

# AERONAUTICS (AERO)

## AERO 98 Introduction to Aviation Careers

**1.5 Units** (Degree Applicable)  
Lecture: 27

Aviation industry career preparation for pilots, air traffic controllers, aircraft dispatchers, aircraft maintenance technicians, flight attendants, airport operation specialists, airport security specialists, and unmanned aircraft specialists. In this course students will explore the fundamentals of aircraft operations, as well as history and development of the aviation industry. Students will also explore and learn the requirements for completing the Associate degree in commercial flight, aviation science, and other degrees. This course is developed in conjunction with industry partners to address emerging industry needs. Field trips may be required for completion of this course.

## AERO 100 Primary Pilot Ground School

**4 Units** (Degree Applicable, CSU)  
Lecture: 72

Aerodynamics, aircraft performance, Federal Aviation Regulations, aviation weather factors, and cross-country navigation procedures; provides introductory material on radio navigation, aeromedical factors, and radio communications procedures. Meets the preparation requirements for the FAA Private Pilot knowledge examination and FAA Air Traffic Control Basics.

## AERO 102 Aviation Weather

**3 Units** (Degree Applicable, CSU)  
Lecture: 54

Weather elements, atmosphere, weather mechanics, weather disturbances, weather analysis and forecasts. Evaluation of aviation weather reports and forecasts.

## AERO 104 Federal Aviation Regulations

**3 Units** (Degree Applicable, CSU)  
Lecture: 54

Federal Aviation Regulations (FAR), pertaining to pilot certification, aircraft maintenance, and general operating rules. Air traffic control practices and procedures and reporting of aircraft accidents.

## AERO 120 Flying Team Fundamentals

**1.5 Units** (Not Degree Applicable)  
(May be taken four times for credit)  
Lecture: 18 Lab: 27

**Prerequisite:** Member of the Mt. SAC Flying Team

Participation in one or more intercollegiate competitions as part of the Mt. SAC Flying Team. Instructions in preparatory procedures for these competitions including techniques in precision flying and aviation academic testing. Student has option to choose areas of interest. Competition attendance required outside regularly scheduled class hours. Students who repeat this course will benefit from additional competition experiences. Field trips are required.

## AERO 150 Commercial Pilot Ground School

**3 Units** (Degree Applicable, CSU)  
Lecture: 54  
**Advisory:** AERO 23 or AERO 100

Federal Aviation Administration (FAA) Commercial Pilot certification requirements, including aerodynamics, commercial pilot maneuvers, complex aircraft operations, multi-engine aircraft operations, aircraft weight and balance, aircraft performance charts, and radio navigation using advanced instrumentation. Prepares students for completion of the FAA Commercial Pilot Computerized Knowledge Examination.

## AERO 152 Air Transportation

**3 Units** (Degree Applicable, CSU)  
Lecture: 54

Survey course of the air transportation industry. Topics include an introduction to air transportation, structure and economics of the airlines, general aviation operations, and aviation career planning.

## AERO 160 Unmanned Aircraft Systems Basic

**4 Units** (Degree Applicable)  
Lecture: 54 Lab: 54  
**Advisory:** AERO 100

Piloting of Unmanned Aircraft Systems. This class includes instruction toward Remote Pilot certification Federal Aviation Administration (FAA) Part 107 licensing. Students will receive instruction on the principles of operating unmanned aircraft systems, pre-flight, flight, and post-flight operations and procedures. Meets the preparation requirements for the FAA Remote Pilot knowledge examination. Field trips are required for this course.

## AERO 200 Aviation Safety and Human Factors

**3 Units** (Degree Applicable, CSU)  
Lecture: 54  
**Advisory:** AERO 23 or AERO 100

Evaluation and analysis of factors leading to aircraft accidents as it relates to the environment of the pilot and air traffic controller.

## AERO 202 Aircraft and Engines

**3 Units** (Degree Applicable, CSU)  
Lecture: 54  
**Advisory:** AERO 100

Aircraft design, subsystems, repair, and maintenance. Principles of internal combustion engines, fuel system, engine construction and design, lubrication and cooling methods, ignition system, and basic troubleshooting. Turbine engine basic design and operational characteristics.

## AERO 210 Unmanned Aircraft Systems Advanced

**4 Units** (Degree Applicable)  
Lecture: 54 Lab: 54  
**Prerequisite:** AERO 160

Advanced skills in operating unmanned aircraft systems. Topics include analyzing flight characteristics, utilizing flight planning software, sensor selection and software use, spectrum analysis, safety practices and risk analysis, incident reporting, and data analysis. Field trips are required.

**AERO 250 Navigation****3 Units** (Degree Applicable, CSU)

Lecture: 54

**Advisory:** *AERO 100*

Dead reckoning navigation procedures. Aeronautical computers and their application in cross-country flying. Use of radio navigation aids, flight planning, flight directors, global positioning system, and electronic flight instrumentation systems.

**AERO 252 Instrument Ground School****3 Units** (Degree Applicable, CSU)

Lecture: 54

**Advisory:** *(AERO 23 or AERO 100) and (AERO 26 or AERO 102)*

Instrument Flight Rules (IFR), Air Traffic Control communications and procedures, air navigation radio aids, instrument landing systems, flight instruments, aircraft performance, aeronautical publications, instrument approach procedures, IFR cross-country navigation, and instrument weather. Meets the preparation requirements for the FAA Instrument Pilot computerized knowledge exam.

**AERO 254 Aircraft Dispatcher Operations****4 Units** (Degree Applicable)

Lecture: 54 Lab: 54

**Prerequisite:** *AERO 100, and AERO 102, and AERO 104, and AERO 150, and AERO 152, and AERO 200, and AERO 202, and AERO 250, and AERO 252*

Elements and techniques of aircraft dispatch operations. Includes aircraft dispatcher briefings to a simulated flight crew. This course prepares students to enter employment as a certified aircraft dispatcher in the airline industry, air-medical industry, corporate aircraft operators, and aviation weather service companies. Successful completion of this course enables students to take the Federal Aviation Administration (FAA) written, oral, and practical tests for the FAA Aircraft Dispatcher Certificate. Students who pass the FAA Aircraft Dispatcher Knowledge Test will qualify to take the FAA Oral and Practical Examination for the FAA aircraft dispatcher certificate.

**AERO 256 Flight Instructor Ground School****3 Units** (Degree Applicable)

Lecture: 54

**Advisory:** *(AERO 25 or AERO 150) and (AERO 30 or AERO 252)*

Basic teaching principles and application of those principles in teaching student pilots. Analysis of flight maneuvers and instruments. Prepares students for Federal Aviation Administration (FAA) knowledge tests for Flight Instructors.

**AERO 258 Large Aircraft Systems****4 Units** (Degree Applicable)

Lecture: 72

**Advisory:** *AERO 252 and AERO 100*

This Boeing 737-NG aircraft course is designed for students desiring to become pilots, aircraft dispatchers, or technicians on large aircraft typically flown in the airline industry. Design features and operational characteristics with emphasis on aircraft and engine systems. Off-campus trips are required.

**AERO 260 Work Experience in Aeronautics****1-4 Units** (Not Degree Applicable)

(May be taken for Pass/No Pass only)

**Prerequisite:** *Prior approval by AERO department faculty and compliance with Work Experience regulations as designated in the College Catalog*

Provides on-the-job experience in aeronautics at an approved work site which is related to classroom instruction. A minimum of five hours per week of supervised work 60 non-paid clock hours or 75 paid clock hours per semester is required for each one unit of credit.