# GISCIENCE, CERTIFICATE

Geospatial Information Science is a research field that utilizes specialized computer hardware, software, and procedures for the capture, presentation, and analysis of all types of natural and social science data referenced (mapped) to the earth's surface. The minor/certificate program provides knowledge, training, applications, and research skills for successful careers or graduate work across a number of disciplines. Students who complete the minor or certificate should be able to:

- perform GIScience capture, analysis, and presentation using vector, raster, and remote sensing data;
- use GIScience data to investigate research questions in the social or natural sciences;
- employ geographic concepts such as projections, coordinate systems, and scale;
- recognize and apply information science concepts such as data collection, representation, queries, and storage;
- enter a career that utilizes GIScience principles and practices; and
- continue GIScience work at the graduate level.

GIScience minor/certificate credits can count toward a bachelor's degree in several departments such as Geography, Biology, Physical Science, Health Informatics, Natural Resources and the Environment, or Management Information Systems. Please see an advisor in the appropriate department. Students may not earn a GIScience minor and a GIScience undergraduate certificate.

## Course Requirements

- Minimum of 18 credit hours
- Students must take courses from at least two different departments.
- Students must have a *B* (3.0) average in their GIScience courses for the minor or certificate and no grade below a *C* (2.0) in their GIScience courses to earn the minor or certificate.

| Code | Title | Credit Hours |
|---|---|---|
| **Geographic Information Systems Course** | | |
| GEO 426 | Principles of GIS | 3-4 |
| or NRE 423 | GIS and Data Systems | |
| **Remote Sensing Course** | | |
| Select one of the following: | | 3-4 |
| BSC 410 | Remote Sensing/GIS Appl | |
| BSC 411 | Dgtl Image Proc/GIS Model | |
| GEO 431 | Remote Sensing & Photogram | |
| NRRM 433 | GIS/RS in Natural Resources | 3 |
| **Total Credit Hours** | | **9-11** |

### GIScience Courses

| Code | Title | Credit Hours |
|---|---|---|
| BSC/PS 410 | Remote Sensing/GIS Appl | 4 |
| BSC/PS 411 | Dgtl Image Proc/GIS Model | 4 |
| CE 241 | Introduction to Geomatics | 3 |
| GEO 110 | Basic GIS | 1 |
| GEO 111 | Air Photos & Satellite Imagery | 1 |
| GEO 112 | Smartphone GPS | 1 |
| GEO 426 | Principles of GIS | 4 |
| GEO 429 | Location Analysis and GIS | 4 |
| GEO 430 | Environmental Raster GIS | 4 |
| GEO 431 | Remote Sensing & Photogram | 4 |
| GEO 432 | Enterprise GIS | 3 |
| GEO 433 | GPS & Mobile Geospatial Tech | 3 |
| GEO 490 | Internship (must be GIScience approved by adviser to qualify) | 3 |
| GLY 212 | Geologic Field Methods | 3 |
| NRE 423 | GIS and Data Systems | 3 |
| NRE 470 | ES Internship (must be GIScience approved by adviser to qualify) | 3 |
| NRE 491 | ES Senior Capstone (Senior Project II) (must be GIScience approved by adviser to qualify) | 3 |
| MIS 340 | Intro to Database Mgt Systems | 3 |
| NRE 322 | Assess I: Terrestrial Systems | 4 |
| NRE 323 | Assessment II: Aquatic Ecology | 4 |
| Special Topics courses as approved by the GIScience Curriculum Committee. | | |
| Independent Study courses as approved by the student's adviser in consultation with the GIScience Curriculum Committee. | | |