

AVIATION AIR TRAFFIC CONTROL

From the Federal Aviation Administration webpage:

"The FAA Air Traffic Collegiate Training Initiative (AT-CTI) Program is designed to establish partnerships with higher educational institutions to broaden the employment opportunities in the aviation industry, including air traffic controllers. . . ."

"The FAA has agreements with 36 institutions across the country that have included curriculum that we consider the fundamentals of aviation within their degree programs. The fundamentals include basic information such as aircraft characteristics, weather; airspace; teamwork in aviation, navigation including charts, and search and rescue just to name a few. The degree programs contain much more aviation related material than we require."

"Each school submits degrees to be part of the program. Currently the 36 institutions offer 15 different Associate's, 37 Bachelor's, and 3 Master's degree programs. A complete list can be found at AT-CTI Schools."

"In addition to successful completion of your degree, there are other requirements that you should consider before committing yourself. In order to be considered, you:

- **Must** be United States citizens and, if required, registered for the selective service.
- Receive an official school recommendation. Each school determines the criteria for recommendation to the FAA, which could include grade point average, attendance, and/or a Capstone project or test.
- In most cases, not have reached age 31 prior to appointment (offered a job as an air traffic controller).
- Pass a rigorous medical examination.
- Successfully pass both a background and a security investigation.
- Achieve a score of at least 70 on the FAA pre-employment test (ATSAT).
- Speak English clearly enough for others to understand you on communications equipment.
- Successfully complete an interview to determine whether the candidate possesses the personal characteristics necessary for the performance of air traffic control work and that the candidate is able to speak English clearly enough to be understood over radios, intercoms, and similar communications equipment."

"Provided you meet all the requirements above, you will be allowed to apply for a job as an air traffic controller under the 'CTI Announcement'.

Selection for a job as an air traffic controller is dependent on your application and resume, experience, where you are willing to work and your ATSAT score. Once you have been selected and have received a Firm Offer Letter, you will be scheduled to begin your training at the FAA Academy in Oklahoma City to become an air traffic controller."

Only the Bachelor of Science degree or the Associate degree qualifies a Lewis graduate for the CTI announcement, as approved by the FAA. The minor provides more exposure to ATC operations without leading, by itself, to the CTI job application. For information that pertains to all Aviation students, see Aviation Majors (<https://catalog.lewisu.edu/undergraduate/aviation-science-technology/aviation-majors/>).

Programs Bachelor

- Air Traffic Control Management / Bachelor of Science (<https://catalog.lewisu.edu/undergraduate/aviation-science-technology/aviation-air-traffic-control/air-traffic-control-management-bachelor-science/>)

Associate

- Air Traffic Control Management / Associate Degree (<https://catalog.lewisu.edu/undergraduate/aviation-science-technology/aviation-air-traffic-control/air-traffic-control-management-associate-degree/>)

Minor

- Air Traffic Control / Minor (<https://catalog.lewisu.edu/undergraduate/aviation-science-technology/aviation-air-traffic-control/air-traffic-control-minor/>)

Courses

AVTR 10200 - Introduction to Aviation and Transportation (1)

This general course is designed to acquaint students with the many aspects of and career opportunities in aviation and transportation industries.

AVTR 11000 - Introduction to Aviation Security (3)

This course is an overview of aviation security. It will provide various viewpoints concerning security including views from general aviation, the airlines, airports, and international aviation, along with the views of the traveling public and air cargo shipments. The course will assess elements of the Transportation Security Administration and the Department of Homeland Security oversight, and the role local authorities play in the aviation security framework.

AVTR 12000 - Unmanned Systems Electricity (4)

This course teaches students the fundamentals of electricity as it relates to Unmanned System applications. Topics include generators, motors, batteries, electrical circuit components, wiring diagrams, soldering, and multi-meter operation.

Prerequisite: PHYS 13000

AVTR 13000 - Private Pilot Ground 1 (3)

This course introduces students to the basic principles of flight, aircraft systems and performance, basic meteorology and weather data interpretation, basic radio navigation, physiology, flight planning and decision making. This course helps students prepare for the FAA knowledge, oral, and practical examinations. Meets requirements of 14 CFR 141.

AVTR 13100 - Private Pilot Ground 2 (3)

This course helps students prepare for the Private Pilot written examination through advanced study of the principles of flight, aircraft systems and performance, meteorology and weather data interpretation, radio navigation, physiology, flight planning and decision making. This course helps students prepare for the FAA knowledge, oral, and practical examinations. Meets requirements of 14 CFR 141.

Prerequisite: AVTR 13000

AVTR 13200 - Private Pilot Flight Lab 1 (1)

Students obtain the aeronautical skill and experience necessary to meet the requirements for a private pilot certificate with an airplane category rating and single-engine class rating. The lab consists of dual flight instruction, solo flight training and appropriate ground instruction. The credit hours will post to the student's transcript upon completion of the FAA Private Pilot Practical Exam.

AVTR 13300 - Private Pilot Flight Lab 2 (1)

Students obtain the aeronautical skill and experience necessary to meet the requirements for a private pilot certificate with an airplane category rating and single-engine class rating. The lab consists of dual flight instruction, solo flight training and appropriate ground instruction. This is the second part of the two-part private pilot course sequence.

Prerequisite: AVTR 13200

AVTR 13500 - Introduction to Flight (3)

es of flight, aircraft systems and performance, basic meteorology, weather data interpretation, basic radio navigation and physiology.

AVTR 20100 - Human Factors (3)

Human factors encompass all of those considerations that affect people at work. This course provides a comprehensive discussion of the human factors involved in surface, maritime, and air transportation. It deals not only with an examination of human physiology, but also with an exploration of the interactions between people and their work environment, as well as between fellow workers and crew members. The process of human decision making is extensively explored.

AVTR 20300 - Visual Aircraft Recognition 1 (1)

This course focuses on visual identification of both heavier-than-air and lighter-than-air aircraft, including private, corporate airline and military aircraft, as well as gliders and helicopters. The course also gives students appreciation of different classes of aircraft and their levels of performance.

AVTR 20400 - Aviation Regulations (3)

This course provides a practical approach to the complex subject of aviation regulations. The focus is on the mission, functions and relationship of the various groups involved in the regulatory process.

AVTR 20500 - Visual Aircraft Recognition 2 (1)

This course further expounds on visual identification of aircraft which are heavier-than-air and lighter-than-air, along with private corporate airline, and military aircraft, including gliders and helicopters.

AVTR 21300 - Aviation History 1: Barnstorming to "A" Bombs (3)

From the beginnings of human flight through 1945, this course is a historical account of the people and their flying machines. The course also includes events and important dates that are likely to shape the future of aviation.

AVTR 21400 - Aviation History 2: The Jet Age (3)

Subsequent to the conclusion of World War II in 1945, aviation technology accelerated the development and improvement of the jet engine, exploited the capabilities and performance of larger propeller aircraft and ushered in the realization of manned space flight. This course chronicles the achievements of the pioneers in flight, design and manufacturing who were instrumental in the aeronautical advances across commercial, military and general aviation.

AVTR 22500 - Introduction to Unmanned Systems (3)

This course provides an overview of Unmanned Aircraft Systems. Topics include the history of UAS, regulations, industry and societal implications, career outlooks, ethical considerations, and the basic components required to operate a UAS. The course will also introduce hands-on UAS flight and operation principles through simulation and other means.

AVTR 23100 - Instrument Pilot Ground School (4)

This course deals with the theoretical aspects of instrument flight. Ground school instruction includes basic principles of instrument flying, aviation meteorology, radio navigation and federal aviation regulations and a general understanding of the terminal en route instrument flying procedures. This course helps students prepare for the FAA knowledge, oral, and practical examinations. Meets requirements of 14 CFR 141.

Prerequisite: AVTR 13000 and AVTR 13100

AVTR 23200 - Instrument Pilot Flight Lab 1 (1)

Students obtain the aeronautical skill and experience necessary to meet the requirements for an instrument rating (airplane). Flight and simulator training in basic attitude instrument flying; VOR, NDB and GPS navigation; ILS approach procedures, holding pattern entry and procedures; and IFR cross country procedures are covered. The credit hours will post to the student's transcript upon completion of the FAA Instrument Rating Practical Exam.

Prerequisite: AVTR 13300

AVTR 23300 - Instrument Pilot Flight Lab 2 (1)

Students obtain the aeronautical skill and experience necessary to meet the requirements for an instrument rating (airplane). Flight and simulator training in basic attitude instrument flying; VOR, NDB and GPS navigation; ILS approach procedures, holding pattern entry and procedures; and IFR cross country procedures are covered. This is the second part of the two-part Instrument pilot course sequence.

Prerequisite: AVTR 23200

AVTR 25000 - Aviation Meteorology 1 (3)

This course covers basic meteorological fundamentals, including temperature, turbulence, icing, thunderstorms and clouds. The Aviation Weather Service Program includes various weather reports, forecasts and low altitude charts. 60 Contact Hours (45 lecture/15 lab) Meteorological phenomena affecting surface and maritime transportation are also considered.

Attributes: Experiential Learning Gen Ed, Science General Education

AVTR 25100 - Unmanned Systems (3)

This course focuses on the payload systems capable of being installed on air (UAV), ground (UGV), and water-based platforms (UMV). Students will learn and apply these systems to working platforms and learn how to utilize them in the field.

Prerequisite: AVTR 34300 and AVTR 22500

AVTR 25200 - Aviation Meteorology 2 (3)

During this continuation study of atmospheric phenomena and their relation to aircraft operation, students learn the proper way to obtain a weather briefing, interpret high altitude charts and other information for flight planning purposes.

Prerequisite: AVTR 25000

Attributes: Science General Education

AVTR 25500 - Aviation Weather (3)

This course covers basic meteorological fundamentals including temperature and heat transfer, clouds, air masses, frontal systems, precipitation; instability; icing and storms (thunderstorms and hurricanes). Basic understanding of various weather reports, forecasts, and charts. The course also covers meteorological phenomena affecting surface and maritime transportation.

AVTR 25700 - Introduction to Supply Chain Management (3)

This course will provide an introduction to physical distribution/logistics as practiced in today's business environment. A student will acquire the basic concepts of physical distribution essential to the analysis of related business problems. In addition, the student will gain an appreciation of the role of logistics in the enterprise and its relationship to other value added/functional areas.

AVTR 25800 - Environmental and Ethical Considerations in the Supply Chain (3)

This course will cover the importance of supply chain sustainability as well as the necessary ethical practices that must be exhibited in the industry. The concepts of energy consumption, water consumption, greenhouse gas emissions, and waste generation will be thoroughly covered along with the benefits and challenges of "going green" in the industry. Ethical principles affecting "going green" as well as company relationships, honesty, and respect are discussed.

AVTR 26300 - Aircraft Maintenance for Pilots (3)

Students learn about routine and preventative aircraft maintenance that may be performed by owners and pilots, including, but not limited to, repair of landing gear tires, service of landing gear shock struts, service of landing gear wheel bearings, replenishment of hydraulic fluid, troubleshooting and repair of landing light circuits, replacements of bulbs or lenses and replacement or cleaning of spark plugs.

AVTR 30000 - Professional Development for Aviators (1)

This course teaches students the fundamental concepts of internship acquisition, resume building, networking, interview preparation, and professionalism in the aviation industry.

AVTR 30500 - Crew Resource Management (3)

This course examines the common concepts of crew resource management as developed by major air carriers. Topics include supervision of crew members, counseling, accountability, coordination and relationship of authority.

AVTR 31100 - Introduction to Air Traffic Control (3)

A comprehensive examination of the U.S. national air traffic control system and how it affects aviation in general, and pilots and safety in particular, this course covers the air traffic control system (enroute, terminal and Flight Service Stations), air traffic control personnel, training, duties and facilities.

AVTR 31300 - Air Traffic Control Systems (3)

A comprehensive examination of the U.S. national air traffic control system and how it affects aviation in general, and pilots and safety in particular, this course covers the air traffic control system (enroute, terminal and Flight Service Stations), air traffic control personnel, training, duties and facilities.

Prerequisite: (AVTR 13000 or AVMT 10600)

AVTR 32000 - Advanced Aircraft Systems (3)

This study of aircraft systems includes hydraulics, air-conditioning, cabin pressurization, anti-icing systems, fuel systems, electrical systems, landing systems, flight control systems, fire-detection systems and pneumatic systems. Completion of the course gives students operational understanding of the system of high performance aircraft, including turboprop and other turbine engines.

AVTR 32100 - Transportation Legislation (3)

A comprehensive study of transportation law, this course covers regulatory statutes and federal regulations. Students are also introduced to civil and criminal law as applied to transportation, including such aspects as operation, contracts, insurance, liability, litigation and case law.

AVTR 33100 - Commercial Pilot Ground School (3)

This course assists students in preparing for the Commercial Pilot written exam. Classroom instruction includes advanced maneuvers, Federal Aviation Regulations, aerodynamics, weather and safe operation of aircraft. This course helps students prepare for the FAA knowledge, oral, and practical examinations. Meets requirements of 14 CFR 141.

Prerequisite: AVTR 23100

AVTR 33200 - Commercial Pilot Flight Lab 1 (1)

Students obtain the aeronautical skill and experience necessary to meet the requirements for a commercial pilot certificate with an airplane category rating and single-engine class rating. Students are introduced to commercial maneuvers and complex/high performance operations. The credit hours will post to the student's transcript upon completion of the FAA Commercial Pilot Practical Exam.

Prerequisite: AVTR 23300

AVTR 33300 - Commercial Pilot Flight Lab 2 (1)

Students obtain the aeronautical skill and experience necessary to meet the requirements for a commercial pilot certificate with an airplane category rating and single-engine class rating. Students are introduced to commercial maneuvers and complex/high performance operations. This is the second part of the two-part Commercial pilot course sequence.

Prerequisite: AVTR 33200

AVTR 34100 - Unmanned Systems Field Operations (3)

Students will obtain relevant industry experience by taking part in actual unmanned operations in the field. Students will apply fundamental mission creation parameters and successfully achieve objectives.

Prerequisite: AVTR 34300 and AVTR 44300

AVTR 34200 - Aerodynamics (3)

This course is designed to provide the student with the foundational and fundamental knowledge sets pertaining to aerodynamics. This course will improve student understanding of aerodynamic laws and principles.

AVTR 34300 - UAS Operations 1 (3)

This course focuses on the specific components of the Unmanned Aircraft System. Piloting and payload and sensor operations are covered along with datalinks and autonomous systems. Students will continue developing their operations skillsets as they determine which UAS role is appropriate for different scenarios. This course also introduces UAS Crew Resource Management (CRM) concepts, mission planning, and pertinent UAS regulations.

Prerequisite: AVTR 22500 and AVTR 13000

AVTR 34400 - UAS Flight Simulation (3)

This course provides students with a more detailed simulation environment in which to operate. Students will effectively apply flight and systems operations skillsets along with CRM and mission planning to Line Oriented Flight Training Scenarios in a larger scale UAS simulator."

Prerequisite: (AVTR 30500 (may be taken concurrently) or AVTR 34300 (may be taken concurrently))

AVTR 34500 - Third-Party Logistics Providers (3)

This course will cover the implications of outsourcing logistics services to fourth-party logistics providers (4PL). Students will explore both the benefits and drawbacks of using these services and will learn when it may be appropriate to actually use one of these entities.

AVTR 34600 - Selecting and Evaluating Transportation Suppliers (3)

This course will cover outsourcing and in-house applications to the supply chain. Students will learn the benefits and drawbacks of each approach and will explore when each method may be best utilized to accomplish the objectives of the company.

AVTR 34700 - Demand Planning and Forecasting (3)

This course will cover demand planning and decision-making process used to balance the supply of and demand for products which consumers purchase. Topics will include the sales and operations planning (S&OP) process and forecasting future orders over specific planning periods using both qualitative and quantitative approaches.

Prerequisite: MGSC 23000 (may be taken concurrently) and AVTR 26000 (may be taken concurrently)

AVTR 34800 - Inventory Management (3)

This course is designed to provide the student with foundational knowledge pertaining to inventory and its management. This course will explain to students how inventory management is key in the supply chain as the role of inventory is often the driver for future business activities such as warehousing, transportation, and materials handling.

AVTR 35300 - Air Transportation (3)

This survey of the historical developments of air transportation systems covers facilities; impact of regulations; problems encountered in commercial transportation; airline economics, management and organization; role of governments in air transportation; and economic, social, political, and future implications of air transportation. Human dependency on air transportation is ever increasing because of globalization of economies and the need to make great use of scarce time. It is therefore of prime importance for students in aviation, particularly those in flight, to study the development of the industry and how it affects society and the economy.

AVTR 37300 - Transportation Safety Management Systems (3)

The objective of this course is to introduce students to safety management systems applied to transportation safety programs through a study of proactive, preventative risk management processes that include hazard identification and mitigation.

Prerequisite: ENGL 11200 (may be taken concurrently)

Attributes: Advanced Writing, Experiential Learning Gen Ed

AVTR 39000 - Workshop in Aviation and Transportation (1-3)

Workshops in Aviation and Transportation are designed to provide information on current issues in these fields of study. The workshops are taught by professionals who have expertise in a given area. Students are encouraged to select workshops based on their individual needs and interests and on potential application upon graduation.

Attributes: Workshop/Seminar

AVTR 39708 - ST: Decision Making for Pilots (3)

This course examines the concept of decision making in the aviation flight environment. Topics include learning and understanding effective aeronautical decision making skills, risk assessment, stress management, and the impact of personal attitudes on decision making.

AVTR 39713 - ST: Large Jet General Familiarization (3)

Prerequisite: AVTR 32000 (may be taken concurrently)

AVTR 40200 - Fiscal Aspects of Transportation (3)

This course provides an introduction to financial management problems encountered in transportation management. Topics covered include basic accounting, financial management principles, cash flow analysis, budgeting and financial statement analysis.

AVTR 40700 - Fundamentals of Instruction (2)

This course is designed to cover the principles of instruction, including the learning process, human behavior, effective communication, teaching methods, critique and evaluation. This course also assists students in preparing for the FAA Fundamentals of Instructing written exam. Meets requirements of 14 CFR 141.

AVTR 40800 - Flight Instructor Airplane (CFI-A) Ground School (2)

The course is designed to cover the principles of teaching, as well as the principles of flight instruction, including maneuvers. This course helps students prepare for the FAA knowledge, oral, and practical examinations. Meets requirements of 14 CFR 141.

AVTR 40900 - Flight Instructor Airplane (CFI-A) Flight Lab (1)

Students obtain the aeronautical skill and experience necessary to meet the requirements for a Certified Flight Instructor certificate with an airplane category rating and single-engine class rating. Students also obtain the instructional knowledge required to teach, including the ability to recognize, analyze, and correct of common student errors. The credit hours will post to the student's transcript upon completion of the FAA Certified Flight Instructor Airplane practical exam.

Prerequisite: AVTR 33300

AVTR 41000 - Certified Flight Instructor Ground (3)

This course is designed to cover the principles of instruction and teaching, including the learning process, human behavior, effective communication, teaching methods, principles of flight, maneuvers, and critique and evaluation. This course helps students prepare for the CFI FAA knowledge, oral, and practical tests.

Prerequisite: AVTR 33100

AVTR 42000 - Flight Instructor Instrument (CFI-I) Ground (2)

This course is designed to prepare the student to teach instrument flying. This course helps students prepare for the FAA knowledge, oral, and practical examinations. Meets requirements of 14 CFR 141.

Prerequisite: AVTR 33100

AVTR 42100 - Flight Instructor Instrument (CFI-I) Flight Lab (1)

Student obtain the aeronautical skill and experience necessary to teach the principles of attitude instrument flying, ATC procedures and IFR navigation. Students also obtain the instructional knowledge required to teach, including the ability to recognize, analyze, and correct common student errors. The credit hour will post to the student's transcript upon completion of the FAA Certified Flight Instructor Instrument Practical Exam.

Prerequisite: AVTR 40900

AVTR 43000 - Labor Relations in Transportation (3)

This course provides study of unions, labor legislation, collective bargaining, contracts administration and conflict resolution in the transportation industry.

AVTR 43500 - Supply Chain Information Systems (3)

This course will cover the acquisition, distribution, and interpretation of information as the primary drivers for decision making in the supply chain. Students will understand the importance of this information being accurate, timely, shared with stakeholders, and they will learn to apply this knowledge to drive decisions.

AVTR 44300 - UAS Operations 2 (3)

This course teaches students how to troubleshoot UAS anomalies. Students will also work in teams to develop and program a UAS to accomplish a certain set of parameters. Operations skillsets will be mastered as students are tasked with increasingly difficult scenarios." Prerequisite: AVTR 34300 (may be taken concurrently)

AVTR 44500 - Aircraft Flight Dispatcher (6)

Students learn about the duties of a flight dispatch officer. Topics include flight planning, aircraft loading and performance evaluation, airline flight dispatch operation, air traffic systems, flow control, scheduling, time management, aircraft weight and balance evaluations, and the Flight Dispatch Test for licensure. 195 contact hours. Meets requirements of 14 CFR 65.

AVTR 45000 - Issues and Trends in Transportation (3)

This course presents an analysis of selected contemporary issues, problems and trends facing various segments of the transportation industry (manufacturers, government, and other stakeholders in surface, maritime, and air transportation). Students apply previously learned principles to practical problems in the transportation industry. Prerequisite: (AVTR 35300 (may be taken concurrently) or AVTR 50000 (may be taken concurrently)) and BSAD 20000 (may be taken concurrently)

AVTR 45100 - Airport Operations Workshop (1)

An introduction to airport operations, this course covers the analysis of the role of the department manager in the daily operation of an airport, inspections, emergencies, planning, maintenance and safety.

AVTR 45200 - Airport Management (3)

A comprehensive study of airport operations and management, this course covers analysis of the role of the airport manager in the daily operation of an airport, finance and administration, public relations, social, political and environmental considerations; operations, safety; and facility maintenance.

AVTR 45300 - Airline Management and Economics (3)

Few industries are as important to the economic and social well-being of a nation as transportation. Aviation is an integral part of the infrastructure of a global economy. Yet, since the beginnings of the industry in the 1920's, as a whole, airlines have struggled to earn a sustainable profit. This industry has long faced significant structural impediments toward achievement of that basic objective. This course explores these challenges, but also studies the innovative methods utilized by airlines to overcome and be successful in aspects of this global industry.

AVTR 45400 - Issues and Trends in Supply Chain Management (3)

This course presents an analysis of selected contemporary issues, problems, and trends facing various segments of the supply chain management industry (mining, manufacturing, transportation, distribution, and retailing). Students apply previously learned principles to practical problems in the supply chain management industry.

AVTR 45500 - Airport Security (3)

This course provides the student with an overview of security systems, existing and evolving, at the nation's airports. Every airport operator serving aircraft operation is required by the Department of Homeland Security and the Transportation Security Administration to provide a security program to maintain the integrity and continuity of the air traffic system. This course will describe protection criteria, crime prevention, perimeter security, and access control, along with policies and procedures that form the security infrastructure.

AVTR 46000 - Multi-Engine (MEL) Ground School (2)

This course provides the necessary instruction to thoroughly familiarize students with the theory of safe and practical multi-engine operation. This course helps students prepare for the FAA knowledge, oral, and practical examinations. Meets requirements of 14 CFR 141. Prerequisite: AVTR 33100

AVTR 46100 - Multi-Engine (MEL) Flight Lab (1)

Students obtain the aeronautical skill and experience necessary to meet the requirements for the addition of an airplane multi-engine land class rating to an existing pilot certificate. Students are introduced to multi-engine aerodynamics, operating procedures, systems, performance considerations and emergency procedures. The credit hour will post to the student's transcript upon completion of the FAA Commercial Pilot Multi-Engine Land Practical Exam. Prerequisite: AVTR 33300

AVTR 46300 - Aircraft Accident Investigation (3)

This course provides a study of the general principles and procedures involved in an aircraft accident investigation. Students explore both FAA and National Transportation Safety Board (NTSB) aircraft accident investigative techniques and how the NTSB determines probable cause. Prerequisite: AVTR 13000 or AVMT 10600
Attributes: Experiential Learning Gen Ed

AVTR 47000 - Flight Instructor-Multi-Engine (CFI MEL) Ground (2)

This course provides the necessary instruction to prepare students to give multi-engine flight training. It also assists students in preparing for the FAA Flight Instructor-Multi-engine Flight Check. Meets requirements of 14 CFR 141.

AVTR 47100 - Flight Instructor-Multi-Engine Flight Lab MEI (1)

Students obtain the aeronautical skill and experience necessary to teach multi-engine aerodynamics, normal and emergency operating procedures, aircraft systems and performance considerations. The credit hour will post to the student's transcript upon completion of the FAA Flight Instructor Multi-Engine Practical Exam.

AVTR 47300 - Airline Transport Pilot (3)

This course covers air transport topics assessed in the FAA ATP and Aircraft Dispatcher Knowledge examinations. This course does not, however, fulfill all the specific training requirements of 14 CFR 156 for a student to be eligible to take the FAA knowledge exam. The overall goal of this course is to introduce aviation students to the larger environment of global airline transport pilot operations. Students learn about Federal Aviation Regulations aircraft systems, the theory of flight, aerodynamics, meteorology with respect to engine operations, and weight and balance computations.

Prerequisite: AVTR 33100 (may be taken concurrently)

AVTR 47500 - Large Jet Familiarization (3)

This course is designed to familiarize the aviation student with the systems on a particular aircraft. The aircraft type may vary from semester to semester. Substituting this course for AVTR 40900 and AVTR 42100 requires permission from the chief of pilot training. Prerequisite: AVTR 32000 or (UNIV 20400 and UNIV 20600)

AVTR 47700 - UAS Senior Capstone (3)

Students will demonstrate mastery of the entire UAS Program. Students are tasked with designing, building, testing, and further developing a UAS to complete a set of goals set forth by the student and professor of the course. Students also develop a project portfolio to showcase their skillsets to potential employers.

Prerequisite: AVMT 34000 and AVTR 44300

AVTR 48000 - Practical Dispatching (3)

This is a capstone course for dispatcher certification. It includes a detailed review and practical applications of the skills required for Aircraft Dispatcher certification. Meets requirements of 14 CFR 65.

Prerequisite: AVTR 47300 (may be taken concurrently) and AVTR 20400 (may be taken concurrently) and AVTR 25200 (may be taken concurrently) and AVTR 31300 (may be taken concurrently)

AVTR 48200 - ATC Responsibilities and Procedures (3)

Individual controller positions will be explored in depth including the enroute (ARTCC), terminal (TRACON), tower (ATCT) and Flight Service Station specialist's responsibilities with respect to aircraft separation, inter-facility coordination and the expeditious, safe movement of aircraft. Additionally, an in-depth study of letters of agreement, position briefings and the use of departure, arrival and enroute progress strips will be included.

Prerequisite: AVTR 20400 and AVTR 23100 and AVTR 31300

AVTR 48400 - Radar Fundamentals and Separation Minima (3)

Equipment capabilities and limitations of radar will be addressed in sufficient depth to prepare future controllers for successful careers. Separation minima for radar and non-radar operations will be emphasized and reviewed as an integral part of the controller's core responsibilities. VFR IFR operations will be differentiated and defined for a full understanding of their differences.

Prerequisite: AVTR 23100 and AVTR 31300

AVTR 48500 - Flight Deck Automation (3)

State of the art cockpits employ high technology "glass" avionics to enhance the flight crew's situational awareness, reduce workload and greatly increase and maximize efficiency in terms of fuel savings and equipment longevity. This course addresses the challenges and benefits of various new-age cockpits in the air carrier inventory with particular emphasis upon the CRJ-200 flight management system. Coursework in this class will strengthen students' knowledge and competency in an aviation environment dominated by these highly advanced flight guidance concepts.

Prerequisite: AVTR 23100

AVTR 48600 - Aircraft Capabilities and Characteristics (3)

Employing previous course work and acquired knowledge, an in-depth investigation of IFR flight operations and Air Traffic Control facilities services afforded VFR aircraft will be emphasized. Additionally, aircraft capabilities characteristics and performance will be addressed in order to provide each future air traffic professional with a keen understanding and anticipation of an aircraft crew responses to controller clearances and requests.

Prerequisite: AVTR 23100 and AVTR 31300

AVTR 48700 - ATC Tower Ground Control (3)

Students will learn correct procedures for moving aircraft and vehicles within the movement areas of an airport with an operational air traffic control tower. They will learn correct phraseology, rules, and procedures from the FAAO 7110.65. The class will consist of lecture and laboratory simulation of real-time air traffic movement.

Prerequisite: AVTR 31300 and AVTR 48200

AVTR 48800 - Advanced Radar Fundamentals (3)

This course involves the careful examination of Advanced Radar Fundamentals and minimums set forth in FAA Order 7110.65. Equipment capabilities and limitations of radar (both ground-based and satellite-based) will be addressed in-depth to prepare future controller for successful careers. Separation minima for radar and non-radar operations will be emphasized and reviewed as an integral part of the controller's responsibilities along with radar identification, beacon systems, radar approaches and departures, and aircraft separation.

Prerequisite: AVTR 48400

AVTR 48801 - Adv Radar Fund Lab (1)

This course involves the application of the principles set forth in FAA Order 7110.65. Separation minima for radar and non-radar operations will be applied as part of the controller's responsibilities along with radar identification, beacon systems, radar approaches and departures, and aircraft separation. Students will separate aircraft in the approach and departure control environment utilizing Air Traffic Control radar simulation.

Corequisite: AVTR 48800

AVTR 48900 - Topics in Aviation Security (3)

This course will survey current topics in Aviation security. Study will focus on selected policies, events and changes in regulations and legislation pertaining to security concerns and contingency measures. Topics will vary.

AVTR 49100 - ATC Tower Local Control (3)

Students will learn correct procedures for the separation of aircraft on the runways and within the Class D surface area of an airport with an operational control tower. The students will apply correct phraseology, rules, and procedures from FAAO 7110.65. They will learn how to interpret radar data using the ADSE display. The class will consist of lecture and laboratory simulation of real-time air traffic movement.

Prerequisite: AVTR 48700

AVTR 49101 - ATC Tower Local Control Lab (1)

Students will learn correct procedures for the separation of aircraft on the runways and within the Class D surface area of an airport with an operational control tower. The students will apply correct phraseology, rules, and procedures from FAAO 7110.65. They will interpret and apply radar data using the ADSE display. The class will use laboratory simulation of real-time air traffic movement.

Corequisite: AVTR 49100

AVTR 49500 - Internship in Transportation Administration (3)

This internship is designed to provide on-the-job experience in an appropriate transportation agency. Students are supervised by the agency, and their progress is monitored by the department. Students must submit a report on the internship experience.

AVTR 49600 - Air Traffic Control Internship (3)

This internship is designed to provide students with on-the-job experience and skill sets in an appropriate aviation agency. Students are supervised by the agency, and their progress is monitored by the department. Three credit hours are earned at the satisfactory completion of all the requirements of the internship. The student must submit a report on the internship experience.

AVTR 49800 - Internship or Field Placement (0-3)

This internship is designed to provide students with on-the-job experience in an aviation/aerospace industry or a government agency. Students are supervised by the organization with which they are doing the internship and their progress is also monitored by the department. Students may earn a maximum of three hours of credit upon completion of the internship and submission of an intern paper or report.

Class Restrictions: Must be enrolled in one of the following Classes: Junior or Senior.

AVTR 49900 - Independent Study (1-3)

This course is designed to meet the needs of majors in Department of Aviation and Transportation programs who want to study an advanced topic not found in regular courses.

Class Restrictions: Must be enrolled in one of the following Classes: Junior or Senior.