UNMANNED AERIAL SYSTEMS (UAS)

UAS 110 Digital Imagery Fundamentals
(3 Credits, Fall)
This course will look at the structure and use of typical digital camera payloads used in Unmanned Aerial Systems (UAS). Instruction will be given on how to select and set camera settings for optimal image quality based on the mission's environment and requirements. This course will also challenge the student's understanding as to how digital imagery is acquired, constructed, processed and stored. Finally, the fundamental aspects of digital imagery editing software will be explored. COREQ: GIS 126, UAS 125, and UAS 130. *(3 lecture hours, 0 lab hours, 3 credits)*

UAS 115 Privacy and Security
(3 Credits, Spring)
This course challenges students to examine the concepts of privacy and security as they relate to UAS. The importance of security and privacy will be emphasized as students are encouraged to understand and protect the rights of others when performing UAS flight operations. Through analysis, evaluation, and the informative process, students will learn how to keep UAS data and privacy secure while gathering, evaluating, and storing UAS data. COREQ: UAS 136 and UAS 140. *(3 lecture hours, 0 lab hours, 3 credits)*

UAS 125 Flight Theory - Ground School
(3 Credits, Fall)
This course covers a wide variety of aeronautical concepts and principles encompassed in the topics of: aerodynamics, aircraft performance, the national airspace system, airport operations, weather theory, aeronautical decision making, emergencies, and the Federal Aviation Administration (FAA) regulations covered in Part 107. Successful completion of this course requires students to pass the FAA Remote Pilot Certification exam. COREQ: GIS 126, UAS 110, and UAS 130. *(3 lecture hours, 0 lab hours, 3 credits)*

UAS 130 Flight Lab I
(5 Credits, Fall)
This course provides the skills needed to perform simulated and actual flight operation of both multi-rotor and fixed wing aircraft. Principles of flight theory learned in UAS 125 will be applied in this course. This course will also cover UAS system components, aircraft setup, flight controller fundamentals, aerodynamics, airspace and weather conditions during actual flight operations. The importance of aeronautical decision making will be emphasized in the course. All aspects of this course will need to be documented in detailed flight and maintenance logs, which will be an integral part of the student's grade. COREQ: GIS 126, UAS 110, and UAS 125. *(1 lecture hours, 8 lab hours, 5 credits)*

UAS 136 Flight Lab II
(5 Credits, Spring)
This course provides students with the opportunity for hands-on UAS operation of both rotary and fixed-wing aircraft in automated flight mode. Automated flight training will consist of two-dimensional (2-D) and three-dimensional (3-D) mapping, as well as vertical lift inspection while using sophisticated Ground Control Software (GCS). The skills necessary to successfully acquire imagery and to implement payload integration concepts will also be covered in this course. PREREQ: UAS 125 and UAS 130. COREQ: UAS 115 and UAS 140. *(0 lecture hours, 10 lab hours, 5 credits)*

UAS 140 Mission Planning and Implementation
(3 Credits, Spring)
This course engages students in UAS mission planning and implementation through the use mission planning software. Students will be exposed to pre-mission analysis, mission implementation, and post-mission evaluation concepts. Students will also learn the skills necessary to perform a detailed site analysis, beyond site missions, aircraft and payload selection, risk analysis, and the implementation of authority to operate methods and standards. PREREQ: UAS 125 and UAS 130. COREQ: GIS 230 and UAS 136. *(1 lecture hours, 4 lab hours, 3 credits)*

UAS 155 Introduction to GPS
(2 Credits, Spring)
This course provides a survey of basic mapping concepts and global positioning systems (GPS). Topics include modeling the Earth's surface, topographic maps, aerial photo interpretation, thematic maps, basics of GPS hardware, GPS theory and function, GPS data collection and organization, differential GPS data correction, and importing and manipulating GPS data in applications. *(2 lecture hours, 0 lab hours, 2 credits)*

Refer to How to Read Course Descriptions for an explanation of elements found in the course descriptions above.