AVIATION (AVIA)

For lab fees and flight hours please click here.

AVIA 101 Exploring Aviation 3 Credit Hour(s)
This course explores the field of aviation, career opportunities, and future trends. While learning about their future in aviation, students will study blimps, rocketry, gliders, and the principles of flight.
Offered: Residential

AVIA 102 Aviation Foundations 3 Credit Hour(s)
This is a survey course that introduces key ideas which will help anyone interested in aviation succeed. Class time is spent introducing topics like aviation rules of thumb, character development, learning theory, and aviation technical knowledge areas, and applying these topics to various aviation career fields.
Offered: Residential and Online

AVIA 104 Flight Operations Orientation 3 Credit Hour(s)
Prerequisite: AVIA 225 and AVIA 322 (may be taken concurrently)
Orientation course for certificated pilots transitioning into Liberty University's Flight Training Program.
Registration Restrictions: FAA Private Pilot Certificate required
Offered: Residential

AVIA 105 Aviation Survey 3 Credit Hour(s)
Prerequisite: (AVIA 210 and AVIA 215 and AVIA 220 and AVIA 225) or (AVIA 216 and AVIA 220 and AVIA 225)
This course is required for all aviation majors and designed for all students interested in an aviation career. Includes a general introduction of current aviation and historical events. This course includes an overview of basic aviation terminology, and potential careers in aviation. Further, it will expose students to the vast array of careers within the aviation sector. This course will introduce a student to Part 141 flight training, Aviation Medicals and Restricted ATP program.
Registration Restrictions: Private Pilot Certificate
Offered: Online

AVIA 201 Principles of Ground for Non-Flight Majors 3 Credit Hour(s)
This course covers all the principles of ground knowledge needed to be successful in the aviation industry. Principles of Ground for Non-Flight majors develops the non-pilot student's aeronautical knowledge and the basic aviation terms and concepts from FAA publications. Some concepts include basic aerodynamics, aircraft systems, flight planning, meteorology, airport operations, navigation, and several other important ground concepts. Registration
Note: This course is specifically designed for non-flight students.
Offered: Online

AVIA 210 Private Ground I 3 Credit Hour(s)
Prerequisite: ((ENGL 100 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222 or (pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70) and (Placement Score-Math with a score of 75 or MATH 110 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217))
This course is the first of two courses that develop the student's aeronautical knowledge required for certification as a Private Pilot with an Airplane Single Engine Land rating. The course covers basic aviation terms and concepts, basic aerodynamics, aircraft systems, and FAA publications.
Offered: Residential

AVIA 215 Private Ground II 3 Credit Hour(s)
Prerequisite: AVIA 210 and AVIA 220 (may be taken concurrently)
This course is the second of two courses that develop the student's aeronautical knowledge required for certification as a Private Pilot with an Airplane Single Engine Land Rating. The course covers basic aviation terms and concepts, to include flight planning, meteorology, airport operations, and navigation.
Offered: Residential

AVIA 216 Private Ground 4 Credit Hour(s)
Prerequisite: VA Medical Certification with a score of 10
This course is the complete private pilot ground course completed in one term. Private Ground develops the student's aeronautical knowledge required for certification as a Private Pilot with an Airplane Single Engine Land rating. The Private Ground course covers basic aviation terms and concepts from FAA publications. Some concepts include basic aerodynamics, aircraft systems, flight planning, meteorology, airport operations, navigation, and several other important private pilot concepts. The online course provided under Liberty University's 141 Air Agency Certificate for AVIA 216.
Note: Students must choose between the following options to count towards Private Ground course training: (AVIA 210 and AVIA 215) or AVIA 216. Students must enroll in AVIA 220 as a required co-requisite. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Offered: Online

AVIA 220 Private Flight I 3 Credit Hour(s)
Resident Prerequisite: ((ENGL 100 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222 or (pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70) and (Placement Score-Math with a score of 75 or MATH 110 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217)) and AVIA 210 and AVIA 215 (may be taken concurrently) and VA Medical Certification with a score of 10
Online Prerequisite: VA Medical Certification with a score of 10
This course is the first of two sequential flight training courses that include the requisite aircraft and simulator training and experience required for the FAA Private Pilot practical test. The residential course requires 27.8 hours of flight training. This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For online flight training hour requirements reference the notes below.
Registration Restrictions: Resident: To be eligible to take this course, students must score at least a "C" on the Liberty University English and Math Assessment Tests and be eligible to take ENGL 101 and MATH 115 or higher. Students who are required to complete ENGL 100, MATH 100, or MATH 110 are not eligible for AVIA 220 enrollment. The residential course provided under Liberty University's 141 Air Agency Certificate for AVIA 220. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding. Online: Student must seek co-requisite enrollment into AVIA 216.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Offered: Residential and Online

AVIA 225 Private Flight II 3 Credit Hour(s)
Resident Prerequisite: AVIA 220 and VA Medical Certification with a score of 10
Online Prerequisite: AVIA 216 and AVIA 220 and VA Medical Certification with a score of 10
This course is the second of two sequential flight training courses that include the requisite aircraft and simulator training and experience required for the FAA Private Pilot practical test. The residential course provided under Liberty University's 141 Air Agency Certificate for AVIA 225. The residential course requires 33.9 hours of flight training. This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For online flight training hour requirements reference the notes below.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Offered: Residential and Online

AVIA 227 Introduction to Risk Management 3 Credit Hour(s)
Prerequisite: AVIA 225
This course will introduce students to the idea of aviation risk management. Course content includes discussions on aircraft systems, cross-country flying, elements of risk management, and automation.
Registration Restrictions: Earned Private Pilot Certificate
Offered: Online

AVIA 230 Unmanned Aerial Systems 3 Credit Hour(s)
This is an introductory course in unmanned aerial systems (UAS). The course includes the history of unmanned aircraft; the elements of command and control; the National Airspace System and how it relates to UAS; current and planned Federal Aviation Administration regulation; and the very latest operations and challenges currently facing this industry.
Offered: Residential and Online

AVIA 235 Small Unmanned Aerial System Ground 3 Credit Hour(s)
Prerequisite: AVIA 230 (may be taken concurrently) and AVIA 301
This course builds upon the foundation developed in AVIA 230. This course consists of academics and simulated flights of multi-rotor and fixed wing UAS platforms. Students will learn mission planning, autonomous mission execution, and customer product creation.
Offered: Residential

AVIA 236 Small UAS Flight 1 Credit Hour(s)
Prerequisite: AVIA 301
This course will provide the student a study in the command and control of small unmanned aerial systems. Command and control theories will be discussed in relation to a specific UAS. Specific command and control systems will be taught and will include ground lessons, simulator training, and flight training. By completion of the class, the student will be able to safely conduct small UAS flights for commercial purposes.
Offered: Residential

AVIA 237 Small UAS Advanced Flight 3 Credit Hour(s)
Prerequisite: AVIA 235 and AVIA 236
This course is designed to provide students the opportunity to use the knowledge and skills acquired in AVIA 236 to create products utilizing Small UAS. Students will use the fleet of Small UAS at LUSOA to create 3D models, orthomosaics, digital media, and provide surveillance during events that require heightened security.
Offered: Residential

AVIA 240 GPS Navigation 1 Credit Hour(s)
This course teaches the practical use of global positioning through the Garmin G1000 Flight Management System. We will cover the Global Positioning System (GPS) theory, operations, hardware and software usage, and refer to similar equipment models. This course references the National Airspace System and critical Air Traffic Control elements including navigational aids, operations in controlled and uncontrolled airspace, as well as towered and non-towered airport environments. Elements of communication, radio operations, as well as normal and abnormal operations are discussed.
Offered: Residential

AVIA 241 GPS Instrument Navigation 1 Credit Hour(s)
Prerequisite: AVIA 240 (may be taken concurrently)
This course builds upon the basic GPS knowledge acquired in the AVIA 240 GPS Navigation course and builds on an understanding of the Garmin G1000 as it relates to instrument flight. The content encompasses all phases of instrument flying including instrument approaches, holding and course reversals, departures, enroute and arrivals as well as vertical navigation (VNAV) descents, troubleshooting and malfunctions, WAAS and autopilot use in an instrument flight rules (IFR) environment.
Offered: Residential

AVIA 245 Aviation Leadership 3 Credit Hour(s)
The focus of this course is how an aviator can promote effective and safe aviation operations by developing and employing sound human factors leadership principles. Crew resource management, threat and error management, and safety management system concepts and programs will be evaluated against actual situations and aircraft accident case studies to help students develop their analytic and evaluative skills. Students will also learn their own personal strengths and how those strengths relate to human factors elements that contribute to effective aviation teams and an organizational culture that promotes safe mission accomplishment. (Formerly AVIA 445)
Offered: Residential and Online

AVIA 250 Introduction to Space Flight 3 Credit Hour(s)
This course is a survey of the major aspects of space flight and exploration. Topics covered include the history of space flight, space vehicle launch and orbits, international space station operations, human physiology in space, and present and future commercial, industrial and military applications in space. The course examines differing views presented by scientists in the field including those with a biblical worldview.
Offered: Residential

AVIA 299 Internship 0 Credit Hour(s)
Offered: Residential

AVIA 300 Aviation Safety 3 Credit Hour(s)
This course provides the student with a detailed introduction into aspects of aviation safety, risk management, and the associated components of pilot psychology, human factors and accident trends, factors and analysis. Students will explore and develop their identity as an aviation leader as it relates to safety.
Offered: Residential and Online

AVIA 301 Remote Pilot Ground 3 Credit Hour(s)
Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and AVIA 230)
The Remote Pilot Ground course will prepare students to earn the FAA Part 107 Remote Pilot Certificate for commercial drone operations, beyond the ACS standards. This course is designed to cover all the requirements and phases for drone flight operations, where safety and real-world applicability are at the core. The main objective is to prepare students to pass the FAA Part 107 Knowledge Test, obtain a certificate with the FAA that can complement a degree, continuing or professional education, and provide an advantage in the workforce and employment opportunities for students. This course is not eligible for credit towards the Restricted ATP.
Offered: Online

AVIA 302 Airplane Aerodynamics 3 Credit Hour(s)

AVIA 304 Aviation History 3 Credit Hour(s)
The ability for humans to take to the air and space has created some dramatic events in history. This course focuses on those historical events as well as aviation pioneers, covering aviation development that was bound by gravity, to breaking beyond those bonds and reaching into space. This course will paint a broad overview of historical people and events that have defined and created the aerospace industry.
Offered: Online

AVIA 305 Airplane Aerodynamics 3 Credit Hour(s)
Resident Prerequisite: ((MATH 128 or MATH 130 or MATH 131)) and PHYS 101
Online Prerequisite: ((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and ((PHYS 201 or PHYS 202 or PHYS 231 or PHYS 232 or PHYS 305) or (PHYS 101 and PHYS 103))
This course will provide the student a study of the physical principles of airplane aerodynamics, thereby fostering an appreciation of the factors affecting aircraft performance, stability and control, and special flight conditions often experienced by commercial pilots of the fixed-wing aircraft.
Offered: Residential and Online

AVIA 306 Non-Profit Aviation Management 3 Credit Hour(s)
Prerequisite: ((AVIA 201 or AVIA 215 or AVIA 216) and ((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217))
This course provides a perspective on the impact of nonprofit organizations including within the aviation industry. Students will research key areas relating to nonprofit governance and structure, ethics, effectiveness of nonprofits, financial management, legal issues and benefits to members. Students will be challenged to synthesize these concepts with a biblical perspective.
Offered: Online

AVIA 308 Overview of Spaceflight and Space Operations 3 Credit Hour(s)
This course is a survey of the major topic areas of space flight. Topics covered include the history of space flight, rocket propulsion, basic orbital mechanics, orbits, spacecraft rendezvous maneuvers, International Space Station operations, space medicine, physiology and human factors associated with spaceflight, the commercial space industry, lunar / Mars exploration, satellites and remote sensing including military applications and unidentified aerial phenomena. The course examines differing views presented by engineers and scientists in the field and compares these views to a biblical worldview. Depending upon availability, guest lecturers include current and former employees from the National Aeronautics and Space Administration, the Federal Aviation Administration, and NASA and FAA contractors.
Offered: Residential

AVIA 310 Instrument Ground 3 Credit Hour(s)
Resident Prerequisite: AVIA 225 and AVIA 322 (may be taken concurrently)
Online Prerequisite: AVIA 225 and VA Medical Certification with a score of 10
The student will learn the FAA regulations, radio communications, air traffic control procedures, and meteorology as it relates to the instrument flight environment. The student will learn the proper use of radio navigational instruments and will be given study tools to prepare for the FAA Instrument written exam. Residential students must take AVIA 322 concurrently with AVIA 310." The online course provided under Liberty University's 141 Air Agency Certificate for AVIA 310.
Registration Restrictions: Earned Private Pilot Certificate
Offered: Residential and Online

AVIA 311 Instrumental Lab Theory 1 Credit Hour(s)
Prerequisite: AVIA 225
This course is designed to provide the student with ability to convert instrument flight theory to practical flight simulator operations. Student will fly simulator lights in the basic instrument phase to build a strong instrument scan. After mastering basic instruments, they learn radio calls and navigation used to perform instrument approaches to a landing.
Offered: Residential

AVIA 312 Aviation Safety Programs 3 Credit Hour(s)
Prerequisite: AVIA 102
In AVIA 312, students gain understanding of establishing an aviation safety program, including organizational policy and risk management. Hands on learning includes conducting an investigation into a simulated aviation mishap.
Offered: Residential

AVIA 314 Fixed Base Operator Management 3 Credit Hour(s)
There is so much more to aviation than flying airplanes. This is a career-oriented course which introduces students to management competencies with a practical application to aviation service businesses. Course discussions include management functions, marketing, cash flows, and property oversight.
Offered: Residential and Online

AVIA 315 Commercial Ground 3 Credit Hour(s)
Resident Prerequisite: AVIA 310 and AVIA 320 (may be taken concurrently)
Online Prerequisite: AVIA 310 and AVIA 320 and VA Medical Certification with a score of 10
This course will cover advanced aeronautical knowledge in aerodynamics, regulations, meteorology, aircraft systems, and airspace operations required for the Commercial Pilot Knowledge and Oral examinations. The online course provided under Liberty University's 141 Air Agency Certificate for AVIA 315.
Registration Restrictions: Earned Private Pilot Certificate; Residential students must take AVIA 320 concurrently with AVIA 315.
Offered: Residential and Online

AVIA 320 Instrument Flight 3 Credit Hour(s)
Resident Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 100 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 110 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217)) and AVIA 315 (may be taken concurrently) and AVIA 322 and AVIA 342 (may be taken concurrently) and VA Medical Certification with a score of 10
Online Prerequisite: AVIA 225 and VA Medical Certification with a score of 10
This course will provide basic instrument flight training. The student will gain an in-depth knowledge of Air Traffic Control procedures, airway navigation, and both precision and non-precision instrument approaches. This course will prepare the student for the FAA Instrument Practical Test. The Residential course provided under Liberty University's 141 Air Agency Certificate for AVIA 320. The residential course requires 38.3 hours of flight training. This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For online flight training hour requirements reference the notes below.
Registration Restrictions: Resident: Earned Private Pilot Certificate. Residential students must take AVIA 315 concurrently with AVIA 320. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding. Online: Private Earned Pilot Certificate required. Required co-requisite enrollment into AVIA 310. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours
Offered: Residential and Online

AVIA 322 Commercial Flight I: Accelerated 3 Credit Hour(s)
Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 100 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 110 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217)) and AVIA 104 (may be taken concurrently) and AVIA 225 and AVIA 310 (may be taken concurrently) and VA Medical Certification with a score of 10
This course is the first of two sequential accelerated flight training courses that include the requisite practical ground, aircraft, and simulator training and experience required for the FAA Commercial Pilot practical test. During this course, students will complete approximately one half of the practical ground, aircraft, and simulator training and experience hours required in the applicable commercial pilot training course outline (TCO). The residential course provided under Liberty University's 141 Air Agency Certificate for AVIA 322. The residential course requires 48.6 hours of flight training.
Registration Restrictions: FAA Private Pilot Certificate. Residential students must take AVIA 104 if their private pilot certificate was not earned at LU residential campus. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: For lab fees and flight hours please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/
Offered: Residential

AVIA 323 UAS Avionics & Powerplants 3 Credit Hour(s)
This course will provide the student a study in the current state of the art of avionics and systems in unmanned aerial systems. Students will be taught advanced concepts including RTK GPS, wired and wireless communications protocols, and RF theory. An overview of various UAS powerplants will also be presented.
Offered: Residential

AVIA 324 Commercial Flight II: Accelerated 3 Credit Hour(s)
Prerequisite: AVIA 315 and AVIA 320 and AVIA 322 and VA Medical Certification with a score of 10
This course is the second of two sequential accelerated flight training courses that include the requisite practical ground, aircraft, and simulator training and experience required for the FAA Commercial Pilot practical test. During this course, students will complete approximately one half of the practical ground, aircraft, and simulator training and experience hours required in the applicable commercial pilot training course outline (TCO). The residential course provided under Liberty University's 141 Air Agency Certificate for AVIA 324. The residential course requires 47.9 hours of flight training.
Registration Restrictions: Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: For lab fees and flight hours please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/
Offered: Residential

AVIA 325 Commercial Flight I 3 Credit Hour(s)
Prerequisite: AVIA 310 and AVIA 320 and VA Medical Certification with a score of 10
This course is the first of three sequential flight training courses that include the requisite aircraft and simulator training and experience required for the FAA Commercial Pilot practical test. During this course, students will complete the first stage/phase of their aircraft and simulator training found within their applicable Commercial Pilot Training Course Outline (TCO). This course requires in-person flight training for the B.S. in Aviation program. For online flight training course fees and hour requirements reference the notes below.
Registration Restrictions: Online: Private Pilot Certificate and Earned Instrument Rating. Required co-requisite is AVIA 315. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours
Offered: Online

AVIA 326 Commercial Flight II 3 Credit Hour(s)
Prerequisite: AVIA 315 and AVIA 325 and VA Medical Certification with a score of 10
This course is the second of three sequential flight training courses that include the requisite aircraft and simulator training and experience required for the FAA Commercial Pilot practical test. During this course, students will complete the second stage/phase of their aircraft and simulator training found within their applicable Commercial Pilot Training Course Outline (TCO). This course requires in-person flight training for the B.S. in Aviation program. For online flight training course fees and hour requirements reference the notes below.
Registration Restrictions: Online: Private Pilot Certificate and Earned Instrument Rating. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours
Offered: Online

AVIA 327 Commercial Flight III 3 Credit Hour(s)
Prerequisite: AVIA 315 and AVIA 325 and AVIA 326 and VA Medical Certification with a score of 10
This course is the third of three sequential flight training courses that include the requisite aircraft and simulator training and experience required for the FAA Commercial Pilot practical test. During this course, students will complete the third stage/phase of their aircraft and simulator training and experience hours required in the applicable Commercial Pilot Training Course Outline (TCO). This course requires in-person flight training for the B.S. in Aviation program. For online flight training hour requirements reference the notes below.
Registration Restrictions: Online: Private Pilot Certificate and Earned Instrument Rating. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours
Offered: Online

AVIA 331 Commercial Pilot, Single Engine Land Add On 1 Credit Hour(s)
Prerequisite: AVIA 327 and VA Medical Certification with a score of 10
This course will provide the student a study in the commercial operation of single-engine aircraft. The student will apply the knowledge and skills previously attained during the commercial multi-engine course to the operation of a single-engine aircraft. This will include theoretical and practical training in the flight maneuvers required by the FAA Commercial Pilot Practical Test Standards such that the student will be able to smoothly and precisely perform each single-engine commercial flight maneuver to the high standards required of a professional aviator.
To satisfactorily complete this course, the student will be required to successfully complete an FAA Practical Test, which includes an oral exam and a flight test in a single-engine aircraft. This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For online flight training hour requirements reference the notes below.
Registration Restrictions: Resident: Earned Commercial Pilot Certificate. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding. Online: Private Pilot Certificate, Earned Instrument Rating, and Commercial Pilot Certificate. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours
Offered: Residential and Online

AVIA 335 Medium UAS Ground and Flight I 3 Credit Hour(s)
Prerequisite: AVIA 225 or AVIA 236 or AVIA 301 or AVMT 350
This course provides the student knowledge on a medium UAS platform through classroom instruction. Aircraft systems, software, hardware, and operating procedures will be covered. This course prepares the student to succeed in future simulated, and actual, flight training events.
Registration Restrictions: Junior/Senior status
Offered: Residential

AVIA 340 Aviation Weather 3 Credit Hour(s)
Resident Prerequisite: AVIA 210
Online Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and (AVIA 201 or AVIA 215 or AVIA 216))
This course is a study of weather hazards, meteorological flight planning, aviation weather equipment and human factors as related to flight safety in all weather conditions.
Offered: Residential and Online

AVIA 342 GPS Navigation 3 Credit Hour(s)
Resident Prerequisite: AVIA 225
Online Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and AVIA 225)
The quality and effectiveness of this course is dependent upon the focus of real-life lessons rather than simple textbook learning. This course teaches the practical use of global positioning through the Garmin G1000 Flight Management System. We will cover GPS theory, operations, hardware and software usage, and refer to similar equipment models. This course references the National Airspace System and critical Air Traffic Control elements including navigational aids, operations in controlled and uncontrolled airspace, as well as towered and non-towered airport environments. Elements of communication, radio operations, as well as normal and abnormal operations are discussed. The content encompasses all phases of instrument flying including instrument approaches, holding and course reversals, departures, en route and arrivals as well as vertical navigation (VNAV) descents, troubleshooting and malfunctions, WAAS and autopilot use in an instrument flight rule (IFR) environment.
Registration Restrictions: Earned Private Pilot Certificate
Offered: Residential and Online

AVIA 350 Airline Operations 3 Credit Hour(s)
Resident Prerequisite: AVIA 310 and AVIA 320
Online Prerequisite: AVIA 310 and AVIA 320 and ((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217)
This course is representative of the initial training a First Officer will receive as a new hire in today's airline industry. A foundational knowledge of FAR Part 91 instrument procedures is required. The material covered will focus on FAR Part 121 regulations, airline policies and procedures presented from an operational perspective. The topics studied will include: airline seniority, safety systems, the concept of operational control, operational policy, flight planning, and emergency/abnormal operations. Each student will be exposed to an in-depth study of dispatch procedures, fuel planning, weather requirements, and Jeppesen instrument approach procedures. The concepts of both Crew Resource Management (CRM) and Threat and Error Management (TEM) will be developed through all aspects of this course.
Registration Restrictions: AVIA 310 and AVIA 320 may be replaced as prerequisites if the student has an Earned Instrument Rating
Offered: Residential and Online

AVIA 355 Air Carrier Management 3 Credit Hour(s)
This course will explore the regulatory, network, business, and operational framework that supports air carrier operations and management. Special topics include business strategy, airside planning and procedures, operational and crew planning, processes, disruptions in operations, and tactics for mitigating service interruptions. The course will incorporate concept-relevant current trends within the air carrier industry through review, analysis, and discussion.
Offered: Residential and Online

AVIA 360 Business Aviation Management 3 Credit Hour(s)
This course is designed to introduce students to the exciting industry of corporate aviation. The course does introduce some business theory, but most of the course is designed as a practical guide for those who are interested in being involved in field of on-demand aviation. Students will be introduced to the importance of the feasibility study, and then discover the pitfalls of aircraft selection and acquisition. The course also highlights topics like international operations, maintenance requirements, and the importance of a good safety culture.
Offered: Residential and Online

AVIA 361 Airport Management 3 Credit Hour(s)
Prerequisite: ((ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222 or (pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and (AVIA 201 or AVIA 215 or AVIA 216))
Aviation Management offers an in-depth exploration into the dynamic and intricate realm of airport operations. It integrates advanced management principles with specialized airport knowledge, fostering a profound comprehension of both the planning processes and the managerial and operational functions essential for the efficient running of airports, ranging from small regional hubs to large international gateways. The curriculum encompasses a comprehensive study of airport operations and management, delving into the multifaceted role of the airport manager. Topics include strategic planning, financial oversight, administrative leadership, public relations, socio-political and environmental considerations, as well as operational requirements and maintenance. Additionally, this course will be taught from a biblical worldview. Thus, this course also emphasizes the importance of ethical leadership, stewardship, and integrity in airport management. Students will explore how principles rooted in faith, such as honesty, responsibility, and service to others, can guide decision-making and foster a culture of respect and accountability within the airport community. By aligning professional practices with Biblical values, students will be equipped to lead with compassion and wisdom, promoting not only operational excellence but also the well-being of all stakeholders involved.
Offered: Residential and Online

AVIA 400 Aviation Human Factors 3 Credit Hour(s)
Resident Prerequisite: AVIA 300
Online Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and (AVIA 201 or AVIA 215 or AVIA 216) and AVIA 300)
This course will cover the scope of regulations concerning aviation and how they impact the pilot. The course will provide basic understanding of the human factors concepts including psychological and physiological limitations of humans operating in complex environments. In addition, the course will include an in-depth study of Crew Resource Management, which involves understanding of the flight deck environment and the proper utilization of resources available to the aviator.
Offered: Residential and Online

AVIA 401 Fundamentals of Instructing 3 Credit Hour(s)
Prerequisite: AVIA 326
The Fundaments Of Instructing (FOI) course will prepare students to understand and apply the fundamental principles, processes, and practices of instruction for Flight, Ground and Sport Pilot. An in-depth review of and study of the FAA recognized applied education sychology, theories of learning, and the methods of instruction.
Offered: Online

AVIA 402 Advanced Avionics and Flight Management Interfaces 3 Credit Hour(s)
Prerequisite: ((ENGL 100 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222 or (pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70) and (Placement Score-Math with a score of 75 or MATH 110 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and AVIA 327 and AVIA 342)
An in-depth study of the evolution of modern flight deck avionics to include controls, displays, terrain and collision avoidance equipment, and the human interface of flight management systems and how it affects the situational awareness of pilots in both single pilot and multi-crew environments. This course covers emerging technologies in general aviation aircraft as well as conceptual and operational avionics systems in transport category aircraft.
Offered: Online

AVIA 405 Advanced Aerodynamics 3 Credit Hour(s)
Prerequisite: AVIA 305
This course will survey the theory of airplane performance and flight characteristics to include pilot static calibration, weight and balance, engine and propeller performance, takeoff and landing performance, range and endurance, excess energy and power, 1G stalls, turn performance, and longitudinal, lateral and directional static and dynamic stability and control. The course will provide in class instruction and practical laboratory work in both a simulator and aircraft to quantitatively document aircraft performance, and stability and control. Flight test data reduction and reporting techniques will conclude the learning objectives as student will report on the results of their evaluations.
Offered: Residential

AVIA 409 Safety Management Systems 3 Credit Hour(s)
Prerequisite: ((ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222 or (pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and (AVIA 201 or AVIA 215 or AVIA 216) and AVIA 300)
In AVIA 409, students explore Safety Management Systems (SMS) in depth. As leaders in training, students learn how Safety Management Systems (SMS) integrates leadership commitment, an environment of trust and accountability, and just culture. Hands on learning includes the planning and conducting of a simulated emergency response drill.
Offered: Residential and Online

AVIA 410 Flight and Ground Instructor Theory 3 Credit Hour(s)
Resident Prerequisite: AVIA 315
Online Prerequisite: AVIA 327 and AVIA 401 and VA Medical Certification with a score of 10
This course provides the student with a detailed study of the responsibilities and teaching methods of a flight instructor. The course is divided into two major sections: fundamentals of teaching and learning, including effective teaching methods, learning process, consideration of flight training syllabi, effective evaluations, and flight instructor responsibilities. The second section covers the analysis of the flight maneuvers involved with Private Pilot, Commercial Pilot and Flight Instructor Certificates. The course will also provide practical teaching experiences.
Offered: Residential and Online

AVIA 419 Aviation Safety Data Analysis 3 Credit Hour(s)
Prerequisite: ((ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222 or (pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and (AVIA 201 or AVIA 215 or AVIA 216) and AVIA 300)
In AVIA 419, students will learn to collect, validate, analyze and communicate data relevant to aviation safety. Students will visualize flight data using tools such as Google Earth, flight simulators, and data software, and will learn how to conduct Flight Data Monitoring (FDM).
Offered: Residential and Online

AVIA 420 Flight Instructor Flight 3 Credit Hour(s)
Resident Prerequisite: AVIA 324 and AVIA 410 and AVIA 423 (may be taken concurrently) and VA Medical Certification with a score of 10
Online Prerequisite: AVIA 327 and AVIA 401 and VA Medical Certification with a score of 10
This course covers flight instructor methods and maneuvers in preparation for the FAA Certified Flight Instructor initial evaluation. The residential course requires 21.6 hours of flight training. This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For online flight training hour requirements reference the notes below.
Registration Restrictions: Resident: Earned Commercial Pilot Certificate. Residential course registration for AVIA 420 is completed by the Chairman of the Flight Science Department pending student selection via the AVIA 420 application and review process conducted during the student's participation in AVIA 410. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding. Online: Private Pilot Certificate, Earned Instrument Rating and Commercial Pilot Certificate. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours
Offered: Residential and Online

AVIA 423 Certified Flight Instructor - Instrument (CFII) 3 Credit Hour(s)
Resident Prerequisite: AVIA 410 and AVIA 420 (may be taken concurrently) and VA Medical Certification with a score of 10
Online Prerequisite: AVIA 401 and AVIA 420 and VA Medical Certification with a score of 10
This course is designed to train students to successfully complete the FAA Certified Flight Instructor Instrument Certificate. The course will contain both academic classroom and aircraft flight training required by FAA regulations. The residential course requires 9.3 hours of flight training. This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For online flight training hour requirements reference the notes below.
Registration Restrictions: Residential: Earned Certified Flight Instructor Certificate. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding. Online: Private Pilot Certificate, Earned Instrument Rating, Commercial Pilot Certificate, and Certified Flight Instructor Certificate. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours
Offered: Residential and Online

AVIA 424 Airline Transport Pilot 3 Credit Hour(s)
Prerequisite: AVIA 315 and AVIA 325 and AVIA 326 and AVIA 327
This course is designed to train the student to obtain the knowledge, skill, and aeronautical experience necessary to meet the FAA Part 141 requirements to obtain an Airline Transport Pilot Certificate. The course will contain both academic classroom and aircraft flight training required by FAA regulations. The academic ground school will consist of 11 lessons exceeding the FAA requirement of 40 classroom hours of instruction. The flight portion of this course will consist of 10 flights exceeding the FAA requirement of 25 hours of flight time.
Offered: Residential

AVIA 430 Multi-Engine Ground 3 Credit Hour(s)
Resident Prerequisite: AVIA 315
Online Prerequisite: AVIA 327 and VA Medical Certification with a score of 10
This course provides for an understanding of the principles and practice of operating a multi-engine aircraft. Normal and abnormal procedures are included along with a discussion of the Federal Aviation Regulations, unique weather and environmental circumstances, aircraft systems and the specific aerodynamics associated with multi-engine aircraft.
Registration Restrictions: Earned Commercial Pilot Certificate
Offered: Residential and Online

AVIA 435 Advanced Jet Systems 3 Credit Hour(s)
Resident Prerequisite: AVIA 350 (may be taken concurrently) and AVIA 430
Online Prerequisite: ((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and AVIA 327
This course is representative of the systems training a First Officer receives as a new hire in today's airline industry. This course provides advanced jet systems training by systematically studying the type of aircraft systems commonly found on commercially operated jet aircraft. As a training platform, this course specially explores all the major aircraft systems found on the Bombardier CRJ-200. Students will be exposed to aircraft limitations and profiles, Immediate Action Items, checklist usage, and Flight Management Systems (FMS) navigation. The concepts of both Crew Resource Management (CRM) and Threat and Error Management (TEM) will be developed through all aspects of this course.
Registration Restrictions: Earned Private Pilot Certificate, Earned Instrument Rating, and Earned Commercial Pilot Certificate. Residential course sequence recommendation. Take AVIA 455 before AVIA 435.
Offered: Residential and Online

AVIA 436 Advanced Jet Training 3 Credit Hour(s)
Prerequisite: (AVMT 320 or AVIA 455) and (AVMT 320 or AVIA 430) and AVIA 315 and AVIA 320
This course will introduce students to Mission, Military and Commercial/Corporate Flight Operations. Students will participate in Academic Instruction, Cockpit Procedure Training (CPT) lessons and Flight Training Lessons in an Advanced Aircraft Training Device. This scenario-based training will include: Checklist usage in multi-crew environment; Flight Management Systems (FMS) operations; Normal procedures and flight profiles; Abnormal/Emergency procedures and flight profiles; High Altitude aerodynamics; and Aeronautical Decision Making. This course will also stress the proper use of aircraft automation and systems management through all phases of flight. The concepts of both Crew Resource Management (CRM) and Threat and Error Management (TEM) will be developed through all aspects of this course.
Registration Restrictions: Senior Status
Offered: Residential

AVIA 440 Multi-Engine Flight 1 Credit Hour(s)
Resident Prerequisite: ((AVIA 324 or AVIA 327) and AVIA 430 (may be taken concurrently) and VA Medical Certification with a score of 10)
Online Prerequisite: AVIA 327 and VA Medical Certification with a score of 10
Introduction to multi-engine flight and all related maneuvers in preparation for the FAA Multi-Engine Rating. The residential course requires 19 hours of flight training. This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For online flight training hour requirements reference the notes below.
Registration Restrictions: Resident: Earned Commercial Pilot Certificate. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding. Online: Private Pilot Certificate, Earned Instrument Rating, and Commercial Pilot Certificate. Required co-requisite of AVIA 430. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours
Offered: Residential and Online

AVIA 442 Advanced Aircraft Flight Operations 1 Credit Hour(s)
Prerequisite: AVIA 225
This course will provide the student a study in high performance aircraft with engines having more than 200 horsepower. This will include theoretical ground training associated with high performance aircraft and the practical flight training required by 14 CFR 61.31. This will include training to proficiency in the operation of the aircraft's major systems and in the safe conduct of high performance flight operations. In addition, this course will focus on advanced flight operations in a wide variety of environments, including unimproved landing surfaces, flight operations in and over uninhabited areas, complex airspace and aerodromes, and complex weather systems. At the successful completion of this course, students will receive a special endorsement authorizing the student to legally operate an aircraft with an engine of more than 200 horsepower.
Offered: Residential

AVIA 443 Multi-Engine Instructor 3 Credit Hour(s)
Resident Prerequisite: AVIA 410 and AVIA 420 and AVIA 440 and VA Medical Certification with a score of 10
Online Prerequisite: AVIA 401 and AVIA 420 and AVIA 430 and AVIA 440 and VA Medical Certification with a score of 10
This course builds on the Certified Flight Instructor certification to teach techniques and maneuvers in preparation for the FAA Multi-Engine Practical Flight Test. The residential course requires 22.1 hours of flight training. This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For online flight training hour requirements reference the notes below.
Registration Restrictions: Residential: Airplane Multi-Engine Land Rating. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding. Online: Private Pilot Certificate, Earned Instrument Rating, Commercial Pilot Certificate, Certified Flight Instructor Certificate, and Multi-Engine Rating. Current FAA 2nd class medical required for students utilizing Department of Veterans Affairs funding.
Note: This course requires in-person flight training for all programs, including the B.S. in Aeronautics, B.S. in Aviation, B.S. in Aviation Technology, and B.S. in Unmanned Aircraft Operations. For course fees, please click: https://www.liberty.edu/aeronautics/flight-course-lab-fees/. For VA approved flight hours by location, click: https://www.liberty.edu/vaflighthours
Offered: Residential and Online

AVIA 444 Principles of Transportation 3 Credit Hour(s)
Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and (AVIA 201 or AVIA 215 or AVIA 216))
Principles of Transportation provides a survey of the aviation industry, domestic and international. The course will cover aircraft and flight, economics, air traffic management, navigation, airline and airport operations, aviation security, law, and safety as well as environmental impacts. The goal of the course is to provide the student with an overview of the air transportation system illustrating the interdependency among its components. Students will develop a thorough knowledge of current and emerging trends in the air transportation industry as well as its function and role in domestic and international management.
Offered: Online

AVIA 446 Medium UAS Ground and Flight II 3 Credit Hour(s)
Prerequisite: AVIA 225 or AVIA 236 or AVIA 301 or AVMT 350
This course provides the student the opportunity to utilize knowledge gained in AVIA 335 by conducting simulated medium UAS flights. Normal, abnormal, and emergency procedures will be taught and executed utilizing Medium UAS simulators.
Offered: Residential

AVIA 447 Medium UAS Ground and Flight III 3 Credit Hour(s)
Prerequisite: AVIA 446 and AVIA 335
This course provides the student the opportunity to achieve full certification on a Medium UAS aircraft. Utilizing knowledge and skills built in AVIA 335 and AVIA 446, students will conduct training flight operations. Upon successful completion of all flight events the student will be given industry certification.
Offered: Residential

AVIA 448 Aviation Law 3 Credit Hour(s)
Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217) and (AVIA 201 or AVIA 215 or AVIA 216))
Aviation Law provides the aviation student with a comprehensive and thorough understanding of aviation laws, regulations, and policies (federal, state, local, and international, as applicable to various aspects of the aviation industry). Aviation Law explores the historical development, federal and state regulatory functions, and rights and liabilities of various facets within the aviation industry. This course analyzes historical aviation law cases in order to understanding how past actions impact current aviation policies and enforcements.
Offered: Online

AVIA 450 Confined Area Operation 2 Credit Hour(s)
Prerequisite: AVIA 225
This course will prepare students to plan and operate in confined areas with short and unpaved landing strips. The student will learn safety aspects, risk management and flight techniques necessary to successfully operate throughout the world.
Offered: Residential

AVIA 455 Turbine Engines and Jet Transports 3 Credit Hour(s)
This course is an in-depth study of the turbine engine theory, design and operations. The student will also receive a broad knowledge of the design and operation of turbine engines and their related systems on transport category aircraft.
Offered: Residential and Online

AVIA 460 Professional Pilot Career Strategies 3 Credit Hour(s)
This course will cover the unique requirements of a professional pilot job interview. The course material will focus on the entire interview process from personal preparation, to paperwork presentation, to the actual interview itself. Practice interviews with professionals from the aviation industry will critique the student on personal appearance, communication skills, and professional knowledge. In formulating answers to interview questions, the principles of Aeronautical Decision Making (ADM), Crew Resource Management (CRM) and Threat and Error Management (TEM) will be thoroughly developed. Residential
Registration Restrictions: Admission into the BS in Aeronautics, BS in Aviation Maintenance Management, BS in Aviation Administration, or BS Aviation Technology: Flight and Maintenance program, and Junior or Senior Status.
Offered: Residential and Online

AVIA 461 Aviation Career Strategies 3 Credit Hour(s)
Prerequisite: ((ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222 or (pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217))
This course will cover the unique requirements of an aviation job interview. This course material will focus on the entire interview process from personal preparation, to paperwork presentation, to the actual interview itself. During practice interviews, representative from the aviation industry will critique the student on professional appearance, communication skills, and applicable knowledge. Junior status or higher recommended.
Offered: Residential and Online

AVIA 465 Human Factors & Crew Resource Management 3 Credit Hour(s)
Prerequisite: AVIA 310

AVIA 470 UAS Program Development 3 Credit Hour(s)
Prerequisite: AVIA 235 and AVIA 236 and AVIA 301
AVIA 470 will provide students with the opportunity to learn about UAS program documentation, and to create a set of documentation that can be used to operate a UAS. Industry standards from ASTM and the FAA will be studied. Students will then create an operations manual, maintenance manual, standard operating procedures, and a checklist for a UAS platform.
Offered: Residential

AVIA 472 Aviation Organizational Ethics 3 Credit Hour(s)
Resident Prerequisite: AVIA 245
Online Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217)) and AVIA 245
This course investigates aviation industry safety, sustainability, and leadership from an ethics perspective. Utilizing various ethics theories as a foundation, students will analyze case situations related to aviation safety, leadership, corporate responsibility, sustainability, and decision making. Students will integrate a biblical worldview into their analysis and into the development of a personal ethics philosophy on how the Christian aviation professional should work within the industry. The course will help students to gain tools necessary to recognize and apply leadership and managerial principles to common ethical situations found in this unique aviation environment.
Offered: Residential and Online

AVIA 475 Aviation Physiology 3 Credit Hour(s)
Prerequisite: AVIA 400 and ((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 100 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 110 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217)
Aviation Physiology deals with the physical and mental effects of flight on air crew, personnel, and passengers. This course covers some of the physiological problems of flight, and will explore the use of devices that aviation physiologists and others have developed to assist in human compensation for the numerous environmental changes that are encountered in flight.
Offered: Online

AVIA 490 Aviation Capstone 3 Credit Hour(s)
Prerequisite: (((pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217))
The Aviation Capstone Course is a culminating effort of the entire learning experience for the student in the School of Aviation. The goal of the capstone is to provide students with an industry-centered educational experience. The course will expose students to real-world problems, constraints, and performance issues faced across a wide variety of aviation-oriented disciplines. The course will also require students to develop and tests essential skills required in the aviation industry. Students will seamlessly merge a biblical worldview into practical applications within the aviation industry.
Registration Restrictions: Senior Status and the last course taken in an Aviation Degree
Offered: Online

AVIA 491 Aeronautics Capstone 3 Credit Hour(s)
Prerequisite: ((ENGL 100 or ENGL 101 or ENGL 102 or ENGL 201 or ENGL 202 or ENGL 215 or ENGL 216 or ENGL 221 or ENGL 222 or (pre2016) SAT Writing with a score of 480 or SAT Test Writing/Language with a score of 28 or ACT English with a score of 19 or Placement Score-English with a score of 70) and (Placement Score-Math with a score of 75 or MATH 114 or MATH 115 or MATH 116 or MATH 117 or MATH 121 or MATH 122 or MATH 125 or MATH 126 or MATH 128 or MATH 130 or MATH 131 or MATH 201 or MATH 217))
The Aeronautics Capstone course is a culminating effort of the entire learning experience for the student in the School of Aeronautics. The goal of the capstone is to provide students with an industry-centered educational experience. The course will expose students to real-world problems, constraints, and performance issues faced across a wide variety of aviation-oriented disciplines. The course will also require students to develop and test essential skills required in the aviation industry. Students will seamlessly merge a biblical worldview into practical applications within the aviation industry.
Registration Restrictions: Senior Status and the last course taken in a degree.
Offered: Residential and Online

AVIA 492 Aviation Research Implementation 3 Credit Hour(s)
Prerequisite: AVIA 491
During this AVIA 492 students refine the research problem and methods, research the problem and report the conclusions. Ultimate desired outcome includes path for national forum presentation and/or scholarly journal publication.
Offered: Residential

AVIA 495 Directed Research 1-3 Credit Hour(s)
During AVIA 495 students apply their learning to add to their learning portfolio through participation in a case study project or with a capstone research paper. Tasks include forming the research problem, defining methods, and generating a draft paper. Continues with AVIA 496, Advanced Directed Research.
Offered: Residential

AVIA 496 Advanced Directed Research 1 Credit Hour(s)
Prerequisite: AVIA 495
Students will apply their learning to add to their learning portfolio through participation in a case study project or with a capstone research paper. Tasks include refining the research problem, exploring methods, and generating a final paper.
Offered: Residential

AVIA 499 Aeronautics Internship 1-6 Credit Hour(s)
This course incorporates practical learning experiences in an aviation setting. The student will be introduced to a variety of aspects related to the discipline of Aeronautics while serving as an intern. To earn academic credit for this course, the student must enter an Undergraduate Student Internship/ Practicum Agreement by signature between Liberty University and the internship organization (referred to as “the Organization”) designated in the Addendum to that Agreement. To earn three academic credit hours for this course, the student must complete a minimum of 180 internship hours at the “Organization”. To earn six academic credit hours for this course, the student must complete a minimum of 360 internship hours at the “Organization.”
Registration Restrictions: Junior or Senior Status
Offered: Residential and Online