Aviation Science (AVSC)

AVSC 1010. Survey of Aviation Science. (3 Credits)
Designed for all students interested in aviation careers. Includes a general knowledge of aviation, historical events, and aerospace studies/ development opportunities. Covers aviation and aerospace terminology, how aircraft and spacecraft fly, research and development of future systems, government and industry roles in the growth of aviation. Provides entering students with a first year experience covering critical thinking, time and financial management and collaboration as well as aviation career prospects.

AVSC 1050. Introduction to Aviation Management. (3 Credits)
Discusses aviation industry structure, practices, and administrative career opportunities; emphasizes strategic decision making in aviation transportation, manufacturing, airport, and government administration, and provides an overview of various administrative methods, tools, and responsibilities. Provides a general knowledge of aviation administration career options and the role of administrators within the aviation industry. May be delivered online.

AVSC 1100. Ground I - Private. (3 Credits)
Prerequisite(s): Departmental Approval
Introduces the entry-level student to the airplane as they prepare for flight training. Stresses airport systems, air traffic control procedures, aviation weather, air navigation, radio communication procedures, and Federal Aviation Regulations. Prepares students for the required FAA Private Pilot Airplane Knowledge Test.

AVSC 1110. Flight I - Private. (3 Credits)
Prerequisite(s): Department Approval
Pre- or Corequisite(s): AVSC 1100
Covers airplane ground and flight operations, take-off and landing, basic flight maneuvers, cross country methods and emergency procedures. Prepares students for the required FAA Private Pilot Airplane Practical Test. May be delivered online.
Course fee of $19,944 for flight applies.

AVSC 1120. Introduction to Aircraft and Spacecraft Systems. (3 Credits)
Introduces the design, installation and operation of basic airframe and propulsion systems, and associated technology, found in light piston-powered, electric, hybrid-electric and turbine-powered fixed wing and rotary-wing aircraft. Explores emerging technologies associated with unmanned aircraft systems (UAS), autonomous large unmanned cargo aircraft (LUCA), advanced air mobility (AAM), and space vehicles that will be deployed and operated within the National Airspace System and within space.

AVSC 1130. Glider Rating. (1 Credit)
Prerequisite(s): AVSC 1100
Prepares student to transition from powered to unpowered glider flight in preparation for the FAA Private Pilot Glider Rating. Includes ground and flight lessons covering glider towing, launching, powered gliders, thermals, weather, landing, mountain waves, regulations, and emergency procedures. Teaches aerodynamic theory associated with more efficient flight and aircraft control.

AVSC 1150. Mountain and Desert Flying. (1 Credit)
Prerequisite(s): AVSC 1100 and AVSC 1110
Introduces common flying conditions in mountain and desert areas. Emphasizes flight accident statistics and causes, effects of altitude on aircraft and pilot, mountain associated wake turbulence, techniques for low-altitude search and rescue or photography over mountainous areas, maneuvers, and abnormal or emergency procedures. Includes survival techniques for emergency landings in mountainous or desert terrain.

AVSC 1160. Seaplane Rating. (1 Credit)
Prerequisite(s): AVSC 1100, AVSC 1110
Provides training to aid in the transition from single-engine land to single-engine sea. Stresses the differences between operating on land and over bodies of water. Introduces regulations for seaplane pilots. Provides training in seaplane aircraft with the capability to land and takeoff from water. Prepares the student for the FAA seaplane rating flight test.

AVSC 1230. Flight II - Instrument I. (2 Credits)
Prerequisite(s): AVSC 1100, AVSC 1110 and Department Approval
Prepares students to meet FAA Instrument Airplane and Commercial Airplane Pilot cross-country requirements. Introduces extended cross-country flights in both day and night environments with consideration for passenger safety. Includes operational flight performance using all available navigational weather and airplane performance data. Requires proof of completion of cross country airplane pilot in command time.
May be delivered online.

AVSC 1240. Ground II - Instrument. (3 Credits)
Prerequisite(s): AVSC 1100, AVSC 1110 and Department Approval
Examines FAA regulations, meteorology, navigation, radio procedures, instrument departures, en route and approach procedures, the instrument airway, and airspace systems as well as aircraft systems operation. Introduces glass cockpit instrumentation. Covers basic flight instrument construction and operation. Prepares pilots for the required FAA Instrument Pilot Airplane Knowledge Test.

AVSC 1250. Flight II - Instrument II. (3 Credits)
Prerequisite(s): Department Approval
Stresses attitude instrument flying techniques. Covers instrument departure and approach procedures and instrument en route and cross-country navigation techniques in actual or simulated weather conditions with reference solely to the flight instruments. Prepares students for the required FAA Instrument Airplane Practical Test.
Course fee of $19,053 for flight applies.

AVSC 1260. 21st Century Avionics and Instrumentation. (1 Credit)
Prerequisite(s): AVSC 1100
Provides pilots with the knowledge and practical experience using new generation glass cockpit electronic instrumentation and radio navigation devices. Includes glass cockpit system knowledge, functions, safety, flight planning, crew concepts, and the use of GPS technology. Requires flight, flight training device, or computer based instruction and experience to meet FAA standards for transition to this technology.
May be delivered online.

AVSC 1310. AMT Procedures and Practices A. (5 Credits)
For Aviation Maintenance Technician Apprentice students. Introduces students to the aviation maintenance environment. Studies common procedures and practices in the industry, the use of tools and measurement devices, and Federal Aviation Regulation related to technician certification and inspections. Includes maintenance forms and record keeping, and weight and balance publications.

AVSC 1320. AMT General Knowledge A. (5 Credits)
For Aviation Maintenance Technician Apprentice students. Introduces general processes used by the Aviation maintenance Technician. Introduces aircraft electrical principles including the devices and procedures used in analyzing aircraft electrical systems. Covers materials and processes used in aircraft maintenance. Develops basic science application skills for aircraft maintenance.

AVSC 1330. AMT Airframe Phase I B. (5 Credits)
Prerequisite(s): AVSC 1310, AVSC 1320, Must complete all (a) level AMT apprentice courses with grade of C- or better
For Aviation Maintenance Technician Apprentice students. Introduces students to the basic maintenance and procedures involving the airframes of a variety of aircraft. Discusses composite technology, aircraft finishes, sheet metal, basic structures, welding, and other fasteners.

AVSC 1340. AMT Powerplant Phase I B. (5 Credits)
Prerequisite(s): AVSC 1310, AVSC 1320, Must complete all (a) level AMT apprentice courses with grade of C- or better
For Aviation Maintenance Technician Apprentice Students. Introduces students to the basics of power plant installation, repair, and servicing. Focuses on the reciprocating engine used on certified aircraft. Covers radial engines, basic two- and four-stroke reciprocating engines, engine overhaul, starter and ignition systems, and troubleshooting procedures.

AVSC 1400. Survey of Unmanned Aircraft Systems. (3 Credits)
Introduces Unmanned Aircraft Systems (UAS) history and development, current and future industry and military application, methods for launch and recovery, purpose and use of data-links, operating personnel and mission planning and governmental oversight.
May be delivered online.

AVSC 1410. Aeronautical Knowledge for Small Unmanned Aircraft Systems. (3 Credits)
Prepares students for the required FAA sUAS aeronautical knowledge test. Includes applicable regulations, airspace classification and operating requirements, effects of weather, loading and performance, communication and emergency procedures, physiological effects of drugs and alcohol, aeronautical decision-making and judgment and airport operations.

AVSC 1460. Small Unmanned Aircraft Systems Flight. (1 Credit)
Prerequisite(s): AVSC 1410
Introduces necessary software, deployment and recovery operations, payload operations, procedures for normal and emergency operations, and mission analysis and planning for UASs. Requires successful completion of flight lessons.

AVSC 2070. Communications for Aviation Professionals WE. (3 Credits)
Prerequisite(s): ENGL 1010 or ENGH 1005
Teaches the skills necessary to effectively communicate with a variety of aviation stakeholders and professionals. Examines principles of written and verbal communication. Covers the planning, organizing and delivery of positive and negative messages. Teaches effective interpersonal and listening skills as well as techniques for adapting the message to the audience. Includes the effective development and delivery of computer-aided presentations. Explores the hazards and impacts of miscommunication on aviation safety.

AVSC 2090. Air Transport Economics. (3 Credits)
Prerequisite(s): MAT 1030 or 1035, STAT 1040 or 1045, MATH 1050 or 1055, AVSC 2150
Teaches basic economic concepts as applicable to air transportation. Introduces foundational principles of free enterprise, supply and demand, private and social implications of profit maximization, market structure, resource markets, inflation, economic and industry cycles, inflation and economic growth. Introduces competitive advantage, air transport demand, modeling, pricing, revenue management and supply and route architecture.

AVSC 2110. Aviation Weather. (3 Credits)
Enables the aviation administrator to understand and appreciate the operational and strategic impacts of weather on the aviation industry. Teaches atmospheric composition and structure, climate and synoptic weather, aviation weather reports, forecasts and weather data sources. Requires students to apply these principles in a decision making capacity through weather tracking, planning and decision making activities.

AVSC 2120. Personal Finance for Aviation Professionals. (3 Credits)
Prerequisite(s): AVSC 1050, AVSC 1100
Covers financial decision making with a view of financial choices/ alternatives and the impact or consequences of these choices during a student's collegiate and professional career. Includes real life scenarios designed around common challenges and issues. Requires students to create a proposed budget and reconcile expenditures monthly as the course progresses. Explores net worth statements, budgets, taxes, insurance alternatives, and life decisions applicable to finance.
May be delivered online.

AVSC 2130. Aviation Safety. (3 Credits)
Presents an introduction to aviation safety. Covers agencies overseeing safety at the commercial and general aviation levels as well as the applicable regulations they develop and enforce. Explores general aviation and commercial aviation accident statistics and accident causation models. Discusses airline, airport, aircraft, and air traffic control safety issues. Explores the role of the aviation administrator as a safety advocate and responsible party in a variety of settings.

AVSC 2150. Air Transportation Management. (3 Credits)
Presents the management skills necessary to be a fixed based operator and entry-level manager for scheduled airlines in the national aviation system. Teaches management functions, marketing, financing, organization and administration, flight operations, maintenance, safety, and liability. Provides hands-on experience of management styles through evaluations and critiques of local airlines and airport facilities.

AVSC 2180. Managing Technology in Aviation. (3 Credits)
Prerequisite(s): AVSC 2150
Introduces airline computer applications. Teaches database language and calculation skills in aviation operations data query, analytics, and reporting. Uses off-the-shelf software to synthesize raw data into actionable knowledge. Examines the art of data visualization design and presentation through reports, dashboards, and stories.

AVSC 2190. Introduction to Dispatch and Scheduling. (3 Credits)
Prerequisite(s): AVSC 1010
Introduces airline and corporate flight department operations and flight dispatch procedures. Teaches effects of weather, air traffic control and maintenance on fleet logistics. Introduces responsibilities of dispatchers, routers, maintenance controllers, and general system operations. Covers pertinent crew and operational federal aviation regulations. Examines tools and practices of airline system control and corporate flight departments. Explores responsibilities and authority of dispatchers and schedulers.

AVSC 2200. Aviation Marketing. (3 Credits)
Prerequisite(s): ENGL 1010 or ENGH 1005
Teaches principles of aviation marketing and promotional concepts. Covers planning and coordination, advertising and media as well as sales presentations. Explores aviation tradeshows, trade events, and networking as industry marketing tools. Teachers marketing research, financial planning, and transportation methods.

AVSC 2210. AMT Airframe Phase II C. (5 Credits)
Prerequisite(s): AVSC 1330, AVSC 1340, Must complete all (b) level AMT apprentice courses with grade of C- or better
For Aviation Maintenance Technician Apprentice Students. Prepares students for intermediate level understanding of major airframe components and accompanying devices. Includes lessons on structure alignments, aircraft rigging, flight control balance, communications and navigation equipment, brake systems, anti-skid systems, and landing gear position indication.

AVSC 2220. AMT Airframe Phase III D. (5 Credits)
Prerequisite(s): AVSC 2210, AVSC 2230, Must complete all (c) level AMT apprentice courses with grade of C- or better
For Aviation Maintenance Technician Apprentice Students. Final airframe class prepares students to take FAA AMT Airframe Examination. Discusses landing gear systems, hydraulics, fuel systems, pneumatics, fuel dumping, pressurization, environmental controls, and indicator systems. Includes examinations of example aircraft systems in operation.

AVSC 2230. AMT Powerplant Phase II C. (5 Credits)
Prerequisite(s): AVSC 1330, AVSC 1340, Must complete all (b) level AMT apprentice courses with grade of C- or better
For Aviation Maintenance Technician Apprentice Students. Provides students with information and understanding of turbine engines, designs, systems and components. Covers engine installation, accessory devices, lubrication systems, fuel metering, and airworthiness inspections.

AVSC 2240. AMT Powerplant Phase III D. (5 Credits)
Prerequisite(s): AVSC 2210, AVSC 2230, Must complete all (c) level AMT apprentice courses with grade of C- or better
For Aviation Maintenance Technician Apprentice Students. Provides intermediate level understanding of engine components, accessories, and their operating principles. Prepares students for the FAA AMT Power plant Knowledge Examination.

AVSC 2250. Aviation Business Statistics. (3 Credits)
Prerequisite(s): MAT 1030 or 1035, MATH 1050 or 1055, or STAT 1040 or 1045
Presents an application of statistics in business and economics within the context of an aviation-related business. Topics include methods of collecting, analyzing, and presenting data, descriptive statistics, populations and samples, measures of central tendency and dispersion, elementary probability, binomial and normal distributions and their interrelationship, frequency distributions, averages, index numbers, probability, sampling, estimation, analysis of variance, time series, regression and correlation, and chi-square.

AVSC 2300. Ground IV - Commercial. (3 Credits)
Prerequisite(s): AVSC 1250 and Department Approval
Covers privileges, responsibilities and the operational environment of a commercial pilot. Explores application of aeronautical knowledge and skills in simulated commercial operation situations. Develops judgment and decision-making skills. Studies aerodynamics, performance and limitations, weight and balance, aircraft systems, airworthiness, aeromedical factors, night and high altitude operations, weather hazards and reports, airport operations, flight planning, and decision making. Prepares students for the required FAA Commercial Pilot Airplane Knowledge Test.

AVSC 2310. Flight IV - Commercial. (3 Credits)
Prerequisite(s): AVSC 1250 and Department Approval
Includes maneuvers such as steep power turns, steep spirals, slow flight, lazy eights, pylon eights, and chandelles. Includes commercial cross-country, instrument flying skills, and emergency procedures. Prepares students for the required FAA Commercial Pilot Airplane Practical Test. Graded credit / no-credit.
Course fee of $19,053 for flight applies.

AVSC 235R. Unusual Attitude Safety Training. (1 Credit)
Prerequisite(s): AVSC 1250
Teaches pilots how to assess various flight situations and take the appropriate action to avoid or recover from any in-flight unusual attitude scenario, includes training not covered by commercial flight courses such as situations involving wake turbulence, wind shear, mountain waves and other wind flow patterns, as well as instrument or control system failure and pilot error may produce unusual attitudes beyond those experience in normal flight. Presented in three phases: for the experience level of the 1) Private Pilot Student, 2) Instrument Pilot Student, 3) Commercial Pilot Student and for the Certified Flight Instructor Student.Course enhances overall pilot skill and increases confidence in all flight conditions. May be repeated for a maximum of 2 credits toward graduation.

AVSC 2400. Ground Certified Flight Instructor. (4 Credits)
Prerequisite(s): Department Approval
Provides the foundational knowledge and teaching skills necessary to become an authorized FAA airplane flight instructor. Teaches certification and training requirements for which the student will have instructional privileges. Develops organization and presentation skills required for instructional activity including the application of human behavior and learning principles during instructional activity. Emphasizes training of aviation students to specific standards of competence regardless of the specific instructional privileges carried by the flight instructor. Focuses on the teaching of critical emphasis areas as identified by the FAA. Prepares students for the required FAA Flight Instructor Airplane Knowledge Test and Fundamentals of Instruction Knowledge Test.
May be delivered online.

AVSC 2440. Ground III - Multi Engine. (1 Credit)
Prerequisite(s): AVSC 1110 and Department Approval
Designed for pilots preparing for multi-engine airplane operations. Covers the theory of multi-engine airplane flight and the significant aerodynamic differences between single-engine and multi-engine airplane flight. Includes system operation of constant speed propellers, multi-tank and pump fuel systems, dual electrical systems, turbocharger and ice control systems. Discusses multi-engine weight and balance and use of performance charts. Prepares students for the oral exam portion of the FAA Multi-Engine Airplane Practical Test and Airplane Pilot Knowledge Test.

AVSC 2450. Flight III - Multi Engine. (1 Credit)
Prerequisite(s): AVSC 1110 and Department Approval
Prepares students for flight in complex multi-engine airplanes. Stresses normal and emergency flight procedures and skills demonstrated and practiced for all phases of flight. Includes single-engine operation of a multi-engine airplane in varying flight environments and situations. Discusses complex systems operation as well as instrument flight procedures. Prepares the student for the required FAA Multi-engine Airplane Practical Test.
Course fee of $11,938 for flight applies.

AVSC 2500. Ground Multi Engine Instructor. (1 Credit)
Prerequisite(s): AVSC 2300, AVSC 2310
Corequisite(s): AVSC 2510
Presents specific teaching techniques and skills necessary to certify as a flight instructor with a multi-engine airplane rating. Includes a review of the multi-engine airplane pilot certification requirements. Stresses the unique instructional and safety responsibilities with students in multi-engine airplanes. Prepares students for the oral exam portion of the FAA Multi-Engine Airplane Instructor Practical Test.

AVSC 2510. Flight Multi Engine Instructor. (1 Credit)
Prerequisite(s): AVSC 2300, AVSC 2310
Corequisite(s): AVSC 2500
Prepares students for various maneuvers and operations necessary to instruct pilots for the FAA Multi-engine Airplane Practical Test. Teaches normal and emergency flight operations and procedures in all the various flight environments and regimes. Teaches the knowledge and skill necessary to operate a multi-engine airplane safely, while instructing multi-engine airplane pilots. Prepares students for the required FAA Multi-engine Airplane Instructor Practical Test.
May be delivered online.

AVSC 2710. Aviation Marketing. (3 Credits)
Prerequisite(s): AVSC 2150
Teaches principles of aviation marketing, market research and promotional concepts. Covers planning and coordination, advertising, and media as well as sales presentations. Explores aviation trade shows trade events, and networking as industry marketing tools. Covers the history of customer service in the aviation industry. Introduces customer service principles applicable to both general and commercial aviation. Analyzes customer rights and carrier responsibilities and explores diffusion of confrontational customers. Analyzes airline and corporate cultures and resulting effects on employees and customers.

AVSC 2750. Unmanned Aircraft Systems. (3 Credits)
Prerequisite(s): AVSC 2150
Introduces unmanned aircraft systems and applications. Examines the history and development of unmanned aircraft, their systems, technology, training methods, and implementation Examines the current and future roles these aircraft will take in society and the implications surrounding their increased usage. Explores security, privacy and safety as they relate to the utilization of unmanned aircraft systems in military, law enforcement and civilian applications. Examines challenges and opportunities related to civilian utilization. May be delivered online.

AVSC 276R. Current Topics in Aviation. (1-3 Credits)
Selected topics in Aviation Science that will vary from semester to semester. May be repeated with different topic areas for a maximum of six credit hours toward graduation.

AVSC 281R. Cooperative Work Experience. (1-8 Credits)
Corequisite(s): AVSC 285R
Designed for Aviation majors. A current job in an aviation related field required prior to registering for this course. Course content is individualized, with students setting objectives in consultation with their faculty coordinator and their on-the-job supervisor. Credit is determined by the number of hours a student works during the semester. (One credit for each five hours of work per week.) May be repeated for a maximum of 8 credits toward graduation. Graded credit/no credit.

AVSC 285R. Cooperative Correlated Class. (1 Credit)
Corequisite(s): AVSC 281R
Designed to enable students with career aspirations in aviation related fields to begin career planning. Enhances a student's knowledge, personal development, professional development and professional preparation by integrating academic study with practical experience and resume preparation. May be repeated for a maximum of 2 credits toward graduation.

AVSC 2860. SkillsUSA. (1 Credit)
SkillsUSA includes leadership training, parliamentary procedure, job interview skills, prepared speaking, extemporaneous speaking, and organizational skills. Upon completion, the student should understand the SkillsUSA organization and how it helps to build leadership skills.

AVSC 3010. Flight Environment. (3 Credits)
Prerequisite(s): AVSC 1240 and University Advanced Standing
Teaches interpretation, selection, and compilation of appropriate weather data. Examines METAR, TAF, PIREPS, AIRMET's, SIGMET's and other sources of applicable weather information. Uses sample reports, data, and charts. Includes class and group discussion, lecture, practical example, and case studies.
May be delivered online.

AVSC 3020. Aviation Insurance and Risk Management. (3 Credits)
Prerequisite(s): AVSC 2130 and University Advanced Standing
Explores the complexity of aviation risk management from flight operations and aircraft maintenance perspectives. Examines industry insurance practices and standards, including the development of risk management procedures to meet both government and insurance requirements. Analyzes basic underwriting procedures and requirements. Presents basic principles of hazardous materials handling in aviation.

AVSC 3030. Air Traffic Control I. (3 Credits)
Prerequisite(s): AVSC 1100 and University Advanced Standing
Teaches tower, approach, and center techniques and terminology. Covers radar and non-radar control environments and the pilot's responsibility in each. Explains effective use of the Air Traffic Control System.

AVSC 3040. Air Traffic Control II. (3 Credits)
Prerequisite(s): AVSC 3030 and University Advanced Standing
Covers advanced air traffic management concepts, weather problems, communications procedures, and technical control skills. Provides simulated air traffic control situations and crisis management skills. Discusses terminal en route procedures and Federal Aviation Regulations.
May be delivered online.

AVSC 3060. Airline Management. (3 Credits)
Prerequisite(s): AVSC 2150 and University Advanced Standing
Prepares student for management level duties at air carriers. Examines airline operational considerations, regulation, financing, accounting methods, marketing, customer service, profitability, and labor relations. Discusses how some airlines succeed and others fail.

AVSC 3070. Aviation Cargo Operations. (3 Credits)
Prerequisite(s): AVSC 2150 and University Advanced Standing
Studies air cargo history and industry development. Teaches air cargo scheduling and supply chain administration. Explores aircraft options and conversions and airport and logistical considerations. Discusses shipping and air cargo regulations including hazard material (hazmat) and security issues. Explores domestic and international air cargo considerations.

AVSC 3090. Airline and Dispatch Operations. (3 Credits)
Prerequisite(s): AVSC 2150, AVSC 2110 and University Advanced Standing
Introduces airline and corporate flight department operations and flight dispatch procedures. Teaches effects of weather, air traffic control and maintenance on fleet logistics. Introduces responsibilities of dispatchers, routers, maintenance controllers, and general system operations. Covers pertinent crew and operational federal aviation regulations. Examines tools and practices of airline system control and corporate flight departments. Explores responsibilities and authority of dispatchers and schedulers.

AVSC 3100. Corporate Aviation Management. (3 Credits)
Prerequisite(s): AVSC 2150 and University Advanced Standing
Introduces basic principles of corporate flight department management. Discusses regulatory requirements in corporate aviation, acquisition procedures, insurance requirements, and pilot certification programs. Explores fractional ownership programs and management.

AVSC 3110. Aviation Security. (3 Credits)
Prerequisite(s): AVSC 2150, and University Advanced Standing
Presents advanced security issues related to aviation including passenger screening, profiling, hijacking, bomb threats and passenger disruptions. Covers historical incidents and studies a variety of responses to threats from various countries. Discusses the role of the Department of Homeland Security and the Transportation Security Administration. Covers the role of pilots and other flight crew in security, including the Federal Flight Deck Officers Program. Includes a discussion of regulatory issues and laws established since the 9/11 attacks. May be delivered online.

AVSC 3120. Airport Management. (3 Credits)
Prerequisite(s): AVSC 2150 and University Advanced Standing
Explores airport management at both small and large airports. Emphasizes basic requirements and attributes of successful airport managers. Course includes discussion of local and state airport finance and regulatory issues. Discusses pertinent Federal Aviation Regulations and security issues.

AVSC 3140. Fixed Base Operations Management. (3 Credits)
Prerequisite(s): AVSC 2150 and University Advanced Standing
Prepares students for employment and management at a fixed base operation and related general aviation management. Covers the organization, profit, maintenance, and safety systems concerning fixed base operators. Presents pertinent Federal Aviation Regulations, facility management, and advertising issues.

AVSC 3150. Principles of Aviation Management. (3 Credits)
Prerequisite(s): AVSC 2070, AVSC 2150 and University Advanced Standing
Teaches principles of aviation management including the management process, decision-making, and organizational structure. Covers leadership skills including communication, fostering team work, conflict resolution, and human resource management. Analyzes the importance of ethics and social responsibility as well as developing and crafting executive strategies. Studies organizational culture and effective management of innovation and change.
May be delivered online.

AVSC 3170. Advanced Air Mobility Technology and Operations. (3 Credits)
Prerequisite(s): University Advanced Standing
Surveys critical topics associated with the design, manufacture, operation and support of a new field of air transportation identified as advanced air mobility. Includes urban air mobility (UAM), personal air transportation vehicles, and autonomous UAS. Analyzes how these new air vehicles will change the landscape of aerospace, how we travel, technical skills required, and career paths necessary to support them.

AVSC 3200. Flight Physiology. (3 Credits)
Prerequisite(s): AVSC 1240 and University Advanced Standing
For pilots with a career goal in commercial Aviation. Teaches physiological and psychological factors that affect pilot performance. Studies issues such as human error, fatigue, fitness, attitudes, training devices, controls, cabin space, and human payload. Includes lecture, demonstration, experiments, group projects, class discussion, and possible guest lecturers.

AVSC 3210. Aircraft Incident and Emergency Management. (3 Credits)
Prerequisite(s): AVSC 2130 and University Advanced Standing
Teaches how to develop a pre-accident plan addressing the issues of chain and command responsibility, initial response to safety and security issues, and the coordination of human and material resources for public safety. Emphasizes post crash/aircraft incident preservation of forensic evidence.
May be delivered online.

AVSC 3220. Aircraft Accident Investigation. (3 Credits)
Prerequisite(s): AVSC 2130 and University Advanced Standing
Explores the fundamental requirements of aircraft mishap and accident investigation. Covers the initial gathering and preservation of evidence at the crash site, including photographic and videographic documentation, assessing environmental factors, human factor considerations, aircraft maintenance status, and air traffic control considerations.

AVSC 3230. Accident Witness Interviewing. (3 Credits)
Prerequisite(s): (AVSC 3210 or AVSC 3220) and University Advanced Standing
Teaches the currently recommended techniques for conducting an accident witness interview and common mistakes. Presents methods of evaluating and analysis of interview information. Case studies and role playing will be used in classroom exercises.

AVSC 3240. Aviation Accident Reporting. (3 Credits)
Prerequisite(s): (AVSC 3210 or AVSC 3220), (ENGL 1010 or ENGH 1005), and University Advanced Standing
Teaches the student a working knowledge of preparing a complete aircraft mishap/accident report that includes the factual information, analysis, and conclusions, including probable causes, and aviation safety recommendations. Involves turning accident investigation data into an accident report.

AVSC 3300. Jet Transport Systems. (3 Credits)
Prerequisite(s): AVSC 1240 and University Advanced Standing
Provides training on turbine driven engines, thrust vectoring, pneumatics, electrical, hydraulic, and auxiliary systems. Includes subjects such as pressurization, de-ice and anti-ice, environmental, and warning systems. Utilizes schematic drawings, computer based trainers, and various jet operating manuals. Includes lecture, class discussion, demonstrations, group practice, and possible guest lecturers.

AVSC 3310. Aviation Logistics Management. (3 Credits)
Prerequisite(s): AVSC 2150, AVSC 3150, and University Advanced Standing
Examines functional areas of supply, maintenance, transportation and services at operational, strategic and tactical levels. Covers facilities, manpower, labor relations, financial and system management, contract administration, analytical techniques and decision making. Uses a variety of case studies and examples of various transportation companies, airlines, and support groups.
May be delivered online.

AVSC 3320. Aviation Managerial Accounting. (3 Credits)
Prerequisite(s): AVSC 2150 and University Advanced Standing
Provides aviation administration students with knowledge of financial, managerial, and basic cost accounting concepts and applications. Introduces basic accounting methods, accounting information systems and the utilization of accounting information in the decision making process. Uses aviation industry case studies and examples.
May be delivered online.

AVSC 3350. Aviation Labor and Human Resource. (3 Credits)
Prerequisite(s): AVSC 2150, AVSC 3150, and University Advanced Standing
Focuses on effective management of human resources in the unique environment of the aviation industry. Teaches planning, recruitment, selection, training, development, labor relations, employee benefits and compensation, employee legal issues, termination and unemployment, and applicable state and federal regulations. May be delivered online.

AVSC 3400. International Flight Operations. (3 Credits)
Prerequisite(s): AVSC 1240 and University Advanced Standing
Provides an overview of international flight operations including advanced air navigation systems. Explores navigation equipment and aids utilized in international flight operations. Teaches the operation of the "Glass Cockpit" flight data center. Utilizes simulation for operation of a glass cockpit equipped aircraft.

AVSC 3530. Flight Aerodynamics. (3 Credits)
Prerequisite(s): AVSC 1240 and University Advanced Standing
Teaches the aerodynamics involved in commercial aircraft. Includes aircraft turning and accelerated climb performance, take off velocity, load factors, hypersonic flight, and laminar flow airfoils. Includes demonstration, examples, experiments, and class discussion. May be delivered online.

AVSC 3600. Multi-piloted Operations. (3 Credits)
Prerequisite(s): AVSC 1100, AVSC 2070 and University Advanced Standing
Explores concepts of Crew Resource Management (CRM), Threat and Error Management (TEM), and Advanced Qualification Program (AQP) concepts. Covers crew coordination, communication, flight discipline, pilot flying and pilot monitoring protocols in multi-piloted environments.

AVSC 3740. Advanced Methods in Aviation Investigation. (3 Credits)
Prerequisite(s): AVSC 3220 and University Advanced Standing
Teaches current scientific techniques for the analysis of aircraft materials, components, performance and design. Considers aircraft crashworthiness. Discusses the process of establishing facts from analysis and of the findings of an aircraft investigation and probable vs. proximate cause.

AVSC 4020. Applied Aviation Finance. (3 Credits)
Prerequisite(s): AVSC 3320 and University Advanced Standing
Examines financial management in the aviation corporate and public sectors and the role of financial markets and institutions. Introduces finance terminology and techniques. Discusses time value of money, fundamentals of security valuation, capital asset pricing model and capital budgeting. Introduces weighted average cost of capital and contrasts debt policy and governance in the public and private aviation sectors.

AVSC 410G. Global Ethical and Professional Issues in Aviation GI. (3 Credits)
Prerequisite(s): AVSC 2150, PHIL 2050, and University Advanced Standing
Designed for aviation managers and pilots to develop a global perspective and understanding of key intercultural issues facing aviation. Studies the role of multi-culturalism and globalization, especially where these issues impact safety and the business environment. Includes a study of aviation regulation and scenario-based problem solving skills.

AVSC 4160. Aviation Law WE. (3 Credits)
Prerequisite(s): AVSC 2150, Senior Standing and University Advanced Standing.
Introduces the student to the United States Constitution plus derivation and application of international, federal, state and local laws as applied to aviation. Covers administrative, civil and criminal law including torts, principles of liability, contracts, sales, commercial transactions, the environment, labor law and Federal Aviation regulations.

AVSC 4210. Flight: Turbine Transition. (1 Credit)
Prerequisite(s): AVSC 2300, AVSC 2310, and University Advanced Standing
Covers the required training experience in preparation for an FAA airplane type rating practical exam. Includes start up, taxi, take-off, en-route, approach, landing, shutdown, and emergency procedures. Requires individualized instruction in a cockpit procedures trainer, simulator or aircraft. Proof of earned airplane type rating is required.

AVSC 4300. Ground Airline Transport Pilot Aircraft Dispatcher. (3 Credits)
Prerequisite(s): AVSC 2110 and University Advanced Standing
Discusses aircraft aerodynamics, airspace and airports, air traffic control, aviation weather, and aero-medical factors and applicable NTSB and FAA regulations. Analyzes the aspects of decision making and professionalism in aviation. Prepares students for the required FAA Airline Transport Pilot Airplane 121 (ATP); FAA Airline Transport Pilot Airplane (135); or Aircraft Dispatcher (ADX) Knowledge Tests.

AVSC 4310. Flight Airline Transport Pilot. (1 Credit)
Prerequisite(s): AVSC 2300, AVSC 2310, and University Advanced Standing
Focuses on the areas necessary to pass an Airline Transport Pilot Airplane Practical Test. Covers pre-flight, takeoff and departure, in flight maneuvers, instrument procedures, approaches and landings, normal and abnormal procedures, emergency procedures and postflight procedures. Prepares students for the required FAA Airline Transport Pilot Airplane Practical Test.

AVSC 4410. Flight Certified Flight Instructor. (1 Credit)
Prerequisite(s): University Advanced Standing and Department Approval
Designed for advanced pilots preparing for the Flight Instructor rating. Trains students to discuss and teach while precisely performing maneuvers and maintaining proper operational control. Emphasizes the identification of common student errors and proper correction. Prepares students for the required FAA Flight Instructor Airplane Practical Test. May be delivered online.

AVSC 4420. Ground CFI Instrument. (1 Credit)
Prerequisite(s): University Advanced Standing and Department Approval required.
Corequisite(s): AVSC 4430
Emphasizes in-depth study of gyroscopic and pressure instruments, attitude instrument flying techniques, IFR departure, en route, arrival and approach procedures, and the teaching of this to other pilots. Discusses Federal Aviation Regulations that apply to instrument flight instruction, flight logbook endorsements and entries, and other directives and publications that apply to airplane instrument flight. Studies the correct procedures for teaching and the analyzing of student errors while performing the required instrument flight maneuvers. Prepares students for the required FAA Flight Instructor Instrument Airplane Knowledge Test.

AVSC 4430. Flight CFI Instrument. (1 Credit)
Prerequisite(s): AVSC 2300, AVSC 2310 and University Advanced Standing
Corequisite(s): AVSC 4420
Designed for instructor pilots seeking the CFI Airplane Instrument rating. Covers all required instrument flying maneuvers from the right seat of the instrument training airplane such as instrument departures, en route navigation, and instrument approach to landings. Prepares students for the required FAA Flight Instructor Instrument Airplane Practical Test.

AVSC 4500. Aerospace Aftermarket Support Services. (3 Credits)
Prerequisite(s): University Advanced Standing
Explores organizational structures, geographical location selection, staffing, service delivery, and infrastructure requirements of an effective aftermarket product support program associated with aerospace vehicles. Explores existing support concepts to enable the student to design and plan an integrated and deployable product support organization. Emphasizes key elements of customer relationship management. Includes studies for both Original Equipment Manufacture (OEM) and third-party service providers.

AVSC 4550. Aerospace Vehicle Certification-Reliability-Maintainability Systems. (3 Credits)
Prerequisite(s): University Advanced Standing
Explores the standards, regulations, infrastructure, and issues involving the certification, reliability, maintainability, risk management, and safety of aerospace vehicles through their life cycle. Studies the aerospace sectors of civil, defense, unmanned, and space-based systems. Investigates global training and certification standards of maintenance engineers and technicians.

AVSC 4700. Aviation Professional Seminars. (3 Credits)
Prerequisite(s): University Advanced Standing
Corequisite(s): AVSC 4710
Informs aviation students on personal and career development through guest lectures and industry seminars. Discusses career opportunities to develop and promote career success.

AVSC 4710. Aviation Career Preparation. (1 Credit)
Prerequisite(s): Senior Standing and University Advanced Standing
Prepares students for the rigors of an aviation interview by reviewing important areas including Federal Aviation Regulations, aviation specific discipline knowledge and interpersonal skills necessary to successfully obtain a position in the aviation industry. Includes specific resume, background search, and interview preparation procedures.

AVSC 475R. Current Topics in Aviation. (1-3 Credits)
Prerequisite(s): AVSC 1010 and University Advanced Standing
Presents selected topics in Aviation Sciences and will vary each semester. Requires a special project related to the area of study. May be repeated with different topic areas for a maximum of 6 credits toward graduation.

AVSC 4800. Professional Pilot Capstone. (3 Credits)
Prerequisite(s): AVSC 3300, 3600 and University Advanced Standing
Teaches systems, operations and performance limitations of the CRJ. Emphasizes operating practices, along with systems indoctrination, and procedures training. Includes systems and operations common to most turbine and transport category aircraft. Provides insight into the rigors of studying for ground school systems class. Utilizes lecture, demonstration, and cockpit procedure trainers. Prepares students who complete the course to pass the applicable written exam.

AVSC 4805. Canadair Regional Jet Orientation. (1 Credit)
Pre- or Corequisite(s): AVSC 4800
Introduces Canadair Regional Jet aircraft (CRJ) procedures through hands on application in the CRJ flight simulation training device. Provides simulated experience as a pilot in normal, abnormal, and emergency operations. Includes scenario based training in the CRJ200 flight management system (FMS) and other essential systems. Emphasizes crew resource management (CRM) skills in transport category aircraft.

AVSC 481R. Cooperative Work Experience. (1-8 Credits)
Prerequisite(s): University Advanced Standing
For upper division Aviation majors. Requires a current job in an aviation related field to register for this course. Includes course content that is individualized, with students setting objectives in consultation with their faculty coordinator and their on-the-job supervisor. Determines credit by the number of hours a student works during the semester. May be repeated for a maximum of 8 credits toward graduation. May be graded credit/no credit.

AVSC 485R. Cooperative Related Class. (1 Credit)
Prerequisite(s): Current job in an aviation related field and University Advanced Standing
Corequisite(s): AVSC 481R
For upper division Aviation Science majors. Designed to enable students with career aspirations in aviation related fields to begin career planning. Enhances a student's knowledge, personal development, professional development and professional preparation by integrating academic study with practical experience and resume preparation. May be repeated for a maximum of 2 credits toward graduation.

AVSC 4900. Strategic Aviation Management Capstone. (3 Credits)
Prerequisite(s): AVSC 3150, Senior standing, and University Advanced Standing
Pre- or Corequisite(s): AVSC 4020
Provides aviation administration students with the opportunity to practice and apply their cumulative knowledge acquired over the entire course of study. Teaches the components of formulating a strategic plan, implementing and controlling its execution, and evaluating its success. Applies principles of accounting, finance, economics, labor, logistics, operations, research and strategy development through simulation and aviation case studies.

AVSC 491R. Undergraduate Research Project. (3-6 Credits)
Prerequisite(s): AVSC 3200, AVSC 3600, ENGL 2010, Matriculation into Bachelor's Degree, and University Advanced Standing
Combines and integrates concepts, methodologies, and skills developed in previous AVSC course work through the completion of a comprehensive project. Students will develop their own project and portfolio in consultation with a faculty advisor. A list of detailed guidelines for the project is available from the Aviation Science Department. May be repeated three times for a maximum of 6 credits.

AVSC 4950. Aerospace Technology Management Capstone Project WE. (3 Credits)
Prerequisite(s): AVSC 4500, AVSC 4550, and University Advanced Standing.
Assesses significant evidence of learning within the discipline studied through a culminating project. Documents evidence of achievement, experience and competencies for current and prospective employers to aid in job placement or promotion.