

GEOGRAPHIC INFORMATION SCIENCE GRADUATE CERTIFICATE

Also available via Ecampus.

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GIScience Certificate Program

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Website: <https://ceoas.oregonstate.edu/geographic-information-science-graduate-certificate> (<https://ceoas.oregonstate.edu/geographic-information-science-graduate-certificate/>)

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.

Certificate Code: CG03

Students must have completed the following background course or have equivalent experience: introductory cartography (GEOG 370). This course can either be completed prior to starting the certificate program or pursued in tandem with the other courses in the certificate.

Code	Title	Credits
Background Course		
GEOG 370	CARTOGRAPHY	4
Required Core		
GEOG 560	GISCIENCE I: INTRODUCTION TO GEOGRAPHIC INFORMATION SCIENCE	4
GEOG 580	REMOTE SENSING I: PRINCIPLES AND APPLICATIONS	4
Electives		
Select 11 credits from the following:		11
CE 513	GIS IN WATER RESOURCES	
CE 562	DIGITAL TERRAIN MODELING	

CE 566	3D LASER SCANNING AND IMAGING
CS 553	SCIENTIFIC VISUALIZATION
CS 554	GEOMETRIC MODELING IN COMPUTER GRAPHICS
FE 523	UNMANNED AIRCRAFT SYSTEM REMOTE SENSING
FOR 510/GEOG 510	INTERNSHIP (1 or more credits with advisor approval)
GEOG 551	PLANNING PRINCIPLES AND PRACTICES FOR RESILIENT COMMUNITIES
GEOG 561	GISCIENCE II: ANALYSIS AND APPLICATIONS
GEOG 562	GISCIENCE III: PROGRAMMING FOR GEOSPATIAL ANALYSIS
GEOG 563	GISCIENCE IV: SPATIAL MODELING
GEOG 564	GEOSPATIAL PERSPECTIVES ON INTELLIGENCE, SECURITY AND ETHICS
GEOG 565	SPATIO-TEMPORAL VARIATION IN ECOLOGY AND EARTH SCIENCE
GEOG 566	ADVANCED SPATIAL STATISTICS AND GISCIENCE
GEOG 571	ADVANCED WEB MAPPING
GEOG 572	GEOVISUALIZATION: GEOVISUAL ANALYTICS
GEOG 581	SATELLITE IMAGE ANALYSIS
H 547	GIS AND PUBLIC HEALTH
H 592	SPATIAL EPIDEMIOLOGY
OC 678	OCEAN REMOTE SENSING
SOIL 568	SOIL LANDSCAPE ANALYSIS
ST 565	TIME SERIES
ST 567	SPATIAL STATISTICS

The following courses may count towards elective credits after consulting with and receiving approval from the program director:

CE 501	RESEARCH
CE 560	SELECTED TOPICS IN GEOMATICS ENGINEERING
CS 519	SELECTED TOPICS IN COMPUTER SCIENCE
CS 549	SELECTED TOPICS ON DATA SCIENCE & SYSTEMS
GEO 501	RESEARCH
GEOG 501	RESEARCH
GEOG 599	SPECIAL STUDIES
GEOG 699	SPECIAL STUDIES

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