AVIATION SCIENCES (AVS)

AVS 1300 Introduction to Aviation (3)
Pre-requisite(s): Aviation Sciences (AVS) or Aviation Administration (AVA) majors, secondary majors, and minors only
A survey of aviation with special attention to the history and impact of aviation on society as well as its technological progress.

AVS 1301 Air Navigation (3)
Pre-requisite(s): Aviation Sciences (AVS) or Aviation Administration (AVA) majors and secondary majors only
Instruction in Visual Flight rules navigation in the National Airspace System. Topics include sectional charts, flight computers, plotters, and navigation logs and publications. Qualifies as part of a program leading to Federal Aviation Administration Private Pilot certification.

AVS 1302 Private Pilot Ground School (3)
Pre-requisite(s): Aviation Sciences (AVS) or Aviation Administration (AVA) majors only
Basic ground school for the Federal Aviation Administration Private Pilot Certificate, providing the student with the necessary aeronautical knowledge that can be used for private pilot certification. Topics include principles of flight, radio procedures, weather, navigation, aerodynamics, and Federal Aviation Administration regulations.

AVS 1303 Instrument Rating Ground School (3)
Pre-requisite(s): AVS 1302
Ground school providing the necessary aeronautical knowledge required to successfully complete the Federal Aviation Administration (FAA) Instrument Rating written exam. Topics include basic radio instrument and navigation fundamentals, navigation systems, navigation instruments, charts used for instrument flight and Federal Aviation Administration regulations pertaining to instrument flight.

AVS 1313 Introduction to Meteorology (3)
Pre-requisite(s): Aviation Sciences (AVS) or Aviation Administration (AVA) majors, secondary majors, and minors only
Basic atmospheric structure and processes, clouds and precipitation, atmospheric pressure and winds, weather chart analysis, thunderstorms and hurricanes, weather observations and forecasting.

AVS 1331 Private Pilot Flight (3)
Pre-requisite(s): Aviation Sciences (AVS) or Aviation Administration (AVA) majors, secondary majors, and minors only
Dual flight instruction and solo flight time necessary to qualify for the FAA Private Pilot Certificate.

AVS 1332 Instrument Rating Flight (3)
Co-requisite(s): AVS 1303
Pre-requisite(s): AVS 1331
Dual flight instruction and solo flight time necessary to qualify for the FAA Instrument Rating.

AVS 1361 Private Pilot Helicopter Flight (3)
Co-requisite(s): AVS 1301, AVS 1302, AVS 1313
Pre-requisite(s): Departmental approval required
Flight training in preparation for the FAA Private Pilot Helicopter license.

AVS 2151 Multi-Engine Flight (1)
Pre-requisite(s): A grade of C or better in AVS 2239 or AIRP 2239
Prepares the student for the FAA multi-engine rating.
AVS 3311 Aircraft Accident Investigation and Prevention (3)  
A comprehensive overview of the procedures and methods used and the skills required to investigate an aircraft accident with emphasis placed on accident prevention.

AVS 3312 Aviation Safety (3)  
Pre-requisite(s): AVS 3311  
Methods for assessing risk and predicting error generation potentials, illustrated through accident and incident case studies.

AVS 3315 Advanced Aviation Meteorology (3)  
Pre-requisite(s): Aviation Sciences (AVS) or Aviation Administration (AVA) majors, secondary majors, and minors only  
Discussion of physical processes in the atmosphere which affect aviation including thunderstorms, wind, icing, turbulence, ceiling, and visibility. Includes development and application of aviation weather products.

AVS 3320 Flight Crew Career Development (3)  
Pre-requisite(s): AVS 2334  
Examination of pilot qualifications required by airline, corporate, and military hiring entities.

AVS 3341 UAS Foundations (3)  
Analysis of the capabilities and limitations of UAS technology including both hardware and software inclusions along with an examination of the concerns facing UAS integration into the National Airspace.

AVS 3342 Applications of Unmanned Aircraft Systems (3)  
Applications of UAS technology for commercial, scientific, and governmental purposes with respect to physical and regulatory limitations. Discussion of professionalism and ethics as they apply to remote pilots.

AVS 3350 Space Weather (3)  
The discovery, basic processes, and the health, technology, and societal impacts of space weather.

AVS 3364 CFI Helicopter Flight (3)  
Co-requisite(s): AVS 3305  
Pre-requisite(s): AVS 2363  
Flight training in preparation for the FAA Certified Flight Instructor Helicopter license.

AVS 3370 Aviation Leadership (3)  
A study of leadership topics such as leadership theory, teamwork, conflict management, supervision, and motivation with an emphasis on application within the aviation industry.

AVS 3V9R Research (3)  
Pre-requisite(s): Consent of the instructor  
Undergraduate research undertaken with the supervision of a faculty member. May be taken for a maximum of 6 hours.

AVS 4237 Certified Flight Instructor - Instrument Flight (2)  
Pre-requisite(s): AVS 3236  
Flight training, fundamental knowledge, and a consistent flight schedule required for earning the CFI-I certification rating. Includes preparation for the FAA CFI-I practical test.

AVS 4238 Multi Engine Instructor Flight (2)  
Pre-requisite(s): AVS 3235 and AVS 4237  
Flight training, fundamental knowledge, and a consistent flight schedule required for earning the Multi-Engine Instructor Certification. Includes preparation for the FAA Multi-Engine Instructor license practical test.

AVS 4265 CFI-I Helicopter Flight (2)  
Pre-requisite(s): A grade of C or better in AVS 3464  
Flight training in preparation for the FAA Certified Flight Instructor Instrument Helicopter license.

AVS 4266 NVG Helicopter Flight (2)  
Pre-requisite(s): A grade of C or better in AVS 4265  
Flight training in preparation for the FAA Helicopter Night Vision Goggle (NVG) logbook endorsement.

AVS 4305 Special Topics in Aviation (3)  
Pre-requisite(s): Upper-level standing or consent of instructor  
Study of advanced topics in aviation. This course may be repeated once under a different topic.

AVS 4306 Instructor - Instrument Ground School (3)  
Pre-requisite(s): AVS 3305  
Ground school providing the necessary aeronautical knowledge to successfully complete the Federal Aviation Administration (FAA) Certified Flight Instructor - Instrument written exam.

AVS 4310 Aviation Management (3)  
Application of management concepts to the problems involved in airport operations, national air traffic control and air transportation systems.

AVS 4314 Advanced Aircraft Systems (3)  
Study of large transport aircraft: turbine engines, pressurization, electrical, hydraulic, and fire protection systems. Emphasis on high altitude aerodynamics and performance.

AVS 4315 Aerodynamics (3)  
Pre-requisite(s): Upper-level standing and Aviation Sciences majors only  
Aircraft types, theory of flight, aerodynamics of the airplane, aircraft performance, effects of atmospheric conditions on performance, theory of aircraft stability and control, effects of flight loads on aircraft structure.

AVS 4317 Aerospace Propulsion Systems (3)  
Current aerospace power plants, engines, and associated aircraft systems with an emphasis on power plants encountered during flight and ground training.

AVS 4318 Avionics System Design (3)  
Cross-listed as ELC 4318  
See ELC 4318 for course information.

AVS 4321 Energy Economics (3)  
Cross-listed as ENV 4321  
See ENV 4321 for course information.

AVS 4323 The Environment and Economic Analysis (3)  
Cross-listed as ECO 4323, ENV 4323  
See ENV 4323 for course information.

AVS 4343 Human Aspects of Unmanned Aircraft Systems (3)  
Pre-requisite(s): AVS 3341  
Assessment of the limits and skills employed by professional remote pilots in trapping and mitigating errors, as well as analyzing human error and management skills used to detect and stop errors during the day-to-day execution of remote pilot tasks. Exploration into the concepts of decision-making bias, stress, and methods for safely identifying and mitigating risk while making time critical decisions.

AVS 4344 Safety Management of Unmanned Aircraft Systems (3)  
Pre-requisite(s): AVS 3342  
Focus on the four pillars of a safety management system to include safety policy, safety risk management, safety assurance, and safety promotion.

AVS 4375 Crew Resource Management (CRM) in Aviation (3)  
Cognitive processing theory, organizational behavior, interpersonal relationship skills, and other critical behavioral dynamics of professional flight crews.
AVS 4377 Airport Management (3)
Pre-requisite(s): Upper-level standing
An in-depth overview of the Federal Aviation Regulation Part 139 airport design standard as well as a study of both landside and airside airport business management, utilizing the American Association of Airport Executives' Body of Knowledge modules. Includes a study of the role of the airport in community development.

AVS 4386 Remote Sensing (3)
Cross-listed as BIO 4386, ENV 4386, GEO 4386
See GEO 4386 for course information.

AVS 4390 Internship in Aviation (3)
Pre-requisite(s): Upper-level standing and consent of instructor
Supervised work within the aviation industry corresponding with the student's major and career goals. May be repeated for a total of six semester hours provided professional setting is different.

AVS 4395 CFI Practicum - I (3)
Pre-requisite(s): Departmental approval required
Aviation capstone course that synthesizes and integrates previous learning to facilitate the students' transition to the professional world.

AVS 4396 CFI Practicum - II (3)
Pre-requisite(s): AVS 4395
Aviation capstone course that continues integrating previous dual flight instruction while further honing flight skills and professionalism for transition to the professional world.

AVS 4485 Introduction to Geographic Information Systems (4)
Cross-listed as ENV 4384, ENV 4485, GEO 4485
See GEO 4485 for course information.

AVS 4487 Advanced GIS Analysis (4)
Cross-listed as AVS 4387, ENV 4487, GEO 4487
See ENV 4487 for course information.

AVS 4V9R Research (3)
Pre-requisite(s): Consent of the instructor
Undergraduate research undertaken with the supervision of a faculty member. May be taken for a maximum of 6 hours.