

AVIATION (AVN)

Aviation Undergraduate Courses

AVN 1000 INTRODUCTION TO AVIATION AND AEROSPACE (3 credits)

This course provides a broad understanding of all aspects of the air transportation and aerospace industries. Lectures will cover what has happened in the industry to date, with emphasis on present and future developments in air transportation. The course will include the impact the airline industry is making on airports and other segments of aviation and aerospace.

Prerequisite(s): Not open to non-degree graduate students.

Distribution: Social Science General Education course

AVN 1020 PRIVATE PILOT THEORY (3 credits)

This course will familiarize the student with theories associated with flight. These include aerodynamics, weather, Federal Aviation Administration (FAA) regulations, navigation, airports, airspace, and aviation safety. There is no flight requirement associated with this course.

AVN 1024 PRIVATE PILOT FLIGHT LABORATORY (1 credit)

This laboratory course is designed for students pursuing flight requirements for the Federal Aviation Administration private pilot certificate. The student will complete all flight requirements for solo flight. Course will include flight in aircraft simulators and single-engine aircraft. Class is conducted off campus. Special fees apply.

Prerequisite(s): Completion of or concurrent enrollment in AVN 1020, or successful completion of the Federal Aviation Administration Private Knowledge Test.

AVN 1030 PRIVATE PILOT FLIGHT CERTIFICATE (2 credits)

This course will prepare the student for the Federal Aviation Administration practical flight examination for the private pilot certificate. Course involves flight in personal computer assisted training device and single-engine aircraft. Student is required to successfully complete all FAA certification requirements and obtain a private pilot certificate. Classes will be conducted off campus. Special fees apply.

Prerequisite(s): AVN 1020 and AVN 1024.

AVN 1040 HISTORY OF AVIATION AND AEROSPACE (3 credits)

The course introduces students to the history of aviation and aerospace with emphasis on the evolution of technologies, policies, business models, and transportation.

Distribution: Social Science General Education course

AVN 1160 AVIATION SAFETY (3 credits)

This course provides the student with a detailed introduction to aspects of aviation safety as well as the associated components of flight human factors, aircraft technology, weather related accidents and accident investigation.

Prerequisite(s): AVN 1000

AVN 1500 INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS (3 credits)

This course is an introductory overview of Unmanned Aircraft Systems including the regulatory process, history, application and career opportunities, ethical concerns, and safety management of UAS operations.

Prerequisite(s): Not open to non-degree graduate students.

AVN 2020 AIRLINE OPERATIONS (3 credits)

The purpose of this course is to introduce the student to operational aspects of airline management. Topics to be covered include management, leadership, labor relations, marketing, forecasting, and fleet planning.

Prerequisite(s): AVN 1000

AVN 2050 INTRODUCTION TO AIRPORT ADMINISTRATION (3 credits)

This course examines airport operations, safety and security, various administrative roles within the airport community, and the impact airports can have on local and regional economies. Students will explore the unique role public airports play as an interface between the traveling public and private airlines.

Prerequisite(s): AVN 1000

AVN 2100 FLIGHT TEAM (1 credit)

Students will learn and master the skills associated with the 9 different events associated with the National Intercollegiate Flying Association Regional and National Safety and Flight Evaluation Conferences or SAFECONs. The events include: Computer Accuracy, Simulated Comprehensive Aircraft Navigation (SCAN), Aircraft Recognition, Preflight Inspection, Ground Trainer, Message Drop, Navigation, Short-Field Landing, and Power-Off Landing.

Prerequisite(s): Permission of the Flight Team Advisor is required

AVN 2104 INSTRUMENT RATING 1 (2 credits)

The student will complete approximately 25 hours of training in a single-engine aircraft at a UNO-approved Fixed Base Operator and FAA-approved Advanced Aviation Training Devices on the UNO Main Campus; objective is to complete the first portion of training needed for the FAA Instrument Rating. Special fees, FAA medical examination and TSA clearance required. (AC 61-139 Area 1)

Prerequisite(s): Concurrent enrollment in AVN 2170 or instructor permission. Not open to non-degree graduate students.

AVN 2114 INSTRUMENT RATING 2 (1 credit)

The student will complete approximately 20 hours of training in a single-engine aircraft at a UNO-approved Fixed Base Operator; objective is to complete the final portion of training needed for the FAA Instrument Rating. Special fees, FAA medical examination and TSA clearance required. (AC 61-139 Area 1)

Prerequisite(s): AVN 2170 and AVN 2104 or instructor permission. Not open to non-degree graduate students.

AVN 2124 COMMERCIAL PILOT CERTIFICATE 1 (2 credits)

The student will complete approximately 40 hours of training in a single-engine aircraft at a UNO-approved Fixed Base Operator and FAA-approved Advanced Aviation Training Devices on the UNO Main Campus; objective is to complete the first of three sections of training needed for the FAA Commercial Pilot Certificate. Special fees, FAA medical examination and TSA clearance required. (AC 61-139 Area 1)

Prerequisite(s): Concurrent enrollment in AVN 2180 or instructor permission. Not open to non-degree graduate students.

AVN 2134 COMMERCIAL PILOT CERTIFICATE 2 (2 credits)

The student will complete approximately 40 hours of training in a single-engine aircraft at a UNO-approved Fixed Base Operator; objective is to complete the second of three sections of training needed for the FAA Commercial Pilot Certificate. Special fees, FAA medical examination and TSA clearance required. (AC 61-139 Area 1)

Prerequisite(s): AVN 2124 or instructor permission. Not open to non-degree graduate students.

AVN 2144 COMMERCIAL PILOT CERTIFICATE 3 (2 credits)

The student will complete approximately 40 hours of training in a single-engine aircraft at a UNO-approved Fixed Base Operator; objective is to complete the final third of training needed for the FAA Commercial Pilot Certificate. Special fees, FAA medical examination and TSA clearance required. (AC 61-139 Area 1)

Prerequisite(s): AVN 2134 or instructor permission. Not open to non-degree graduate students.

AVN 2164 PROFESSIONAL PILOT DEVELOPMENT (2 credits)

This course is intended to supplement the Instrument Rating and Commercial Certificate courses by providing flight experience and simulator training in the areas of instrument flying, complex airplane/multiengine operations, abnormal and emergency situations, and crew resource management.

Prerequisite(s): AVN 1030 or hold a valid US Private Pilot Certificate.

AVN 2170 INSTRUMENT FLIGHT THEORY (3 credits)

This course will provide the student with an understanding of theory and procedures required to be a safe and competent instrument pilot. It will include the study of flight instruments, aerodynamics, instrument flight maneuvers, navigation, flight planning, the national airspace system, air traffic control, weather, regulations, human factors and emergency operations. There is no formal flight training involved with this course.

Prerequisite(s): AVN 1030 or hold a valid U.S. Private Pilot Certificate; or instructor permission.

AVN 2180 COMMERCIAL PILOT THEORY (3 credits)

This course provides the student with an understanding of the theories involved in flight at the commercial level. Course will include extensive review and study of VFR and IFR cross-country procedures and night flight procedures to prepare the student for the FAA commercial Pilot Knowledge Test. There is no flight training involved in this course.

Prerequisite(s): AVN 2114 or possess a U.S. FAA issued Instrument Pilot Certificate; or instructor permission.

AVN 2500 UNMANNED AIRCRAFT SYSTEMS FLIGHT OPERATIONS (3 credits)

This course will give students hands-on flight training experience with small unmanned aircraft including mission planning, operational control, and working with different types of payloads.

Prerequisite(s): AVN 1500 and FAA Remote Pilot Certificate. Not open to non-degree graduate students.

AVN 2510 DIVERSITY IN AVIATION (3 credits)

This course provides an overview of the contributions women and minorities have made to the field of aviation. Emphasis is placed on past, present and future roles of women and minorities in aviation. The course includes other topics such as international aspects and issues of aviation.

Prerequisite(s): Not open to non-degree graduate students.

Distribution: Social Science General Education course

AVN 2750 AVIATION METEOROLOGY (3 credits)

An introductory study of the key elements of the atmosphere's structure from the earth's surface to the upper levels; weather systems and hazards to aviation operations plus impact of adverse weather on aeronautical operations. Course will include review of air mass characteristics, frontal weather, and pressure system structure.

Prerequisite(s): AVN 1020, and MATH 1310 or MATH 1220 or equivalent.

AVN 2900 INDEPENDENT STUDY IN GENERAL AVIATION (3 credits)

This course will cover various topics in aviation to be determined with the instructor and student. Possible topics include Ground Instructor Ratings, crew resource management, airline airport analysis, military history, effects of privatization, etc.

AVN 3000 BUSINESS AND CORPORATE AVIATION (3 credits)

This course will provide a broad understanding of aspects related to the field of business and corporate aviation. Information that will be covered includes: the history of business and corporate aviation; regulations and associations; the value of using business aircraft; aircraft selection; the differences between corporate flight department, fractional ownership, and charter departments; insurance requirements; and safety and security issues.

Prerequisite(s): AVN 1000 and Junior or Senior standing

AVN 3040 HUMAN FACTORS IN AVIATION SAFETY (3 credits)

The purpose of this course is to provide students with an understanding of human factors as it applies to pilots and administrators. Topics will include pilot physiological and psychological issues, work station design, crew resource management, and related public sector issues for managers.

Prerequisite(s): AVN 1160

AVN 3050 UNMANNED AIRCRAFT SYSTEM DESIGN, DEVELOPMENT, AND MAINTENANCE (3 credits)

This course offers students theoretical knowledge and hands-on experience with small unmanned aircraft system design, development, and maintenance. Students will learn principles of UAS design, development, and maintenance, and will apply interdisciplinary knowledge to build small UAS.

Prerequisite(s): AVN 2500. Not open to non-degree graduate students.

AVN 3060 WRITING IN AVIATION (3 credits)

This course will further develop the communication skills of aviation students through various forms of writing. Students will compose a research paper and other writing assignments.

Prerequisite(s): ENGL 1160 and AVN 1000

AVN 3070 AIR TRAFFIC CONTROL (3 credits)

The purpose of this course is to introduce students to the Federal Aviation Administration (FAA) Air Traffic Control system. Elements and requirements of the course will include: basic air traffic control procedures for pilots, navigation aids, control tower operations, radar approach and departure regulations, and airport traffic control (ATC).

AVN 3090 AIRPORT ADMINISTRATION AND PLANNING (3 credits)

This course covers the nation's airspace design, navigation and air traffic systems and their effect on airport capacity. Additionally, the national airport system will be investigated as well as airport design and development parameters, fiscal processes, and management considerations.

Prerequisite(s): AVN 2050

AVN 3150 AVIATION LAW (3 credits)

This course will increase the student's knowledge of aviation law. Particular attention will focus on the manner in which legal forces affect the aviation system.

Prerequisite(s): AVN 1000 and junior standing.

AVN 3190 CERTIFIED FLIGHT INSTRUCTOR THEORY (3 credits)

Provide the student with an understanding of the theories involved in flight instruction. Course will include extensive oral presentation of complex aeronautical information and use of the personal computer assisted training device. Students are expected to pass FAA Fundamentals of Instructing and Federal Aviation Administration (FAA) Flight Ground Instructor Knowledge tests. There is no flight training in this course.

Prerequisite(s): AVN 2144 and CMST 1110.

AVN 3194 CERTIFIED FLIGHT INSTRUCTOR I (2 credits)

This course consists of approximately 25 hours of flight training in flight instruction procedures required to obtain the FAA flight instructor certificate. Special Fees apply.

Prerequisite(s): AVN 2144 and AVN 3190 (may enroll concurrently).

AVN 3200 COOPERATIVE EDUCATION IN AVIATION (1-6 credits)

This course will complement course work with a relevant professional work experience or practicum in aviation. The practicum/field experience may be a special project in an aviation organization to be coordinated by the instructor. Offered as a credit/no-credit course.

Prerequisite(s): AVN 3060, junior/senior standing, aviation major, instructor permission by written proposal (contract), and approval of proposed work/field experience by instructor.

AVN 3304 CERTIFIED FLIGHT INSTRUCTOR II (2 credits)

Using a combination of lab session training at UNO and ground / flight instruction at the student's selected Flight Training Provider (FTP), the Flight Instructor Candidate will complete the FAA Flight Instructor-Instrument Certificate.

Prerequisite(s): AVN 3194 and AVN 3190 or instructor permission

AVN 3400 MULTI-ENGINE CERTIFICATION (2 credits)

Using a combination of lab session training, Advanced Aviation Training devices at UNO and ground/flight instruction at the student's selected Flight Training Provider (FTP), the student will complete the FAA Multi-Engine Rating at the Commercial level.

Prerequisite(s): AVN 2180 and AVN 2144 and Federal Aviation Administration Commercial Single Engine Land

AVN 3500 RESEARCH METHODS IN AVIATION (3 credits)

An introductory research methods course focused on contemporary as well as historical aviation problems and topics, but from an investigative perspective. The primary focus will be the preparation of standard research documents and the use of traditional statistical methods to evaluate various data sources.

Prerequisite(s): 60 hours of undergraduate credit and AVN 3060 completed or in progress.

AVN 3510 AEROSPACE SCIENCES (3 credits)

This introductory course will provide pre-service teacher candidates, aviation students, and students at large the opportunity for a science oriented general education course. The curriculum will be focused in the areas of earth and space science, geospatial technology, and aeronautics. Key topics for this course will include the geoscience practice of Geographic Information Systems, Global Positioning System, and the NASA Jet Propulsion Laboratory/ UNO designed Data-Slate remote sensing program. Also included will be space sciences focused solar system exploration, satellite technology, and astronautics. Students will engage in aeronautic science topics inclusive of the study of aerodynamics of flight, meteorological science and weather, and flight technology. All students will be provided opportunity to apply concepts of flight in the Aviation Institute's Advanced Simulation Facility.

AVN 3600 INTERNATIONAL AVIATION (3 credits)

This course examines global air transport and its impact on the development of the global economy. Lectures and readings will provide a solid foundation of historical knowledge about international air transport and its development in various countries, before exploring current policy debates about liberalization, global alliances, and other critical issues.

Prerequisite(s): AVN 2020

AVN 3700 TRANSPORTATION ANALYSIS (3 credits)

This course is an extension of introductory financial courses; special emphasis on service characteristics of air carriers. Review of airline revenue and expense streams, pricing and fares, fiscal market segmentation, and fleet planning. Focused approach to understanding the monetary forces that underlie the business practices of domestic and international passenger and cargo airlines.

Prerequisite(s): ECON1200 or higher and junior standing

AVN 4000 INDEPENDENT RESEARCH IN AVIATION (1-3 credits)

The purpose of this course is to provide the aviation student an opportunity to complete an in-depth analysis of a specific aviation topic. Examples: aerodynamics, airports rates/charges analysis, cost-allocation for airside/landside, aviation marketing relating to aircraft manufacturing, airline promotion, flight component, off-airport subjects, comprehensive regional planning, environmental subject, etc.

Prerequisite(s): Aviation major, senior standing, and written permission of the instructor.

AVN 4010 AERODYNAMICS AND AIRCRAFT PERFORMANCE (3 credits)

Provides the student with an understanding of the factors affecting aircraft performance during various phases of flight. Topics will include aircraft performance requirements outlined in the Federal Aviation Administration Regulations, use of performance charts and tables, runway airport analysis, and climb cruise descent performance.

Prerequisite(s): AVN 1000, AVN 2144, MATH 1220 or instructor permission.

AVN 4020 AIRCRAFT SYSTEMS (3 credits)

Provides the student with an understanding of systems employed on technologically advanced, sophisticated aircraft. Systems covered will include electrical, hydraulic, engines, flight control and pneumatic systems.

Prerequisite(s): AVN 1000 and AVN 2144 or instructor permission.

AVN 4050 GENERAL AVIATION OPERATIONS (3 credits)

Organization and operation of general aviation facilities to include administration, aircraft maintenance considerations, flight line operations, and decision making.

Prerequisite(s): AVN 1000

AVN 4060 ADVANCED AIR TRANSPORT FLIGHT OPERATIONS (3 credits)

The course will be a capstone event in the professional pilot sequence. Specific emphasis will be on the pre-flight planning and execution of air carrier flight operations. Additional instructional segments will cover regional and corporate flight operations.

Prerequisite(s): AVN 4020 or instructor permission.

AVN 4080 AIRPORT SAFETY AND SECURITY (3 credits)

This course will explore the role of airports in relation to safety and security. Topics will include regulations, responsibilities, security issues, ramp safety, disaster preparedness, and emergency management. (Cross-listed with AVN 8086).

Prerequisite(s): Junior standing and AVN 1000

AVN 4200 INTERNSHIP IN AVIATION (1-6 credits)

This course is designed to provide direct hands-on experience in the aviation industry for selected students. Students will be selected for internships competitively by a panel of Aviation Institute faculty and industry representatives from companies providing the internships. This experience will be in a full-time, preferably paid position in a highly structured environment using a syllabus designated by the faculty and industry committee.

Prerequisite(s): AVN 3060, junior/senior standing, aviation major, instructor permission.

AVN 4500 ADVANCED UNMANNED AIRCRAFT SYSTEMS PROCEDURES (3 credits)

This course will provide students with scenario based training sessions that focus on emergency procedures for inflight operations, risk assessment and mitigation tactics, and advanced communications procedures.

Prerequisite(s): AVN 2500. Not open to non-degree graduate students.

AVN 4900 SPECIAL TOPICS IN AVIATION (1-3 credits)

This course will discuss various topics in the Aviation Industry determined each time the course is offered. Possible topics include International Aviation, Current Issues, and Cockpit Resource Management along with other topics.

Prerequisite(s): AVN 1000 and junior standing

AVN 4990 AIR TRANSPORTATION (3 credits)

This course fulfills the Aviation Institute capstone projects for undergraduates. Lectures and readings will cover contemporary issues and problems in air transportation, as well as material related to research design and implementation.

Prerequisite(s): AVN 3700, junior or senior standing, or instructor permission.