmosphere; temperature, pressure, stability, clouds, air masses, fronts, and thunderstorms; and the use and interpretation of weather data. Upon completion, students should be able to analyze weather data for flight planning and safe flying. (1997 SU)

AVIONICS

AER-213 Avionics 2 (2-0) Spring

Prerequisites:

Corequisites:

This course covers standard navigational and communications equipment and theory. Emphasis is placed on aviation radio spectrum, VHF omnirange, ILS, ADF, transponders, weather radar, flight directors, and autopilots. Upon completion, students should be able to utilize VOR, ADF, ILS, GPS, flight directors, HSI's, and autopilots in the flight environment. (1997 SU)

COMMERCIAL FLIGHT THEORY

**AER-170 Commercial Flight Theory 3 (3-0) Spring
Fall**

Prerequisites: AER-160^L

Corequisites:

This course covers advanced aircraft control, cross-country operations, and other topics required for the FAA commercial pilot written exam. Emphasis is placed on the principles of aircraft performance and operation, take-off performance, cruise performance, descent and landing performance, and weight and balance computations. Upon completion, students should be able to demonstrate commercial pilot skills and competence in the materials required for the FAA written commercial pilot examination. (1997 SU)

ENGINES & SYSTEMS

AER-216 Engines & Systems 3 (2-2) Fall

Prerequisites:

Corequisites:

This course introduces piston and turbine aircraft engines and associated systems. Topics include aircraft hydraulic, pneumatic, electrical, air conditioning, and pressurization systems along with the theory of engine operations, including power and thrust computations. Upon completion, students should be able to apply principles of engine and systems operation. (1997 SU)

FLIGHT DYNAMICS

AER-210 **Flight Dynamics** **3 (3-0)** **Spring**

Prerequisites:

Corequisites:

This course covers basic and advanced principles of aerodynamic phenomena and fluid flow. Topics include airflow phenomena; lift/weight/thrust/drag; aircraft configuration characteristics, stability, and control; subsonic, transonic, and supersonic flight; critical Mach numbers; and the V-g Diagram. Upon completion, students should be able to explain the elements of applied aerodynamics and aeronautical engineering which relate directly to the problems of flight operations. (1997 SU)

FLIGHT SAFETY

AER-215 **Flight Safety** **3 (3-0)** **Spring**

Prerequisites:

Corequisites:

This course covers the basic procedures and practices of aircraft accident prevention, accident investigation, and reporting. Topics include a comprehensive review of federal regulations pertinent to aviation safety and analyses of actual aviation accident cases and their causes. Upon completion, students should be able to demonstrate an understanding and respect for specific personal factors such as attitude, motivation, and skill related to flight safety. (1997 SU)

FLIGHT-CFI

AER-281 **Flight-CFI** **1 (0-3)** **AND**

Prerequisites: AER-171^S

Corequisites:

This course provides experience in preparation for the flight instructor practical test. Emphasis is placed on the ability to transition to right seat flight while teaching performance maneuvers including operation of a complex aircraft. Upon completion, students should be able to demonstrate competence in right seat operation and CFI maneuvers as specified in the FAA Practical Test Standards. (1997 SU) Instructional flight hours are accomplished through partnerships with the local flight schools.

FLIGHT-COMMERCIAL PILOT

AER-171 **Flight-Commercial Pilot** **3 (0-6)** **Spring**

Prerequisites: AER-151^S

Corequisites:

This course provides the hands-on training needed to qualify for a Federal Aviation Administration commercial pilot certificate. Topics include flight instruction in advanced precision maneuvers, maximum performance take-off and landings, emergency procedures, operation of complex aircraft, aircraft performance, and range and fuel planning. Upon completion, students should be able to demonstrate competence in the areas of the flight test practical exam for the commercial pilot certificate. (2017 FA) Instructional flight hours are accomplished through partnerships with the local flight schools.

FLIGHT-INSTRUMENT PILOT

AER-161 **Flight-Instrument Pilot** **2 (0-6)** **Spring
Fall**

Prerequisites: AER-151^S

Corequisites:

This course covers instruction and training in instrument flight planning including IFR navigation, VOR, ILS, ADF, and compliance with ATC procedures. Emphasis is placed on approach and navigation procedures, including holding and missed approaches, and development of skill in executing en route and approach procedures. Upon completion, students should be able to plan and execute an IFR flight and demonstrate competencies required for the FAA instrument pilot flight exam. (1997 SU) Instructional flight hours are accomplished through partnerships with the local flight schools.

FLIGHT-MULTI-ENGINE

AER-285 **Flight-Multi-Engine** **1 (0-3)** **AND**

Prerequisites: AER-171^S

Corequisites:

This course provides the flight training required to obtain a multi-engine rating. Topics include multi-engine safety procedures, single-engine operations and performance, V_{mc}, instrument approaches (single- and multi-engine), and emergency procedures. Upon completion, students should be able to demonstrate the competencies required for the flight test practical examination for a multi-engine rating. (1997 SU) Instructional flight hours are accomplished through partnerships with the local flight schools.

FLIGHT-PRIVATE PILOT

AER-151 **Flight-Private Pilot** **1 (0-3)** **AND**

Prerequisites:

Corequisites:

This course provides the hands-on training needed to qualify for a Federal Aviation Administration private pilot certificate. Topics include flight maneuvers (ground procedures, take-offs, climbs, level flight, turns, glides, stalls, slow flight, descents, slips, landings, emergency procedures) and cross-country planning and navigation. Upon completion, students should be able to demonstrate the competencies required for the flight test practical exam for the private pilot certificate. (1997 SU) Instructional flight hours are accomplished through partnerships with the local flight schools.

HISTORY OF AVIATION

AER-113 **History of Aviation** **2 (2-0)** **Spring
Fall**

Prerequisites:**Corequisites:**

This course provides a historical survey of the efforts of manned-flight. Topics include the development of aircraft, milestones in aviation, noted pioneers, and the socioeconomic impact of flight upon modern civilization. Upon completion, students should be able to demonstrate an understanding of the advancements that aviation has accrued for society and contemporary changes in aviation. (1997 SU)

HUMAN FACTORS IN AVIATION

AER-218 **Human Factors in Aviation** **2 (2-0)** **Fall**

Prerequisites:**Corequisites:**

This course analyzes interpersonal relationships in the cockpit and related psychological factors that affect pilot performance and efficiency during flight operations. Topics include cockpit management, judgment, aircraft and flight crew coordination and control, physiological factors, responsibility, and decision-making capabilities. Upon completion, students should be able to apply work-proven routines to stress management, crew responsibility, and the team concept in the cockpit. (1997 SU)

INSTRUCTOR PILOT FLT THEORY

AER-280 **Instructor Pilot Flt Theory** **3 (3-0)** **AND**

Prerequisites: AER-170^S

Corequisites:

This course covers flight instruction and the skills and knowledge necessary to work effectively as a flight instructor. Topics include fundamentals of instruction, lesson planning, instructor regulations and endorsements, and related aeronautical knowledge. Upon completion, students should be able to demonstrate competence necessary for the Federal Aviation Administration Fundamentals of Instructing Test and the appropriate instructor written examination. (1997 SU)

INSTRUMENT FLIGHT SIMULATOR

AER-115 **Instrument Flight Simulator** **2 (1-3)** **AND**

Prerequisites:**Corequisites:**

This course covers classroom and instrument flight training in a FAA-approved flight simulator. Emphasis is placed on Instrument Flight Rules (IFR) equipment, tracking, approach and navigation procedures, to include holding and missed approaches. Upon completion, students should be able to plan and execute an IFR flight and smoothly transition to instrument training in an actual aircraft. (2023 FA)

INSTRUMENT FLIGHT THEORY

AER-160	Instrument Flight Theory	3 (2-2)	Summer Spring Fall
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Prerequisites:**Corequisites:**

This course covers the required aeronautical knowledge of the Federal Aviation Administration Regulation Instrument Ground School. Topics include a study of instruments, systems, instrument flight charts, instrument flight planning, approach procedures, and the IFR regulations. Upon completion, students should be able to demonstrate the competencies required to complete the FAA written examination for an instrument rating. (1997 SU)

PRIVATE PILOT FLIGHT SIMULATOR

AER-116	Private Pilot Flight Simulator	2 (1-2)	AND
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Prerequisites:**Corequisites:**

This course provides classroom and hands-on simulator training needed to support FAA Private Pilot Certificate qualification requirements. Topics include introduction to checklists, flight procedures, radio procedures, ground and flight maneuvers that include; take-offs, climbs, level flight, turns, glides, stalls, slow flight, descents, slips, landings, emergency procedures, cross country planning, and navigation. Upon completion, students should be able to log their simulator training time, transition to Private Pilot training in an actual aircraft, and successfully meet all FAA requirements for Private Pilot Certification. (2023 FA)

PRIVATE PILOT FLT THEORY

AER-150	Private Pilot Flt Theory	3 (2-2)	Spring Fall
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Prerequisites:**Corequisites:**

This course covers the aeronautical knowledge required to meet the Federal Aviation Administration regulations for private pilot certification. Topics include the principles of flight, the flight environment, basic aircraft systems and performance, basic meteorology and weather data interpretation, and FAA regulations. Upon completion, students should be able to demonstrate the competencies required for the FAA written examination for a private pilot certificate. (1997 SU)