GEOSPATIAL SCIENCE (GSS)

Degree Offered: Graduate Certificate

This program is offered in Durham.

The Graduate Certificate in Geospatial Science (GSS) at the University of New Hampshire is a multidisciplinary program designed to provide graduate level education in the applied and theoretical technology and applications of geospatial science. Students within the program are afforded the opportunity to build their five course certificate from a variety of required and elective classes from different disciplines to best fit their academic, research, or professional interests. The flexibility of this program makes it ideal for a student looking to complement their degree or a professional looking to build knowledge, skill and credentials within the Geospatial Sciences.

Admission Requirements

Students must hold a baccalaureate degree from an accredited college or university. Five courses as chosen from the categories listed below are required. Courses taken at other institutions are not eligible to be transferred into the program.

Applying

Please visit the UNH Graduate School site for detailed instructions about applying to the certificate program.

http://gss.unh.edu/

Programs

- Geospatial Science (Graduate Certificate)

Courses

Geospatial Science (GSS)

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 Grade

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 Grade

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 Grade

GSS #809 - GIS for Water Resources
Credits: 4
This course provides students the opportunity for application of emerging technologies with a focus on Geographic Information Systems and remote sensing in water resources engineering and hydrology. Topics may include digital mapping of water resources information, spatial coordinate systems, river and watershed networks, soil and land use mapping, flood/hydrology modeling and flood plain mapping, terrain analysis for hydrologic modeling, and integration of times series and geospatial data. Special fee.
Grade Mode: Letter Grade

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. Special fee.
Grade Mode: Letter Grade

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 Grade

GSS #896 - Special Topics
Credits: 4
Special topics in geospatial technologies including by not limited to geographic information system, global positioning system, remote sensing, spatial analysis, statistics, crowdsource mapping, geodesy, and surveying.
Grade Mode: Letter Grade

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. Special fee.
Grade Mode: Letter Grade