

College of Earth, Ocean, and Atmospheric Sciences

Graduate Programs

Geography
(23/9)
MS, PhD

Geology
(36/8)
MS, PhD

Marine Resource
Management
(24/11)
MS

Ocean, Earth, Atmo Sci
(52/7)
MS, PhD

Undergraduate Programs

Environmental Sciences
(396/74)
BS

Earth Sciences
(141/34)
Four BS options

Geography

Geology

Ocean Sciences

Climate Sciences

Geography and
Geospatial Science
(60/15)*
BS

Certificates

Water Conflict
(22/11)
grad certificate

Geographic Information
Science
(91/55)
Grad and UG certificates

- Existing undergraduate degrees
- Existing graduate degrees
- Existing certificates
- Proposed new BS

x/y 3-year average enrolled/graduated;
*target

Sources: OSU Institutional Research, Oregon State University Graduation Summaries, 2013-14, 2014-15, 2015-16; Oregon State University enrollment summaries, fall 2014, 2015, 2016

New Academic Program: BS in Geography and Geospatial Science

BACKGROUND

Program Proposed Start Date

Fall 2017

Program Description

BS in Geography and Geospatial Science. The full proposal is available at:

<https://secure.oregonstate.edu/ap/cps/proposals/view/97646>

Geography and Geospatial Science is a discipline that addresses the concepts and skills to analyze, create, display and synthesize spatial relationships. Geography is the study of the lands, features, inhabitants and phenomena of Earth. Geography encompasses geospatial science, which is the collection, display, analysis and modeling of digital spatial information. With eight billion mobile devices in use on Earth, as well as computers, Geography and Geospatial Science is a ubiquitous, essential feature of our global interconnected world and a top-ranked area for job growth. Through 85 credits of coursework, seminars and experiential learning, the Bachelor of Science (BS) in Geography and Geospatial Science (GGS) will train students in problem analysis, critical thinking, communication and technical skills to enable them to compete in this rapidly growing workforce. OSU has not offered a BS in this area, although a former BS in Geography was terminated in 2012, when Geography was relegated to an option in a new BS in Earth Sciences that was established at that time. The proposed degree is structured around existing courses (almost 100 per year with GEOG designator) and existing faculty (21 FTE) at OSU, so the costs of establishing this program are negligible. We received 22 letters of support from Oregon institutions of higher learning, government agencies, and industry.

Program Context

The BS in Geography and Geospatial Science will be administered within the College of Earth, Ocean, and Atmospheric Sciences (CEOAS). CEOAS has 21 geography faculty and offers nearly 100 courses with the GEOG designator per year. OSU began to offer classes in geography in the 1880s at the then Oregon State Agricultural College and offered BS (and subsequently BA) degrees in geography from 1949 to 2012, when geography became an option in the new BS in Earth Sciences major. CEOAS also offers MS and PhD degrees in geography (more than 600 MS degrees awarded since 1953 and more than 125 PhD degrees awarded since 1970). In 2010, the National Research Council ranked the Geography PhD program at OSU as number 12 among geography programs nationwide (<http://chronicle.com/article/NRC-Rankings-Overview-/124734/>).

The proposed BS in Geography and Geospatial Science (GGS) complements but differs distinctly from existing undergraduate majors at OSU. In contrast to OSU's Natural Resources and Environmental Sciences undergraduate majors, the proposed BS offers education in concepts and applications of spatial processes (geography), crucial for the successful practice of geospatial science. In contrast to OSU's Environmental Sciences and Earth Sciences undergraduate majors, the proposed BS offers training in technologies and computational techniques (Geospatial Science). Through its emphasis on critical thinking, geography concepts, and applications in contemporary social and environmental issues, the proposed BS also differs from the existing certificate in GIScience (only 27 credits of coursework). In addition,

graduates with the BS in GGS will be qualified to obtain professional certification as a Geospatial Information Science Professional, <https://www.gisci.org>.

The proposed BS, which can be completed in two years of full-time study, will serve students who enroll as freshmen at OSU as well as those transferring to OSU from four community colleges (Central Oregon, Lane, Portland and Umpqua), which offer two-year associate of arts degrees in Geographic Information (GI) Science.

Program Purpose/Relationship to University Mission and Strategic Plan

The BS in Geography and Geospatial Science directly addresses two goals and three signature areas of distinction in OSU's strategic plan (<http://leadership.oregonstate.edu/strategicplan/>).

The proposed BS addresses Goal 1 of OSU's mission to “provide outstanding academic programs that further strengthen performance and pre-eminence in the three Signature Areas of Distinction: Advancing the Science of Sustainable Earth Ecosystems, Improving Human Health and Wellness, and Promoting Economic Growth and Social Progress.” Geography addresses human-environment relationships and processes essential for the environment, human health and well-being, and economic and societal progress. Our highly skilled, nationally and internationally recognized faculty address Goal 2 of OSU's mission to “provide an excellent teaching and learning environment and achieve student access, persistence and success through graduation and beyond that matches the best land grant universities in the country.”

Need for the Program

Over the past decade, employment opportunities have exploded, and “Geographer,” “GIScience professional,” and “cartographer” are among the fastest-growing occupations according to the Bureau of Labor Statistics (http://www.bls.gov/emp/ep_table_103.htm). As evidence of the demand for this major, enrollment in OSU's GIScience certificate has increased dramatically, drawing students from majors throughout the OSU campus. However, the GIScience certificate in conjunction with an existing major does not provide students with structured problem conceptualization, experiential learning, or critical thinking using geography concepts needed for practitioners of contemporary Geography and Geospatial Science.

Although other institutions of higher learning in Oregon offer related degrees, OSU will have the only four-year degree in Oregon that unites Geography and Geospatial Science. The University of Oregon, Portland State University, and Western Oregon University offer undergraduate degrees in Geography. Central Oregon Community College, Lane Community College, Portland Community College, and Umpqua Community College offer certificates or training in GIScience. This proposal was sent to all public and private institutions of higher learning in the state of Oregon that have a Geography or GIScience program. We received letters of support for our proposed BS from the following public institutions: University of Oregon (UO), Portland State University, Western Oregon University, Central Oregon Community College, Lane Community College, and Portland Community College.

The UO has a complementary proposal for a new major in Spatial Data Science and Technology. The UO's proposed major in Spatial Data Science and Technology combines GIScience and Computer Science to train students to develop geospatial technologies and implement them in the technology industry. In contrast, OSU's proposed new major in Geography and Geospatial Science will train students in fundamental concepts and theories governing the spatial relationships of people and natural resources as well as fundamental physical principles underlying contemporary geospatial technologies. The UO and OSU have

collaborated in preparation of these two complementary degrees.

Through these proposals, the UO and OSU are responding to the growing demand for geographers in a diversified technology-driven workforce. The successful implementation of both majors will position Oregon as an emerging leader in producing competitive and skilled graduates for a range of geospatial employment opportunities. At the same time, these two majors present two fundamentally different programs that will produce different types of graduates. The UO's major is intended to prepare students for careers in technology development, whereas OSU's major provides a deeper core geographical curriculum whose graduates will lead the utilization of geospatial technologies in the public and private sectors, including homeland security, energy, telecommunications, healthcare, agriculture, and transportation. There is sufficient overlap between the two programs to create an educational force in the area of geospatial data and technologies in Oregon, yet their distinguishing features provide substantial breadth in the types of geospatial employees that graduate from our state.

Program Financials

The College of Earth, Ocean, and Atmospheric Sciences has hired five new faculty members in the past four years, attaining 21 FTE of faculty in Geography. The proposed major is built on existing courses and courses that new faculty will develop as part of their regular teaching load. All courses are already approved and in the OSU online catalog. The major will be advised by the existing undergraduate advising staff in CEOAS. All faculty have office space and necessary facilities for teaching.

This proposed BS has no need for additional faculty, space, or other facilities. Existing faculty are sufficient to deliver the program and already are supported in CEOAS. Total costs are estimated at \$1,000 for advertising, signage, and website modifications.

RECOMMENDATION

All appropriate university committees and the OSU Faculty Senate have positively reviewed the proposed program. The Provost recommends that the Academic Strategies Committee approve the establishment of a BS in Geography and Geospatial Science, effective in Fall 2017, pending the approval of the statewide Provosts' Council, the Higher Education Coordinating Commission and the Northwest Commission on Colleges and Universities.