GEOSPATIAL TECHNOLOGY (GST)

Course Descriptions

GST 101. Introduction to Geographic Information Systems (GIS). 3 Credit Hours.

Introduction to Geographic Information Systems (GIS) is a beginning course in geographic information systems and analysis designed for end users. The course focuses on the industry standard ArcGIS products and their various modules for exploratory research and spatial analysis. The purpose of this course is to introduce students to spatial thinking and awareness, fundamental geographic concepts, and the use of spatial technology as a research tool for problem solving and prediction.

Prerequisites: Reading Proficiency

Recommended Preparation: No previous exposure to GIS or mapping is necessary, however, quantitative reasoning, data management / spreadsheet experience, and solid computer skills are helpful

GST 102. Introduction to Unmanned Aircraft Systems. 3 Credit Hours.

Introduction to Unmanned Aircraft Systems introduces students to unmanned aircraft systems of various types and the current legal and ethical issues. Students will also be introduced to operation of sensors, payloads, and simulators. The important topics of sense-and-avoid technologies, human factors, and other safe flight issues will also be covered. The course prepares students for the Part 107 Remote Pilot's License exam.

Prerequisites: Reading Proficiency

Recommended Preparation: No previous experience with Unmanned Aircraft Systems is necessary, however, ability to read technical writing and some computer skills are helpful

GST 150. Drone Mission Planning and Photography. 3 Credit Hours.

Drone Mission Planning and Photography teaches students the techniques and procedures needed to pre-plan and fly Unmanned Aerial Systems (UAS) Drone missions including creating flight logs and pre- and post- mission planning reports. Students plan and execute increasingly challenging missions such as a site survey, inspections, and search and rescue support. Students also gain exposure to basic drone photography and video image processing techniques.

Prerequisites: GST 102 with a minimum grade of "C" or FAA Part 107 license, and Reading Proficiency

GST 201. Intermediate Geographic Information Systems. 3 Credit Hours.

Intermediate Geographic Information Systems (GIS) furthers understanding and skills in the industry using GIS products and their various modules for exploratory research and spatial analysis. Students increase their ability to recognize, research, and propose discoveries and solutions to problems germane to geospatial science. Students use vector and raster data. Students explore various extensions of industry GIS software to gain proficiency in selected areas of interest: georeferencing, digitizing, geocoding, hot spot and cluster analysis, spatial statistics, land classification, buffering, distance and area calculation, and/or network analysis.

Prerequisites: GST 101 with a minimum grade of "C" and Reading Proficiency

Recommended Preparation: In addition to general GIS knowledge from Intro to GIS course, quantitative reasoning, data management / spreadsheet experience, and solid computer skills are helpful

GST 220. Advanced Applications in Geographic Information Systems. 4 Credit Hours.

Advanced Applications in Geographic Information Systems (GIS) is designed to round out student experience for preparation for professional jobs in GIS. GIS is a field that creates, manages, analyzes, investigates, and problem solves with data that has a spatial component. Professionals who work in GIS require experience with many applications in various software and sources of spatial data. This course provides students with such experience including coding experience, online research experience, and job-related application experience in GIS.

Prerequisites: GST 101 and GST 201 with minimum grades of "C" and Reading Proficiency

Recommended Preparation: Introductory Statistics is highly recommended