



## Geographic Information Science *cert*

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Required Credits: 12

Required GPA: 2.25

### I REQUIRED COURSES

Note: The Geographic Information Science certificate is not available to students pursuing the Geography, BS major GIScience emphasis or to students pursuing the GIScience minor. It is advised that students not having previously taken a GIS course include GEOG 3231, Introduction to Geographic Information Systems, as one of their courses.

Select 4 courses from the following list:

- GEOG 3226 Cartography (3 credits)
- GEOG 3231 Introduction to Geographic Information Systems (3 credits)
- GEOG 3232 Intermediate Geographic Information Systems (3 credits)
- GEOG 3255 Introduction to Remote Sensing (3 credits)
- GEOG 4150 Applications of Machine Learning (3 credits)
- GEOG 4265 Spatial Analysis (3 credits)
- GEOG 4275 Advanced Geographic Information Systems (3 credits)
- GEOG 4285 Drone Applications (3 credits)
- GEOG 4910 Directed Independent Study (3 credits)  
*or* GEOG 4970 Internship (3 credits)  
*or* GEOG 4980 Research (3 credits)

### Program Learning Outcomes | Geographic Information Science

1. Comprehend the fundamental concepts and practices of Geographic Information Systems (GIS).
2. Collect, manage, analyze, and visualize geospatial data using GIS software.
3. Employ cartographic and map design principles to produce maps and visualizations.
4. Select and apply appropriate geoprocessing tools and spatial analysis techniques to solve real-world problems.
5. Effectively communicate spatial information through maps and visualizations.