

AVIATION COURSE DESCRIPTIONS

AVI 130-Aviation History (3)

Familiarization with the beginnings of aviation: the events, the aircraft, and the people that enabled the fledgling industry to develop into what it is today.

(Cross-listed with UDHS 130)

AVI 131-Basic Ground School (6)

An introduction to private pilot flight operations including basic aircraft control, flight theory, national airspace system, radio navigation, aircraft performance, meteorology, cross-country operations, and human physiology. At the successful completion of this course, the student will have gained the aeronautical knowledge to take the FAA Private Pilot written examination.

AVI 145-Safety and Ethics in Aviation (1)

Designed to acquaint the beginning aviation student with a set of policies, procedures, rules, and laws that affect the student's potential success in the aviation industry. A variety of topics will be presented to address safe, professional and ethical conduct necessary for success in the aviation industry. This course is designed for the student without an instrument rating and must be taken the first term of flight training.

AVI 201-Principles of Navigation (3)

An introduction to basic navigation for flight operations students. Covers navigation techniques and equipment used by pilots in all kinds of aircraft, from the basics of dead reckoning and VOR navigation to the most recent developments in satellite navigation. Prerequisite: FLI 131

AVI 231-Ground School – Instrument (4)

Theory and operation of flight instruments: instrument approach systems, airways systems, control systems, and communications; instrument navigation and approach procedures. Preparation for FAA Instrument written examination. Prerequisite: AVI 131

AVI 232-Ground School – Advanced (3)

Theory of flight, advanced flight maneuvers, air navigation, systems, meteorology, and other subjects in preparation for the FAA Commercial Pilot written examination. Prerequisites: AVI 231, FLI 131, ESC 214

AVI 233-Air Transportation (3)

The study of the air transportation industry from development to present day. A historical overview is studied and the course includes contemporary discussion of federal legislation, financial characteristics, classification of air carriers, organizational structure and function of the following organizations: Department of Transportation, Federal Aviation Administration, National Transportation Safety Board, and professional organizations representing the air transportation industry. Sectors of the industry — aerospace, general aviation, commercial airlines, and air cargo — will be studied providing a basic foundation of information on which future studies and career decisions can be based. Prerequisite: AVI 131 or consent of instructor

AVI 234-ATC Procedures and the National Airspace System (3)

This course addresses the interaction of Air Traffic control procedures with other components (e.g., navigation systems, communication, regulations, and personnel) with emphasis on the national airspace system. A brief history and discussion of the current and future developments affecting ATC and NAS will also be a major part of this course. Prerequisite: AVI 231 and AVI 349

AVI 236-Introduction to Advanced Powerplants (3)

An overview of turbocharged and gas turbine engines, with emphasis on turboprop operations. Prerequisite: AVI 131

AVI 237-Helicopter Operations (3)

Introduction to helicopter aerodynamics, theory of flight, maintenance and operational considerations for business as well as scheduled airline service.

AVI 270-Upset/Basic Aerobatics Training (1)

Prepares advanced flight students with the challenges of severe upsets in flight and the basic skills required for successful outcomes. This course has both flight and ground school requirements.

Prerequisite: FLI 131

AVI 301-Aviation Regulations (3)

A survey of actual case histories and FAA officials' opinions. Explains FARs part 1, 61, 91, 141, 121, 135, and NTSB 830. Past historical and legislation events, acts, and treaties will be examined. Prerequisites:

AVI 231

AVI 305-Avionics Systems (3)

Designed to present the theory of operation and utilization of various types of avionics equipment. Explains avionics equipment and systems from the simple magnetic compass to the most advanced integrated flight management systems. Prerequisite: FLI 131

AVI 306-Aircraft Systems and Components (3)

Defines and describes aircraft systems. Oil, fuel, hydraulic and pneumatic systems are explained. A system by system approach to understanding basic electrical principles as well as the theory components and practical applications of typical turboprop and turbo jet aircraft. Prerequisite: FLI 131

AVI 322-Aviation Human Capital & Employee Management (3)

An overview of managerial practices with respect to the management of the human resource function and employee management within the aviation industry. A discussion on contemporary labor relations issues and managing within a unionized environment will also be addressed. Other areas of inquiry include selection and retention, training management, compensation and workforce integration. Upon successful completion of this course, students will have an enhanced understanding of human capital issues as well as how to manage a workforce that has unionized employees within the aviation industry. Prerequisite:

AVI 233

AVI 332-Advanced Aircraft Systems/CRJ (3)

This course is designed to prepare students for jet aircraft flight experiences through the use of a simulator. The course covers advanced jet aircraft systems, inclusive of simulation experiences with high altitude weather, collision avoidance, and emergency situations. High altitude performance considerations are embedded throughout the course. Upon successful completion of the course, students will be able to demonstrate critical thinking skills for in-flight system level emergencies, reinforce team building concepts and processes, build foundational knowledge for the practical portion of the FAA ATP evaluations, and consider ethical and professional attributes required of a professional pilot. Prerequisite: AVI 232.

AVI 333-Aviation Security & Crisis Management (3)

This course offers an introduction to contemporary aviation security issues through the study of incidents, ICAO and U.S. regulatory agency requirements, and an understanding of practical security measures at major aviation entities. Crisis management techniques, predicting and preventing future threats and lessons learned will also be addressed. Upon successful completion of this course, students will have an enhanced understanding of the security and crisis management of air transportation, which is becoming a major aspect of the aviation industry. Prerequisites: AVI 233 or consent of the instructor.

AVI 337-Airport Management (3)

The major functions of airport management: organization, zoning, adequacy, financing, revenues and expenses, evaluation and safety. A study of the airport master plan; federal, state, and local agencies; and the socioeconomic effect on the community. Prerequisite: AVI 233 or consent of the instructor

AVI 341-Aviation Law (3)

A study of laws, regulations, aviation activities, and the liability arising out of the operation and/or ownership of aircraft, airports, and repair stations. Basic principles of tort law and risk management as related to aviation operations/organizations are covered. Prerequisite: AVI 233 or consent of the instructor

AVI 344-Corporate Aviation (3)

This course will provide the framework for an in-depth study of Corporate Aviation Department Management and the functions it fulfills. A study of the regulations, types of on-demand air transportation, benefits of on-demand air travel, flight department management, maintenance management, safety and aircraft selection as it relates to corporate aviation and executive transportation will be conducted. The course will culminate with a look at the current and future issues facing Corporate Aviation Managers. Prerequisite: AVI 233 or consent of the instructor

AVI 346-Airline Management (3)

A study of scheduled air carrier and commuter organization and functions, to include passenger service, air cargo personnel management, labor relations, sales, finance, and public relations. Prerequisite: AVI 233 or consent of the instructor

AVI 347-Aviation Logistics (3)

Study of maintenance management and logistic management principles as well as problems associated with actual physical distribution. Prerequisite: AVI 346 or AVI 348

AVI 348-Fixed-Base Operations (3)

Fixed Base Operations provides a study of fixed-base operations, to include organization and functions of flight operations, airfield services, maintenance activities, and flight training programs. This course explores the relationships among the fixed-base operator, the airport authority and the community, and the regulating bodies governing the fixed-base operators. Students tour local fixed-base operations and study contemporary problems through case studies. Flight operations, fueling and airfield services, maintenance activities, and flight training programs will be examined for profitability and viability. Prerequisite: AVI 233 or consent of the instructor

AVI 349-Aviation Safety Management (3)

An introduction to aviation safety and Safety Management Systems (SMS) through the study of aviation accidents. Designed to provide a basic understanding of the contemporary issues faced by the industry and risk mitigation strategies, including the implementation of an SMS program. Accident investigative techniques, reporting methods and lessons learned will also be addressed. Prerequisite AVI 131, Sophomore standing or consent of the instructor.

AVI 385, 386, 387, 485, 486, 487-Aviation Internship (Arranged)

Aviation internship formally integrates a student's academic studies in aviation with on-the-job work experience. Students may apply up to 12 intern credit hours toward the B.S degree.

AVI 391, 392, 491, 492-Independent Study (1-3)

For majors in the department with Junior or Senior standing. Maximum of 6 credit hours.

AVI 401-Applied Aerodynamics (3)

Principles of aerodynamic forces, aircraft performance and limitations, and longitudinal, lateral and directional stability and control. Low speed and high-speed aerodynamics with related transport design characteristics. Prerequisite: UDMA 150, PHY 151, or instructor consent (Cross-listed with PHY 401)

AVI 404-Air Traffic Management (3)

Presents an advanced study of air traffic control tower operations, non-radar air traffic control, Terminal Radar Approach Control and Air Route Traffic Control Center equipment, policies and procedures. Students learn proper teamwork, decision making and crew resource management skills while applying their knowledge of air traffic management. Prerequisite: AVI 234

AVI 430-CFI – Fundamentals of Instruction (2)

This course prepares advanced aviation students seeking a certified flight instructor rating for the FAA knowledge test on the Fundamentals of Instruction. The student will have an understanding of the

learning process, develop the ability to organize teaching materials, prepare lesson plans, use instructional aids and acquire other teaching skills. Prerequisite: AVI 232

AVI 431-CFI – Aeronautical Knowledge (3)

Provides advanced aviation students with the aeronautical knowledge required to teach aviation-related material and prepares them to take the Certified Flight Instructor FAA written examination. Prerequisites: AVI 430.

AVI 432-Ground School – CFI, Instrument (2)

Designed for the CFI who wishes to be certified to conduct instrument flight instruction. Preparation for FAA CFI-instrument written examination. Prerequisite: AVI 430.

AVI 433-Scheduling (3)

Introduces basic scheduling theory for aircraft, crews, and service support, as well as various techniques and concepts for use in the air transportation industry. Prerequisite: UDMA 150

AVI 434-Human Factors (3)

The study of human interface with the airplane and the operational environment. Crew coordination and decision making will be explored through case studies. The objective of the course is to prepare flight students to respond appropriately in critical safety of flight situations. Prerequisite: FLI 231

AVI 435-Ground School – Multi-Engine (2)

This course is designed to provide the multi-engine pilot candidate with the skills and aeronautical knowledge necessary to operate multi-engine aircraft safely under normal and emergency conditions. Emphasis will be placed on systems operations, limitations under normal and emergency conditions, use of flight instruments and instrument navigation systems on typical multi-engine general aviation aircraft and on the Piper Seminole in particular. Prerequisite: FLI 231 or consent of the instructor.

AVI 436-Maintenance Management (3)

The study of maintenance management principles to include aircraft scheduling, maintenance techniques, quality control, inventory management, and training. Prerequisite: AVI 346 or AVI 348

AVI 439-Modeling and Simulation (3)

Introduces the concept of modeling and simulation as it relates to air transportation problems. Use of a basic simulation language with practical exercises. Prerequisite: UDMA 150

AVI 444-Air Transport Economics & Finance (3)

This course will provide an in-depth study into the unique aspects of air transportation and airline economics and finance. A study of the principles of air transport and airline economics, supply and demand analysis, international economics, pricing policy and revenue management, airline financing, financial statements, air transport operating cost management, aircraft purchasing, leasing and financing, among others will be addressed. The course will culminate with a look at the current and future economic and finance issues facing the air transport industry. Upon successful completion of the course, students will have an enhanced understanding of the unique aspects of air transportation and airline economics and financing. Prerequisites: AVI 233, BAC 120, and BAC 300 or consent of the instructor.

AVI 445-International Airline Management and Operation (3)

Study of the origin, growth, and development of international air transportation.

The characteristics of international air carriers and their role in serving national and international needs are examined. Particular attention paid to the economics and competitive strategies of international airlines, profitability, regulatory evolution, airport congestion, and the conflicting interests of the many parties involved. Review of the functions of ICAO, IATA, and DOT. Prerequisite: AVI 346 or consent of the instructor.

AVI 447-Crew Resource Management and Advanced Systems (3)

Provides the student with advanced crew procedures to include flight above 25,000 feet, advanced navigation, advanced systems, and advanced weather avoidance systems training. Designed to prepare the commercial pilot for corporate or regional airline environments. Prerequisite: AVI 332 and FLI 231

AVI 449-Aviation Safety Program Development (3)

Student develops safety programs designed for a wide variety of companies in the aviation industry. Emphasis is placed on OSHA, maintenance, flight, and support operations for companies performing in the aviation industry. Prerequisite: AVI 349

AVI 495-Senior Seminar (3)

WorldView IV, Aviation Senior Seminar provides a structure that allows students to define themselves, their abilities, and their beliefs while addressing moral, ethical, and faith based questions particular to current issues in aviation. Students will survey regulatory, operational, financial, marketing, and labor relation issues in the aviation industry identifying ethical and moral dilemmas discovered through their research. Individual studies and presentations will afford each student the opportunity to discuss, debate, and defend their opinions on current issues in the aviation industry, based on religious, ethical, and moral beliefs and teachings. Prerequisite: Senior standing

AVI 496-Washington Seminar – Aviation Policy (3)

Provides opportunities for students to visit Washington D.C. and interact with government agencies, industry associations, and other interest groups involved in establishing aviation policy. Students will be required to do advance reading, attend all programmed events, and prepare a course paper summarizing the Washington experience. Prerequisite: Junior standing

FLIGHT COURSE DESCRIPTIONS

FLI 131-Flight Training I (3)

Preflight operations: starting, taxiing, takeoffs, and landings, airport traffic patterns, simulated emergencies, use of radio for communication, maneuvering at minimum controllable airspeed, stalls from all normally anticipated flight altitudes, and primary instruments. Introduction to advanced precision maneuvers. Preparation for the private pilot license.

FLI 132-Flight Training – Commercial Cross-Country (2)

Advanced navigation procedures and cross-country flying, day and night. Designed to meet aeronautical experience requirements for a commercial pilot license. Prerequisite: AVI 131

FLI 231-Flight Training – Instrument (3)

Instruction in operation of aircraft solely by reference to instruments. Instrument pilot techniques and maneuvers in preparation for the FAA instrument examination. Prerequisite: AVI 131

FLI 232-Flight Training – Commercial Maneuvers (2)

Advanced maneuvers, power turns, spirals, chandelles, lazy eights, and other precision maneuvers in preparation for the FAA Commercial Pilot Flight examination. Prerequisites: AVI 231

FLI 235-Fixed-Wing Transition (Private Pilot) (2)

Designed to permit military and commercial helicopter pilots to obtain an airplane (fixed-wing) category rating. The course is designed to allow maximum application of the student's powered flight experience and obtain the airplane category rating in the minimum amount of time. The course consists of a minimum of 20 flight credit hours. Prerequisite: Must possess current Private Pilot Rotary-Wing rating or better

FLI 334-Flight Training – Complex/High Performance Aircraft (2)

Instruction in the operation of an aircraft with retractable landing gear, controllable pitch propeller and flaps, engine horsepower rating greater than 200. Required for commercial pilot certification. Prerequisite: FLI 131

FLI 337-Fixed-Wing Transition (Commercial/Instrument) (3)

The purpose of this course is to permit military and other persons with helicopter commercial instrument ratings who have achieved a Private Pilot Airplane rating to upgrade that license to Commercial Instrument, Airplane, in the minimum required flight hours. Prerequisites: Current Commercial License, Rotary-Wing category; Helicopter Class Rating with instrument privileges, and a Private Pilot Airplane, Single Engine Land rating.

FLI 338-Fixed-Wing Transition (Instrument) (1)

The purpose of this course is to permit military or other pilots with Private or Commercial rotary-Wing Instrument ratings to obtain an Airplane Instrument rating. This course permits maximum application of power flight experience to meet FAR requirements and obtain the rating in the minimum of flight hours. Prerequisites: An Airplane Category Rating as well as a Helicopter Instrument Rating

FLI 340-Currency and Refresher (1)

A course for licensed pilots who need to stay current. Five hours of solo and/or dual flight training to improve proficiency on the private, commercial and instrument level. May be taken more than once. Prerequisites: Pilot's license and department approval

FLI 431-Flight Training-Certified -- Flight Instructor Airplane (CFI-A) (2)

Flight qualification for flight instruction, maneuver analysis, evaluation and instructional techniques in preparation for FAA, CFI Flight examination. Prerequisite: FLI 232

FLI 432-Flight Training – CFI Instrument (1)

Flight qualification for conducting instrument flight instruction. Preparation for FAA, CFI Instrument Flight examination. Prerequisite: AVI 430

FLI 433-Flight Training – CFI, Multi-Engine (1)

Flight qualification for conducting multi-engine flight instruction with emphasis upon fundamentals. Preparation for FAA, CFI, Multi-Engine Flight examination. Prerequisites: FLI 435

FLI 435-Flight Training – Multi-Engine (2)

Flight qualification in system and operation of multi-engine aircraft. Performance, flight techniques, systems management, night and emergency operation. Preparation for Multi-Engine Flight examination. Prerequisites: AVI 232 and FLI 231