

2020-2021 Catalog Addendum: Aviation Course Descriptions

AVIT – AVIATION

AVIT100 3-0-3

Introduction to Aviation

This course surveys the major topics in the aviation industry. This course covers aviation history in the United States and internationally, regulations, air space, fundamentals of flight, propulsion, navigation, air traffic control, and unmanned aircraft systems. Emphasis is placed on career paths in aviation. The course covers corporate, airline and airport operations.

AVIT101 1-1-1

Experiential Flight

Prerequisite: U.S. Citizenship

Designed for students interested in experiencing limited flight training. The course provides 5 hours of introductory ground training and 10 hours of flight training. Students will work with an FAA certified flight instructor and will be introduced to basic aeronautical skills and knowledge. This course is not intended for students wishing to earn a pilot's license. The course is for students who simply want to gain some experience flying a single engine aircraft.

AVIT103 1-1-1

Simulated Flight

Designed for students interested in experiencing flight training in a flight simulator. The course provides introductory ground and flight training. Students will work with an FAA certified flight instructor and will be introduced to basic aeronautical skills and knowledge. This course is not intended for students wishing to earn a pilot's license. The course is for students who simply want to gain some experience flight training in a flight simulator.

AVIT107 1-0-1

Aeronautical Knowledge Seminar

This seminar is designed to cover the aeronautical knowledge necessary to successfully complete the content knowledge requirement for obtaining a private pilot airplane license. This course may also be taken to reinforce a student's prior aeronautical knowledge.

AVIT110 3-0-3

Aeronautical Knowledge

Prerequisites: ENGL080 and MATH074 or MATH099 or Placement test scores.

Introduces students to the basic knowledge necessary to function safely and competently in the flight environment. Topics include but are not limited to airplane components, aerodynamic principles of flight, aircraft instruments and systems, performance prediction and weight/balance control. This course also introduces students to the flight environment including airports, airspace, aeronautical charts, ATC services, navigation aids, VFR and IFR operations, approach and departure procedures, FAA regulations and the Airman's Informational Manual. Additionally, the course covers basic weather theory, weather forecasts and reports, pilotage, dead reckoning, communication procedures, flight planning, decision making, human factors and aviation physiology.

AVIT115 3-0-3

National Airspace System

Provides foundational and technical knowledge of the National Airspace System. Describes NAS features and components, associated systems, and next generation air transport concepts and plans. Topics include but are not limited to, The Federal Aviation Administration, NAS and air traffic control, NAS systems, instrument navigation procedures, next generation air transportation

system, navigating the NAS, commercial space transportation, and unmanned aircraft systems. Course may include field trips to the FAA's William J. Hughes Technical Center.

AVIT125 **3-0-3**

Special Topics in Aviation Studies

This course is designed to introduce students to particular topics related to or influencing aviation. Topics are selected based on their significance and or level of impact. Topics may include, emerging technologies, regulations, aviation history, advances in aviation or general aviation topics. See current course schedule for specific course topic information.

AVIT127 **3-0-3**

Introduction to Airport Management

Prerequisite: ENGL080 and MATH074 with grades of C or better or Placement Test scores.

Provides students with an introduction to the major elements in the process of airport planning and management. Topics include but are not limited to airport regulations, financing, site selection and environment impact, airport capacity and delays, terminal planning and design, ground access planning, daily operations and security, and airline and public relations.

AVIT135 **3-0-3**

Introduction to Unmanned Aircraft Systems

Designed to introduce students to unmanned aircraft systems. Topics include but are not limited to system elements, regulations, operations, practical uses of UAS, safety, the history and future of UAS, sensors and payloads and human factors.

AVIT140 **2-3-3**

Small Unmanned Aircraft Systems Operation-Multi-Rotor

This course is designed to prepare students to operate a small-unmanned aircraft system (sUAS). Topics include but are not limited to the Code of Federal Regulations 14 part 107, airspace classifications, aeronautical chart reading, emergency procedures, conditions affecting flight, and aeronautical decision-making. This course requires a flight laboratory where students will operate a sUAS. The coursework also prepares students for the Federal Aviation Administration's Unmanned Aircraft Systems Knowledge Test. Upon successful completion of the test, students may be eligible to seek their FAA Remote Pilot Certificate with a Small Unmanned Aircraft Systems Rating.

AVIT145 **3-5-4**

Private Pilot Helicopter

Prerequisites: U.S. citizenship, and a Class 2 medical certificate

Includes actual flying experience with an FAA approved flight instructor. Students will receive 56 hours of flight instruction including dual and solo, 14 hours of pre/post flight briefing, and 45 hours of ground instruction. Successful completion will result in earning a Private Pilot license. This course facilitates students in developing the knowledge and skills needed to safely exercise the privileges and obligations of a Private Pilot acting as Pilot-in-Command of a helicopter. This is a Pass/Fail course.

AVIT150 **4-0-4**

Flight Attendant Essentials

Prerequisite: HOSP100

This course provides an introduction to flight attendant duties. Topics include but are not limited to flight safety, federal aviation regulations, passenger cabin procedures, human factors, passenger care and management, conflict resolution, aircraft systems, emergency and boarding procedures, in-flight service procedures, safety briefing announcements, customer service skills and airline terminology.

AVIT185 **4-0-4**

Remote Sensing Using Unmanned Aircraft Systems

Introduces students to the use of unmanned aircraft systems for remote sensing and acquiring information about the Earth's surface without coming in contact with it. Topics include but are not limited to an introduction to remote sensing, classification of unmanned aircraft systems, attitude estimation, lateral channel fractional order flight controller design, remote sensing using a single UAS, using multiple UAS's, and diffusion control using mobile sensors and actuator networks.

AVIT200 **1-1-1**

Aeronautical Skills

Prerequisite: Permission of Instructor

This course is designed to extend a student's flight training. The course provides an opportunity for students to focus on their individualized needs as a student pilot attempting to gain the skills and knowledge necessary to safely exercise the privileges and obligations of a licensed pilot. Students are presented with a combination of lecture, simulation, and practical flight experience designed to meet their needs. This course affords students an additional 15 hours of flight training with a certified flight instructor.

AVIT210 **3-3-4**

Private Pilot Airplane

Prerequisite: AVIT110 (may be taken concurrently). Students are also required to have proof of U.S. citizenship or TSA approval, and a valid second-class medical certificate to enroll in this course.

Includes actual flying experience with an FAA approved flight instructor. Students will receive 56.5 hours of flight instruction including dual and solo, 14 hours of pre/post flight briefing, and 45 hours of ground training. Successful completion will result in earning a Private Pilot Certificate. This course facilitates students in developing the knowledge and skills needed to safely exercise the privileges and obligations of a Private Pilot acting as Pilot-in-Command of a single-engine airplane. This is a Pass/Fail course.

AVIT220 **3-0-3**

Instrument Pilot Knowledge

Prerequisite: AVIT210 or AVIT145 (may be taken concurrently)

Focuses on ground training to prepare students for the Federal Aviation Administration's instrument rating knowledge examination. Topics include but are not limited to Federal Aviation Regulations, attitude flight, navigation aids, instrument flight rules meteorology, instrument flight procedures and operations, and phraseology.

AVIT225 **3-0-3**

Mobilizing a Drone-Powered Economy

Prerequisite: AVIT135

This course examines the impact of drones on our economy and society while reviewing the necessary steps for starting a drone business. Topics include but are not limited to the analysis between advances in drone technology and the creation of wealth from new business opportunities that result from technical innovations, legal and liability issues, regulatory considerations, ethical and societal implications, operational considerations, and technical advances and limitations.

AVIT235 **1-0-1**

Instrument Knowledge Seminar

Prerequisite: Valid Pilot's license

This seminar is designed to cover the instrument knowledge necessary to successfully complete the content knowledge requirement for obtaining an instrument rating for an airplane pilot's license. This course may also be taken to reinforce a student's prior aeronautical knowledge.

AVIT240 **2-2-2**

Instrument Pilot Airplane

Prerequisites: U.S. Citizenship, valid private pilot's license, Class 2 medical certificate

Includes actual flying experience with a FAA approved flight instructor. Students will receive 40 hours of flight instruction, 15 hours of pre/post flight briefing, and 40 hours of ground instruction. The course is designed for students to gain the necessary aeronautical skill and knowledge to meet the requirements of an Instrument Rating with an Airplane category and a Single-Engine Land class rating. This is a Pass/Fail course.

AVIT245 **3-0-3**

Professional sUAS Operations

Prerequisite: AVIT140 (may be taken concurrently)

Provides students with the opportunity to design and develop a standard procedural framework for the safe and professional operation of small unmanned aircraft systems (drones). Topics include but are not limited to designing and developing a safety management system, developing a framework for a maintenance and inspection program.

AVIT250 **3-3-4**

sUAS Maintenance & Repair

Prerequisite: ENGR125 (may be taken concurrently)

Students learn the necessary knowledge and mechanical dexterity for the troubleshooting and repair of a variety of technical, electronic, and mechanical problems on a less than 55 pound unmanned aircraft system. Lecture and laboratory topics include sUAS maintenance, identification of system components, payloads, aircraft modification, part installation, hand-held ground control station

maintenance, battery maintenance, radio frequency, basic soldering, safety inspections, test flights, software updates, and recordkeeping and checklist writing.

AVIT255 **3-5-4**

Instrument Pilot Helicopter

Prerequisites: U.S. Citizenship, valid private helicopter pilot's license, Class 2 medical certificate

Will familiarize the student with helicopter systems, operation, power plant, instrumentation, and performance, loading and flight characteristics used in instrument flying. Includes 58 hours of flight instruction, 54 hours of ground instruction, and 17 hours of pre- and post-flight briefing with an FAA certified flight instructor. This is a Pass/Fail course.

AVIT260 **3-0-3**

Commercial Pilot Knowledge

Prerequisite: AVIT240 or AVIT255 (may be taken concurrently)

Focuses on ground training to prepare students for the Federal Aviation Administration's commercial pilot airplane or helicopter knowledge examination. Topics include but are not limited to Federal Aviation Regulations, aerodynamics, weight and balance, aircraft systems, flight planning, and aeronautical decision-making.

AVIT/TVRF263 **1-1-1**

Aerial Video Production

Prerequisite: FAA Remote Pilot Certificate with a Small UAS Rating.

This course is designed for the remote aircraft pilot interested in learning to use a small-unmanned aircraft for professional photography and videography. Topics include but are not limited to visual sensors, flying techniques, pre and post processing, and flight planning. Students will create a product portfolio containing samples of their work. This course requires 15 hours of fieldwork.

AVIT265 **2-9-5**

Commercial Pilot Helicopter

Prerequisites: U.S. Citizenship, valid private helicopter pilot's license with an instrument rating, Class 2 medical certificate

This course covers the aeronautical skills and knowledge necessary to meet the requirements for a commercial pilot certificate with a rotorcraft category and helicopter class rating. Includes 115 hours of flight instruction, 45 hours of ground instruction, and 30 hours of pre- and post-flight briefing. This is a Pass/Fail course.

AVIT275 **1-0-1**

Commercial Pilot Knowledge Seminar

Prerequisite: Valid Pilot's License

This seminar is designed to cover the aeronautical knowledge necessary to successfully complete the content knowledge portion of obtaining a commercial airplane pilot's license. This course may also be taken to reinforce a student's prior knowledge.

AVIT276 **3-0-3**

Fundamentals of Flight Instruction

Prerequisite: Valid commercial pilot's license

This course is designed to introduce the fundamentals of flight instruction. Student will learn about the teaching and learning process, instructional design and delivery, techniques for assessing learning, and methodologies for safely instructing students to fly.

AVIT278 **1-1-1**

Airplane Flight Instructor

Prerequisites: U.S. Citizenship, valid commercial pilot's license with an instrument rating, Class 2 medical certificate

This course provides students with the skill, knowledge, and aeronautical experience necessary to meet the requirements for a flight instructor certificate with an airplane category rating and single-engine class rating. The course includes 25 hours of flight instruction, 8 hours of pre/post flight briefing, and 15 hours of ground instruction. Students have the opportunity to practice instruction and the analysis of maneuvers. This is a Pass/Fail course.

AVIT280 **2-8-4**

Commercial Pilot Airplane

Prerequisites: U.S. Citizenship, valid private pilot's license with an instrument rating, Class 2 medical certificate

Includes 120 hours of flight instruction, 13 hours of pre/post flight briefing, and 35 hours of ground instruction with an FAA approved flight instructor. The course is designed for students to gain the necessary aeronautical skill and knowledge to meet the requirements of a Commercial Rating with an Airplane category and a Single-Engine Land class rating. This is a Pass/Fail course.

AVIT282

2-2-2

Helicopter Flight Instructor

Prerequisites: U.S. Citizenship, valid commercial pilot's license with an instrument rating, Class 2 medical certificate

This course is designed to prepare students to become a certified flight instructor. Upon successful completion, students will demonstrate the necessary aeronautical skill to obtain a certificated flight instructor certificate with a rotorcraft category and helicopter class rating. The course includes 25 hours of flight instruction, 40 hours of ground instruction, and 7 hours of pre- and post-flight briefing, so students can practice instruction and the analysis of maneuvers. This is a Pass/Fail course.

AVIT286

1-1-1

Multi-Engine Pilot

Prerequisites: U.S. Citizenship, Class 2 medical certificate, and permission of instructor.

This course is designed to provide students with the aeronautical skill and knowledge necessary to safely operate a multi-engine fixed wing aircraft under normal and emergency conditions. Emphasis will be placed on systems operations, use of flight instruments, flight maneuvers, and instrument navigation systems on typical multi-engine aircraft. This course includes 16 hours of ground instruction, 4 hours of pre/post flight briefing, and 15 hours of flight instruction. This is a Pass/Fail course.

AVIT288

2-7-4

Commercial Helicopter Add-On

Prerequisite: AVIT280 or valid commercial pilot's license with an instrument rating, Class 2 medical certificate, U.S. Citizenship.

This course is designed to provide students with the aeronautical skill and knowledge necessary to earn a commercial pilot helicopter add-on to an existing commercial airplane pilot certificate. This course includes 40 hours of dual flight instruction and 35 hours of solo flying for a total of 75 hours of flight time. The course also includes 39.5 hours of ground instruction, and 30.25 preflight and post briefing and debriefing. The FAA required minimum flight hours in this course are 75 hours, however, the actual flight hours may vary based on student proficiency. This is a Pass/Fail course.

AVIT290

1-1-1

UAS Capstone Project

Prerequisite: AVIT140

Provides students with an opportunity to utilize a small-unmanned aircraft system for the collection, analysis, and post processing of data into information. Students may propose a project to be completed during the semester or choose from one of the college's ongoing projects. Projects may focus on geospatial data collection, orthorectified mapping, radiometric analysis, agricultural data analysis, structural inspections, volumetric measurement, or aerial videography/photography. Students will develop a project proposal, image acquisition plan, flight plan, and a presentation. Students are required to meet in the classroom and in the field with the instructor.