# Geographic Information Systems Minor

**Banner Code:** GIS  

**Department of Geography and Geoinformation Science**  
4400 University Drive, MSN 6C3  
Fairfax, VA 22030  
Phone: 703-993-1210  
Email: ggs@gmu.edu  
Website: cos.gmu.edu/ggs/academic-programs/minor-in-geographic-information-systems/

The Geographic Information Systems Minor is designed to prepare students with the basic training necessary to enter the rapidly expanding field of geographic information science. The curriculum in the minor is multidisciplinary in content and interdisciplinary in approach, drawing on a variety of geographic and computational science components. A Geographic Information System (GIS) is an integrative approach to help solving complex spatial problems in most professional fields and at different scales. GIS has irrevocably altered the way we capture, store, analyze, and visualize spatial information. Although it has its roots in cartography and the graphical display of information, its breadth spans from geographic data acquisition, geospatial database construction and management, spatial analysis, and geovisualization. Public and private sector organizations work with an overwhelming amount of spatial data in their day-to-day operations. With so much spatial information, GIS has become essential to the effective operation of both public and private organizations.

Employment opportunities are limitless for students who are proficient in this interdisciplinary field. GIS professionals work in places like government agencies, utility companies, marketing firms, non-profit organizations, and publishing companies. Federal government agencies such as NGA, FEMA, USGS, DOD, EPA, and NASA routinely recruit individuals with strong GIS backgrounds.

## Admissions & Policies

### Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors.

## Requirements

### Minor Requirements

Total credits: 18-20

Students should refer to the Admissions & Policies tab for specific policies related to this program.

All coursework must be completed with a minimum GPA of 2.00.

### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td>3</td>
</tr>
<tr>
<td>GGS 300</td>
<td>Quantitative Methods for Geographical Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

### Electives

Select 6-8 credits from the following:  

- GGS 308 Field Mapping Techniques  
- GGS 310 Introduction to Digital Cartography  
- GGS 354 Data Analysis and Global Change Detection Techniques  
- GGS 410 Introduction to Hyperspectral Imaging  
- GGS 411 Advanced Digital Cartography  
- GGS 412 Air Photography Interpretation  
- GGS 416 Satellite Image Analysis  
- GGS 470 Special Topics in Geographic Techniques  
- GGS 480 GGS Internship  
- CS 112 Introduction to Computer Programming (Mason Core)

Total Credits 6-8

1. With departmental permission, one course with significant geographic information systems (GIS) content may be used as an elective.