### GEOGRAPHIC INFORMATION SYSTEMS (GIS), CERTIFICATE

**Total Hours:** 15 Hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 4203</td>
<td>Fundamentals of Geographic Information Systems</td>
<td>3.00</td>
</tr>
<tr>
<td>GEOG 4343</td>
<td>Geographic Information Systems: Resource Management Applications</td>
<td>3.00</td>
</tr>
<tr>
<td>or GEOG 5323</td>
<td>Geographic Information Systems: Resource Management Applications</td>
<td></td>
</tr>
<tr>
<td>GEOG 4353</td>
<td>Geographic Information Systems: Socioeconomic Applications</td>
<td>3.00</td>
</tr>
<tr>
<td>GEOG 5343</td>
<td>Advanced Geographic Information Systems: Resource Management Applications</td>
<td>3.00</td>
</tr>
<tr>
<td>GEOG 5353</td>
<td>Advanced Geographic Information Systems: Socioeconomic Applications</td>
<td>3.00</td>
</tr>
</tbody>
</table>

Core Courses (9 hours, choose three courses):

- GEOG 4203: Fundamentals of Geographic Information Systems
- GEOG 4343: Geographic Information Systems: Resource Management Applications
  or GEOG 5323: Geographic Information Systems: Resource Management Applications
- GEOG 4353: Geographic Information Systems: Socioeconomic Applications
- GEOG 5343: Advanced Geographic Information Systems: Resource Management Applications
- GEOG 5353: Advanced Geographic Information Systems: Socioeconomic Applications

**Elective Courses (6 hours, choose two courses, each from a different category):**

Category I: Spatial Analysis/GIS Programming

- GEOG 3333: Spatial Analysis (A)
- GEOG 4383: Introduction to GIS Programming
- GEOG 5303: Geographic Analysis I
- GEOG 6303: Geographic Analysis II

Category II: Spatial Data Collection, Management, and Representation

- GEOG 4263: Geospatial Applications for Unmanned Aerial Systems
  or GEOG 5263: Geospatial Applications for Unmanned Aerial Systems
- GEOG 4303: Applications of the Global Positioning System in Field Research
- GEOG 4313: Field Techniques and Geodata Collection
- GEOG 4323: Computer Cartography
- GEOG 4333: Remote Sensing
  or GEOG 5333: Remote Sensing
- GEOG 6313: Mixed Methods in Field Research
- GEOG 6333: Advanced Remote Sensing

A minimum 3.00 GPA is required for all courses taken for the certificate program.

Courses from other OSU programs that contain at least 50% of geospatial technology in the course content may be considered as alternatives for elective courses. Consult with program coordinator for qualified alternatives.