# Geographic Information Science Certificate

Also available via Ecampus.

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Oregon State University offers an undergraduate and graduate certificate in Geographic Information Science. Geographic Information Science ("GIScience") is a discipline that combines theory and principles underlying:

- geospatial data collection (remotely sensed imagery from satellites, aircraft, and drones, social media, telemetry, GPS, etc.);
- technologies to manage, analyze, and visualize geospatial data (geographic information systems);
- computational, statistical, and mathematical methods to analyze and model geospatial data (machine learning, Big Data, spatial statistics, spatial modeling, geovisual analytics, etc.);
- digital cartography and geovisualization (the science and practice of creating maps); and
- cognitive, social, and environmental implications of GIScience (professional ethics, privacy, digital divide, etc.).

The OSU GIScience certificate can help lead to certification as a nationally-recognized geographic information systems (GIS) professional (GISP). GIS professionals are in high demand for jobs in government, NGOs, and the private sector, and have rewarding careers in natural resource management, online and interactive mapping, business, planning, and many others.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Required Core</th>
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<tbody>
<tr>
<td>FE 208</td>
<td>FOREST SURVEYING</td>
<td></td>
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<tr>
<td>GEOG 201</td>
<td>*FOUNDATIONS OF GEOSPATIAL SCIENCE AND GIS</td>
<td></td>
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<tr>
<td>GEOG 360</td>
<td>GISCIENCE I: GEOGRAPHIC INFORMATION SYSTEMS AND THEORY</td>
<td>3-4</td>
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<tr>
<td>FE 257</td>
<td>GIS AND FOREST ENGINEERING APPLICATIONS</td>
<td></td>
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<td>CE 202</td>
<td>CIVIL ENGINEERING: GEOSPATIAL INFORMATION AND GIS</td>
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<tr>
<td>GEOG 370</td>
<td>GEOVISUALIZATION: CARTOGRAPHY</td>
<td>4</td>
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<tr>
<td>GEOG 480</td>
<td>REMOTE SENSING I: PRINCIPLES AND APPLICATIONS (EC)</td>
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**Electives**

Select 7-8 credits of the following:

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<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tr>
<td>CE 413</td>
<td>GIS IN WATER RESOURCES</td>
<td>7-8</td>
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**Code Title**

- **CROP 414** PRECISION AGRICULTURE  
- **HORT 414** PRECISION AGRICULTURE  
- **ECE 468** DIGITAL IMAGE PROCESSING  
- **ENSC 410** ENVIRONMENTAL SCIENCE INTERNSHIP (1 or more)  
- **or FOR 410** INTERNSHIP  
- **or GEO 410** INTERNSHIP  
- **or GEO 410** INTERNSHIP  
- **FE 209** FOREST PHOTOGRAMMETRY AND REMOTE SENSING  
- **FE 310** FOREST ROUTE SURVEYING  
- **FE 423** UNMANNED AIRCRAFT SYSTEM REMOTE SENSING  
- **FW 303** SURVEY OF GEOGRAPHIC INFORMATION SYSTEMS IN NATURAL RESOURCE  
- **GEO 401** RESEARCH  
- **or GEO 401** RESEARCH  
- **GEO 403** THESIS  
- **or GEO 403** THESIS  
- **GEOG 361** GISCIENCE II: ANALYSIS AND APPLICATIONS (EC)  
- **GEOG 371** GEOVISUALIZATION: WEB MAPPING  
- **GEOG 451** PLANNING PRINCIPLES AND PRACTICES FOR RESILIENT COMMUNITIES  
- **GEOG 462** GISCIENCE III: PROGRAMMING FOR GEOSPATIAL ANALYSIS  
- **GEOG 463** GISCIENCE IV: SPATIAL MODELING  
- **GEOG 464** GEOSPATIAL PERSPECTIVES ON INTELLIGENCE, SECURITY, AND ETHICS  
- **GEOG 472** GEOVISUALIZATION: GEOVISUAL ANALYTICS  
- **GEOG 481** REMOTE SENSING II: DIGITAL IMAGE PROCESSING  
- **RING 430** APPLIED GIS IN RANGELAND SCIENCE  
- **SOIL 468** SOIL LANDSCAPE ANALYSIS  

* Baccalaureate Core Course (BCC)

**EC** signifies the course can also be completed through Ecampus - Distance Education

**Major Code:** C540