

Undergraduate Minor in Geographic Information Science

Geographic Information Science (GIScience) encompasses the theories and methods for understanding spatial patterns and processes.

Because many of our most vexing problems have a spatial component, GIScience underpins our best solutions. Examples of geospatial technologies and research include internet mapping, in-vehicle navigation systems, digital cartography, imagery taken by airplanes and satellites, spatial analysis and modeling of social and natural processes, and visualization and data mining of complex information.

GIScience has become a key approach to an increasingly large number of endeavors, from land use planning and environmental management, to epidemiology through law enforcement. Experts in a diverse range of fields are well-served by knowledge in GIScience.

The graduate minor in GIScience allows students to develop depth in spatial analysis that complements their discipline-specific knowledge. Completing this minor will improve marketability and opportunities for intellectual and professional development.

Core courses (7 credits).

- Geog 3561: Principles of GIS or FR 3131: Introduction to GIS
- Geog 5563: Advanced GIS

Elective courses (9-12 credits). No more than two courses with the same designator may be used to fulfill the requirement. Take 3 or more course(s) totaling 9 or more credit(s) from the following:

- CSCI 4041. Algorithms and Data Structures (4 cr)
- CSCI 4107. Introduction to Computer Graphics Programming (3 cr)
- CSCI 4707. Practice of Database Systems (3 cr)
- CSCI 5115. User Interface Design, Implementation and Evaluation (3 cr)
- DHA5469. Understanding Housing: Assessment and Analysis (3cr)
- ESPM 3031. Applied Global Positioning Systems for Geographic Information Systems (3 cr)
- ESPM 4295. GIS in Environmental Science and Management (4 cr)
- FR 3262. Remote Sensing of Natural Resources and Environment (4 cr)
- FR 5412. Digital Remote Sensing (4 cr)
- GEOG 3511. Principles of Cartography (3 cr)
- GEOG 3531. Numerical Spatial Analysis (3 cr)
- GEOG 5564. Urban Geographic Information Science and Analysis (3 cr)
- GEOG 5565. Geographical Analysis of Human-Environment Systems (3 cr)
- GIS 5571. Introduction to Arc/Info (3 cr)
- GIS 5572. Advanced Arc/Info (3 cr)
- SOIL 4111. Introduction to Precision Agriculture (3 cr)

Other restrictions. No more than two courses used for the minor may be used to fulfill the requirements of another degree program. Several of the courses for the minor have prerequisites that must be satisfied. Admission to the minor does not imply an automatic right to enroll in individual courses.

Students interested in completing the Undergraduate Minor in GIS should contact the Advisor of Undergraduate Studies in Geography (advisor@geog.umn.edu). Students in CFANS may also contact Sheryl Bolstad (sbolstad@umn.edu); students in IT may also contact advisor@cs.umn.edu; and students in CDES may also contact Dave Pitt (pittx001@umn.edu).