

GEOSPATIAL SCIENCE (GSS)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GSS 800 - Elements of Geospatial Science

Credits: 4

This on-line course lays the foundation for Geospatial Science (GSS) thinking by exploring the definition, methods, data types, data sources, software, and equipment used within the field of GSS. The importance and structure of the regional GSS industry is discussed with emphasis on how GSS is used across multiple disciplines. Course includes some guest lectures from industry professionals. Lectures and tests are conducted on-line. Students are required to download and install some software and data to complete assignments.

Grade Mode: Letter Grading

GSS 805 - Applied Geographic Information Systems for Research

Credits: 4

This course teaches concepts and applied techniques of Geographic Information System tools and technologies to solve real world Geospatial Science problems across multiple disciplines. Technical topics covered include geospatial data collection, quality, conversion, management, analysis, visualization, and dissemination. Students hands-on-lab and independent exercises use the latest version of ArcGIS software. Development and implementation of a project proposal and an independent project are completed by students to forward individual interests.

Grade Mode: Letter Grading

GSS 807 - GIS for Earth and Environmental Science

Credits: 4

This course teaches concepts and applied techniques of Geographic Information System tools and technologies to solve Geospatial Science problems for Earth Science and Environmental Engineering. Technical topics covered include geospatial data collection, quality, conversion, management, analysis, visualization, and dissemination. Students hands-on-lab and independent exercises use the latest version of ArcGIS and other GIS software. Development and implementation of a project proposal and an independent project are completed by students related to course topics.

Grade Mode: Letter Grading

GSS #817 - Remote Sensing for Earth and Environmental Science

Credits: 4

Remote sensing provides insight into spatial and temporal aspects of environmental and earth systems. Students will learn digital image processing techniques, understand different sensor and platform technologies, and discuss new trends in remote sensing science. Focus on applied research questions and projects will be addressed. The course will include hyperspectral, lidar analysis, and unmanned aerial systems. Work will be done using ImageJ, Google Earth Engine and python. Programming background is not a requirement.

Grade Mode: Letter Grading

Special Fee: Yes

GSS 850 - Crowd Source Mapping

Credits: 4

Locational crowdsourcing is one of the most exciting new areas of data generation and delivery of geographic information. Traditionally, GIS has emphasized mapping and analyses based on layers produced with a high degree of quality control, but in the age of Web 2.0, data as collected from the general public has been increasingly utilized for emergencies and everyday use. This course will teach this form of data collection and use with hands-on labs exclusively online.

Grade Mode: Letter Grading

GSS 996 - Geospatial Science Independent Study

Credits: 1-4

May include research project, fieldwork or a relevant internship where students will build or apply GIS, Remote Sensing, GPS, or other Geospatial technologies. To be elected only with permission of program coordinator and with qualified supervision.

Grade Mode: Letter Grading

Special Fee: Yes