Geography

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InfoGraphics Lab

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The InfoGraphics Lab is a geographic information systems (GIS) research and cartographic production facility located in the Department of Geography. The laboratory works on a variety of supported projects with faculty members, campus offices, and government agencies. Integration of GIS and graphic design tools with cartographic design is its focus. Graduate and undergraduate students may be employed on lab projects.

Faculty

Patrick J. Bartlein, professor (climatology, paleoclimatology, data analysis and visualization). BA, 1972, MS, 1975, PhD, 1978, Wisconsin, Madison. (1982)

Christopher Bone, assistant professor (geographic information system science, spatial analysis and modeling). BA, 2003, Toronto; MS, 2005, PhD, 2009, Simon Fraser. (2011)

Daniel P. Buck, associate professor (political economy, food geographies, East Asia). BA, 1987, California State, Chico; MA, 1996, PhD, 2002, California, Berkeley. (2008)

Shaul E. Cohen, associate professor (political, environmental, cultural; Middle East). BA, 1983, Clark; MA, 1987, PhD, 1991, Chicago. (1996)

Mark Fonstad, associate professor (geomorphology, remote sensing, hydrology). BA, 1995, Wisconsin, Madison; MA, 1997, Ohio; PhD, 2000, Arizona State. (2011)

Daniel Gavin, associate professor (biogeography, paleoecology, climate change). BA, 1992, Dartmouth; MS, 1997, PhD, 2000, Washington (Seattle). (2006)

Amy K. Lobben, associate professor (geographic information system science, behavioral geography, data visualization). BA, 1991, MA, 1996, Georgia State; PhD, 1999, Michigan State. (2004)

W. Andrew Marcus, professor (hydrology, fluvial geomorphology, remote sensing); Tykeson Dean of Arts and Sciences. BS, 1978, Stanford; MA, 1983, Arizona State; PhD, 1987, Colorado. (2001)

Patricia F. McDowell, professor (geomorphology, river management and restoration, Quaternary environments). BA, 1971, MA, 1977, Illinois Institute of Technology; PhD, 1980, Wisconsin, Madison. (1982)

Katharine Meehan, assistant professor (urban political ecology, water policy, Mexico). BA, 1999, Oregon; MS, 2005, Oxford; PhD, 2010, Arizona. (2010)

Alexander B. Murphy, James F. and Shirley K. Rippey Chair in Liberal Arts and Sciences; professor (political and cultural geography, Europe, law and geography). BA, 1977, Yale; JD, 1981, Columbia; PhD, 1987, Chicago. (1987)

Xiaobo Su, associate professor (cultural politics, tourism and urban conservation, China). BArch, 2000, Southeast University (Nanjing); MSc, 2003, Sun Yat-sen University; PhD, 2007, National University of Singapore. (2007)

Peter A. Walker, professor (cultural and political ecology, U.S. West, Africa). BA, 1986, California, Berkeley; MS, 1990, Harvard; PhD, 1997, California, Berkeley. (1997)

Special Staff

Blake Andrew, cartographic program specialist (geographic information systems, cartography); GIS program specialist, InfoGraphics Lab. BS, 2000, Oregon. (2007)

Jacob Bartruff, spatial analyst programmer (geographic information systems, web application development); employee, InfoGraphics Lab. BS, 2006, Oregon. (2002)

Brook Eastman, research assistant (geographic information systems, cartography): analyst, InfoGraphics Laboratory. BS, 2007, Oregon. (2011)

Donald G. Holtgrieve, adjunct assistant professor (environmental planning, resource management, watershed issues). BA, 1963, San Diego State; MA, 1970, California State; PhD, 1972, Oregon (2002)

Kenneth Kato, senior research assistant (geographic information systems, planning, cartography); assistant director, InfoGraphics Lab. BS, 1994, Ohio; MCRP, 2000, Oregon. (2000)

Nicholas P. Kohler, instructor (geographic information systems, cartography, human-environmental relations). BA, 1989, Princeton; MA, 1997, PhD, 2005, Oregon. (2006)

Leslie McLees, adjunct instructor (urban geography, urban agriculture, Africa); undergraduate advisor. BS, 1999, Washington State; MA, 2004, Hawaii, PhD, 2012, Oregon. (2014)

James E. Meacham, senior research associate (geographic information systems, cartography, atlas design and production); administrative and research director, InfoGraphics Laboratory. BS, 1984, MA, 1992, Oregon. (1992)

Alethea Steingisser, research assistant (cartography and graphic design, geographic information systems); designer and production manager, InfoGraphics Lab. BS, 2002, California State, Northridge; MS, 2006, Oregon. (2006)

Emeriti

Stanton A. Cook, professor emeritus. AB, 1951, Harvard; PhD, 1960, California, Berkeley. (1960)

Susan W. Hardwick, professor emerita. BS, 1968, Slippery Rock; MA, 1976, California State, Chico; PhD, 1986, California, Davis. (2000)

Carl L. Johannessen, professor emeritus. BA, 1950, MA, 1953, PhD, 1959, California, Berkeley. (1959)

Clyde P. Patton, professor emeritus. AB, 1948, MA, 1950, PhD, 1953, California, Berkeley. (1958)

Alvin W. Urquhart, professor emeritus. AB, 1953, MA, 1958, PhD, 1962, California, Berkeley. (1960)

Ronald Wixman, professor emeritus. BA, 1968, Hunter; MA, 1972, Columbia; PhD, 1978, Chicago. (1975)

The date in parentheses at the end of each entry is the first year on the University of Oregon faculty.

- **Bachelor of Arts**
- **Bachelor of Science**
- **Minor**

Undergraduate Studies

Undergraduate students in the Department of Geography develop an awareness of the natural and cultural landscapes of several regions of the world and investigate the processes that form them. Lower-division courses are open to any student at the university. For students transferring to the university in their third year, preparation in introductory college geography courses is desirable.

An undergraduate major in geography follows a broadly based general degree program. Both bachelor of arts (BA) and bachelor of science (BS) degrees are offered in the department. To achieve depth in a particular subfield of geography, electives are chosen from one of five tracks: environmental geography; culture, politics, and place; geographic information science; geographic education; and physical geography.

Although a degree in geography is a liberal arts degree, many graduates have found related vocational opportunities in government or private employment, principally in planning, environmental research, cartography, or geographic information science.

Bachelor of Arts Degree Requirements

Introductory Geography		
GEOG141	The Natural Environment	
GEOG142	Human Geography	
GEOG181	Our Digital Earth	
Regional and Synthesis Geography		
Select one of the following:		4
ENVS201	Introduction to Environmental Studies: Social Sciences	
GEOG201	World Regional Geography	
GEOG202	Geography of Europe	
GEOG204	Geography of Russia and Neighbors	
GEOG205	Geography of Pacific Asia	
GEOG208	Geography of the United States and Canada	
GEOG209	Geography of the Middle East and North Africa	
GEOG214	Geography of Latin America	
GEOG360	Watershed Science and Policy	
ENVS450	Political Ecology [1]	
ENVS455	Sustainability [1]	
GEOG471	North American Historical Landscapes	
GEOG475	Advanced Geography of Non-European-American Regions: [Topic]	
Geographic Information System Science		
Select two of the following:		8
GEOG481	GIScience I	
GEOG482	GIScience II	
GEOG485	Remote Sensing I	
GEOG486	Remote Sensing II	
GEOG490	GIScience: [Topic]	
GEOG491	Advanced Geographic Information Systems	
GEOG493	Advanced Cartography	
GEOG495	Geographic Data Analysis	
GEOG497	Qualitative Methods in Geography	
Physical Geography		
Select two of the following:		8
GEOG321	Climatology	
GEOG322	Geomorphology	
GEOG323	Biogeography	
GEOG361	Global Environmental Change	
GEOG421	Advanced Climatology: [Topic]	
GEOG423	Advanced Biogeography: [Topic]	
GEOG425	Hydrology and Water Resources	
GEOG427	Fluvial Geomorphology	
GEOG430	Long-Term Environmental Change	
GEOG432	Climatological Aspects of Global Change	
GEOG433	Fire and Natural Disturbances	
Human Geography		
Select two of the following:		8
GEOG341	Population and Environment	
GEOG342	Geography of Globalization	
GEOG343	Society, Culture, and Place	
ASIA425	Asian Foodways [1]	
GEOG441	Political Geography	
GEOG442	Urban Geography	
GEOG443	Global Migration	
GEOG444	Cultural Geography	
GEOG445	Culture, Ethnicity, and Nationalism	
GEOG448	Tourism and Development	
ENVS450	Political Ecology [1]	
ENVS455	Sustainability [1]	
GEOG461	Environmental Alteration	
GEOG463	Geography, Law, and the Environment	
GEOG465	Environment and Development	
GEOG466	Gender and Environment	
GEOG467	International Water Policy	
GEOG468	Contemporary Food Systems	
GEOG471	North American Historical Landscapes	
ASIA480	Chinese Economy: Transition, Development, Globalization [1]	

Electives		
Three courses from one track (see tracks lists) [2]		12
Total Credits		**40**

1 If taught by Peter Walker or Dan Buck.

2 Seminar: [Topic] (GEOG407), Experimental Course: [Topic] (GEOG410) and other upper-division courses approved by advisor may be used to satisfy the elective requirement.

Environmental Geography Track

GEOG421	Advanced Climatology: [Topic]	
GEOG423	Advanced Biogeography: [Topic]	
ASIA425	Asian Foodways [1]	
GEOG425	Hydrology and Water Resources	
GEOG427	Fluvial Geomorphology	
GEOG430	Long-Term Environmental Change	
GEOG432	Climatological Aspects of Global Change	
GEOG433	Fire and Natural Disturbances	
ENVS450	Political Ecology [1]	
ENVS455	Sustainability [1]	
GEOG461	Environmental Alteration	
GEOG463	Geography, Law, and the Environment	
GEOG465	Environment and Development	
GEOG466	Gender and Environment	
GEOG467	International Water Policy	
GEOG468	Contemporary Food Systems	

Physical Geography

PHYS101–102	Essentials of Physics	8
orPHYS201–202	General Physics	
CH111	Introduction to Chemical Principles	4
Select three of the following:		
GEOG421	Advanced Climatology: [Topic]	4
GEOG423	Advanced Biogeography: [Topic]	4
GEOG425	Hydrology and Water Resources	4
GEOG427	Fluvial Geomorphology	4
GEOG430	Long-Term Environmental Change	4
GEOG432	Climatological Aspects of Global Change	4
GEOG433	Fire and Natural Disturbances	4

Geography Education

GEOG442	Urban Geography	4
GEOG443	Global Migration	4
GEOG445	Culture, Ethnicity, and Nationalism	4
GEOG461	Environmental Alteration	4
GEOG465	Environment and Development	4
GEOG467	International Water Policy	4
GEOG471	North American Historical Landscapes	4
GEOG475	Advanced Geography of Non-European-American Regions: [Topic]	4
Upper-division GEOG courses [1]		4

1 With approval of advisor.

Culture, Politics, and Place

ASIA425	Asian Foodways [1]	4
GEOG441	Political Geography	4
GEOG442	Urban Geography	4
GEOG443	Global Migration	4
GEOG444	Cultural Geography	4
GEOG445	Culture, Ethnicity, and Nationalism	4
GEOG448	Tourism and Development	4
ENVS450	Political Ecology [1]	4
ENVS455	Sustainability [1]	4
GEOG461	Environmental Alteration	4
GEOG463	Geography, Law, and the Environment	4
GEOG465	Environment and Development	4
GEOG466	Gender and Environment	4
GEOG467	International Water Policy	4
GEOG468	Contemporary Food Systems	4
GEOG471	North American Historical Landscapes	4
ASIA480	Chinese Economy: Transition, Development, Globalization [1]	4

At least eight geography courses must be taken for a letter grade. A grade of C– or better or P (pass) is required in each course, and a GPA of 2.25 or better is required in courses used to satisfy major requirements.

Geography majors seeking a BA degree must demonstrate proficiency in a second language by passing the third term of a second-year university language course with a grade of C– or better or by examination indicating an equivalent level of proficiency.

Bachelor of Science Degree Requirements

Introductory Geography		
GEOG141	The Natural Environment	
GEOG142	Human Geography	
GEOG181	Our Digital Earth	
Regional and Synthesis Geography		
Select one of the following:		4
ENVS201	Introduction to Environmental Studies: Social Sciences	
GEOG201	World Regional Geography	
GEOG202	Geography of Europe	
GEOG204	Geography of Russia and Neighbors	
GEOG205	Geography of Pacific Asia	
GEOG208	Geography of the United States and Canada	
GEOG209	Geography of the Middle East and North Africa	
GEOG214	Geography of Latin America	
GEOG360	Watershed Science and Policy	
ENVS450	Political Ecology [1]	
ENVS455	Sustainability [1]	
GEOG471	North American Historical Landscapes	

GEOG475	Advanced Geography of Non-European-American Regions: [Topic]	
Geographic Information System Science		
Select two of the following:		8
GEOG481	GIScience I	
GEOG482	GIScience II	
GEOG485	Remote Sensing I	
GEOG486	Remote Sensing II	
GEOG490	GIScience: [Topic]	
GEOG491	Advanced Geographic Information Systems	
GEOG493	Advanced Cartography	
GEOG495	Geographic Data Analysis	
GEOG497	Qualitative Methods in Geography	
Physical Geography		
Select two of the following:		8
GEOG321	Climatology	
GEOG322	Geomorphology	
GEOG323	Biogeography	
GEOG361	Global Environmental Change	
GEOG421	Advanced Climatology: [Topic]	
GEOG423	Advanced Biogeography: [Topic]	
GEOG425	Hydrology and Water Resources	
GEOG427	Fluvial Geomorphology	
GEOG430	Long-Term Environmental Change	
GEOG432	Climatological Aspects of Global Change	
GEOG433	Fire and Natural Disturbances	
Human Geography		
Select two of the following:		8
GEOG341	Population and Environment	
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GEOG343	Society, Culture, and Place	
ASIA425	Asian Foodways [1]	
GEOG441	Political Geography	
GEOG442	Urban Geography	
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GEOG444	Cultural Geography	
GEOG445	Culture, Ethnicity, and Nationalism	
GEOG448	Tourism and Development	
ENVS450	Political Ecology [1]	
ENVS455	Sustainability [1]	
GEOG461	Environmental Alteration	
GEOG463	Geography, Law, and the Environment	
GEOG465	Environment and Development	
GEOG466	Gender and Environment	
GEOG467	International Water Policy	
GEOG468	Contemporary Food Systems	
GEOG471	North American Historical Landscapes	
ASIA480	Chinese Economy: Transition, Development, Globalization [1]	
Electives		
Three courses from one track (see tracks lists) [2]		12
Total Credits		**40**

1 If taught by Peter Walker or Dan Buck.

2 Seminar: [Topic] (GEOG407), Experimental Course: [Topic] (GEOG410) and other upper-division courses approved by advisor may be used to satisfy the elective requirement.

Environmental Geography Track

GEOG421	Advanced Climatology: [Topic]	
GEOG423	Advanced Biogeography: [Topic]	
ASIA425	Asian Foodways [1]	
GEOG425	Hydrology and Water Resources	
GEOG427	Fluvial Geomorphology	
GEOG430	Long-Term Environmental Change	
GEOG432	Climatological Aspects of Global Change	
GEOG433	Fire and Natural Disturbances	
ENVS450	Political Ecology [1]	
ENVS455	Sustainability [1]	
GEOG461	Environmental Alteration	
GEOG463	Geography, Law, and the Environment	
GEOG465	Environment and Development	
GEOG466	Gender and Environment	
GEOG467	International Water Policy	
GEOG468	Contemporary Food Systems	

Physical Geography

PHYS101–102	Essentials of Physics	8
orPHYS201–202	General Physics	
CH111	Introduction to Chemical Principles	4
Select three of the following:		
GEOG421	Advanced Climatology: [Topic]	4
GEOG423	Advanced Biogeography: [Topic]	4
GEOG425	Hydrology and Water Resources	4
GEOG427	Fluvial Geomorphology	4
GEOG430	Long-Term Environmental Change	4
GEOG432	Climatological Aspects of Global Change	4
GEOG433	Fire and Natural Disturbances	4

Geographic Information Science

GEOG481	GIScience I	4
GEOG482	GIScience II	4
GEOG485	Remote Sensing I	4
GEOG486	Remote Sensing II	4
GEOG491	Advanced Geographic Information Systems	4
GEOG493	Advanced Cartography	4
GEOG495	Geographic Data Analysis	4
GEOG497	Qualitative Methods in Geography	4

Geography majors seeking a BS degree must complete a mathematics sequence that satisfies the university's mathematics requirement for a BS degree. Mathematics courses must be passed with a grade of at least C–

or P. The optimal courses for the university's mathematics requirement depend on one's track and focus; consult with an advisor.

Students considering graduate school should complete both the mathematics and language requirements.

Honors Programs

The Department of Geography offers an honors option for its majors. More information is available in the department office.

Minor Requirements

Regional geography or techniques course	4
Upper-division physical geography course	4
Upper-division human geography course	4
Three geography courses	12
Total Credits	**24**

At least 16 credits must be taken for a letter grade; grades of C– or better or P must be earned in all geography courses applied to the minor.

Double Major

Geography majors may also complete a second major in any field of the student's choice. Two of the most common are environmental studies or environmental science—an excellent combination with geography because they offer grounding in the physical and human systems within which environmental issues are situated in a larger global context. For details about adding a second major, visit the department's website.

Internships in Geography

Internships are unpaid off-campus work experiences. Students receive one credit for each three hours of participation as an intern; internships may be extended to a second term with prior departmental approval. Interns apply geographic concepts in the service of government, private industry, or nongovernmental organizations. Internships are initiated by students or may come at the suggestion of a faculty member or the request of an employer. Past interns have worked in the Eugene Planning and Development Department, the U.S. Department of Agriculture Forest Service, Lane County Soil Conservation District, and many other organizations and agencies.

Kindergarten through Secondary Teaching Careers

Students who complete a degree with a major in geography are eligible to apply for the College of Education's fifth-year licensure program in middle-secondary teaching. Students may also apply to the fifth-year licensure program to become an elementary teacher. See also the College of Education (http://catalog.uoregon.edu/archive/2015-2016/education) section of this catalog.

- **Master of Arts**
- **Master of Science**
- **Doctor of Philosophy**

Graduate Studies

Graduate work leading to the master of arts (MA), master of science (MS), and doctor of philosophy (PhD) degrees is offered.

The department's graduate programs emphasize human geography, physical geography with an emphasis on environmental change, and Quaternary studies. The master's program may be a more generalized study of cultural, physical, or environmental geography. The PhD program closely follows the research interests of the geography faculty. Students follow an individualized program that includes courses and seminars in related disciplines.

Although the department requires knowledge of the fundamentals of geography, it welcomes students whose undergraduate work has been in other disciplines and who can apply their training to geographic problems.

Admission

The Department of Geography only accepts applications for admission fall term. Application materials should arrive by January 15 to be considered the following fall term. The department notifies applicants of the admission decision around April1. Graduate teaching fellowships typically are awarded once a year, in April.

The department's website has online application materials and information about the application process.

Applicants must submit scores from the Graduate Record Examinations general test. There is no minimum requirement for GRE scores.

International students whose native language is not English must submit results from the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examination from within five years of the application date. The Department of Geography requires a minimum score of 575 (paper-based) or 88 (Internet-based) for the TOEFL. The minimum overall band score on the academic module of the IELTS is 7.0. For more information about the TOEFL and IELTS examination, visit their respective websites.

For more information about the geography department graduate application process, visit geography.uoregon.edu/graduate/admissions .

General Requirements

In both the master's and the doctoral programs, students are expected to develop a broad background in the discipline of geography, in-depth knowledge in an area of emphasis, and the ability to conduct and report independent research, including the use of appropriate geographic techniques. The area of emphasis may combine more than one traditional subfield of geography. The PhD requires development of more in-depth knowledge in the area of emphasis and a substantial independent research project resulting in a dissertation.

Area of Emphasis	Course Topics
Human Geography	• Political and ethnic geography • Cultural geography • Human-environment relations
Physical Geography	• Biogeography • Climatology • Geomorphology
Environmental Studies	• Global environmental change • Forest issues • River and watershed issues • Politics, policy, and law

Geographic Techniques	• Cartography • Data analysis • Visualization • Geographic information systems
Geographic Education	

The department also offers course work and faculty expertise in the American West, Europe (both West and East), Russia and neighboring states, Latin America, Asia, and Africa.

Master's Degree Program

The general master's degree in geography emphasizes broad understanding of physical and human geography and basic geographic techniques. Students develop specialized research skills during work on the thesis.

A committee of two geography faculty members supervises the research and writing of a master's thesis that shows evidence of original research and writing.

For students following the master's degree option in geography and education, some substitutions for the master's required courses may be authorized by the departmental coordinator for that option.

Master of Arts: General Geography

Core Courses [1]		
GEOG581	GIScience I	4
orGEOG582	GIScience II	
GEOG597	Qualitative Methods in Geography	4
orGEOG595	Geographic Data Analysis	
Two upper-division courses in physical geography from different subfields		8
Two upper-division courses in human geography from different subfields		8
GEOG608	Workshop: [Topic] [2]	1-16
GEOG611–612 &GEOG613	Theory and Practice of Geography I-II and Research Design [3]	12
Total Credits		**37-52**

1. Core courses or their equivalents must be completed either during the program or prior to entering.
2. Must take course for 1 credit every winter and spring term the student is in residence.
3. Must be taken during the first year the graduate student is in residence.

Master's Required Courses		
GEOG507	Seminar: [Topic]	1-5
orGEOG607	Seminar: [Topic]	
GEOG507	Seminar: [Topic]	1-5
orGEOG607	Seminar: [Topic]	
GEOG503	Thesis [1]	9
Total Credits		**11-19**

1. At least 3 credits must be taken during the term the degree is granted. Every master's thesis must be presented at a public lecture.

Additional Requirements

Students must demonstrate skill in a second language, which may be met either by passing a second-year university foreign language course during the seven-year period prior to the receipt of the master's degree or by demonstrating second-year proficiency on the College-Level Examination Program (CLEP) test.

Where appropriate for the thesis or dissertation topic and with the approval of the advisory committee, computer programming skills may be substituted for the second language. These skills typically are demonstrated by completing a minimum of two approved courses and writing a program used in the thesis research.

Master of Science: General Geography

Core Courses [1]		
GEOG581	GIScience I	4
orGEOG582	GIScience II	
GEOG597	Qualitative Methods in Geography	4
orGEOG595	Geographic Data Analysis	
Two upper-division courses in physical geography from different subfields		8
Two upper-division courses in human geography from different subfields		8
GEOG608	Workshop: [Topic] [2]	1-16
GEOG611–612 &GEOG613	Theory and Practice of Geography I-II and Research Design [3]	12
Total Credits		**37-52**

1. Core courses or their equivalents must be completed either during the program or prior to entering.
2. Must take course for 1 credit every winter and spring term the student is in residence.
3. Must be taken during the first year the graduate student is in residence.

Master's Required Courses		
GEOG507	Seminar: [Topic]	1-5
orGEOG607	Seminar: [Topic]	
GEOG507	Seminar: [Topic]	1-5
orGEOG607	Seminar: [Topic]	
GEOG503	Thesis [1]	9
Total Credits		**11-19**

1. At least 3 credits must be taken during the term the degree is granted. Every master's thesis must be presented at a public lecture.

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Students must demonstrate skill in a second language, which may be met either by passing a second-year university foreign language course during the seven-year period prior to the receipt of the master's degree or by demonstrating second-year proficiency on the College-Level Examination Program (CLEP) test.

Where appropriate for the thesis or dissertation topic and with the approval of the advisory committee, computer programming skills may be substituted for the second language. These skills typically are demonstrated by completing a minimum of two approved courses and writing a program used in the thesis research.

Doctoral Degree Program

The PhD program requires competent understanding of one of the systematic fields of geography and a broad understanding of geographic topics that enables the student to address and synthesize problems that cross the various fields of geography. While this program is designed to suit each individual's background and interests, prospective candidates should pay attention to the systematic specialization and regional interests of the department's faculty members before applying for admission.

The candidate may use Research: [Topic] (GEOG601) and Reading and Conference: [Topic] (GEOG605) to follow specific interests with individual members of the faculty. The PhD program, planned with faculty committee approval, is measured by achievement of the stated goals rather than by any specific number of credits.

PhD Requirements

Core Courses [1]		
GEOG581	GIScience I	4
orGEOG582	GIScience II	
GEOG597	Qualitative Methods in Geography	4
orGEOG595	Geographic Data Analysis	
Two upper-division courses in physical geography from different subfields		8
Two upper-division courses in human geography from different subfields		8
GEOG608	Workshop: [Topic] [2]	1-16
GEOG611–612 &GEOG613	Theory and Practice of Geography I-II and Research Design [3]	12
Total Credits		**37-52**

1. Core courses or their equivalents must be completed either during the program or prior to entering.
2. Must take course for 1 credit every winter and spring term the student is in residence.
3. Must be taken during the first year the graduate student is in residence.

In addition, a candidate must complete a master's degree in geography or equivalent study that includes courses required for a master's degree in geography at theUniversity of Oregon. The PhD program requires at least two seminars GEOG607 and the completion of a second language or technical skill. The second-language or skill requirement may be met in any of the following ways:

1. Proficiency in a second language at the level required for the master's degree or computer-programming skills
2. Advanced second-language training to the level required to pass a third-year college-level course in composition and conversation
3. Mastery of a technique or method of geographic research by passing at least one methods course in geography and at least three approved advanced-level courses from outside the department

After completing the appropriate course work, graduate seminars, and language or technical skills requirement, advancement to candidacy is achieved by passing comprehensive written examinations in the following areas: a systematic field of geography, a region or a topic that integrates several fields of geography, and geographic thought and methodology. The student, in consultation with a faculty committee, writes a comprehensive examination memo that outlines at least three areas of geographical expertise within which is situated the student's core research and teaching interests. Once the memo is read and approved, the student has two weeks to respond to four questions posed by the committee. Please see the geography department's *Graduate Program Handbook* for additional details. (http://geography.uoregon.edu/files/GradHandbook_November_2012.pdf)

Within nine months of completing the comprehensive examination, the student must present a dissertation proposal for approval by the student's dissertation committee. The completed dissertation, the capstone of the doctoral program, presents the results of substantive and original research on a significant geographic problem. It is defended in a public oral presentation.

Courses

GEOG141. The Natural Environment. 4 Credits.
The earth's physical landscapes, vegetation patterns, weather, and climate; emphasis on the dynamic interactions among climate, landforms, vegetation, and soils.

GEOG142. Human Geography. 4 Credits.
The spatial organization of humans and their activities on Earth's surface. Cultural, political, and economic influences shaping places and their interconnections.

GEOG181. Our Digital Earth. 4 Credits.
Exploring the emergence of geospatial data and technologies that are pervasive in our everyday lives and how they are shaping society.

GEOG196. Field Studies: [Topic]. 1-2 Credits.
Repeatable.

GEOG199. Special Studies: [Topic]. 1-5 Credits.
Repeatable.

GEOG201. World Regional Geography. 4 Credits.
Introduction to the world's cultural regions. Study of the cultural and environmental factors that make different parts of the world distinct.

GEOG202. Geography of Europe. 4 Credits.
Physical and cultural processes that have shaped the rural and urban landscapes of Europe.

GEOG204. Geography of Russia and Neighbors. 4 Credits.
Natural regions, major population groups, and the economic development of the former Union of Soviet Socialist Republics.

GEOG205. Geography of Pacific Asia. 4 Credits.
Physical, cultural, and economic processes that have shaped the rural and urban landscapes of Pacific Asia.

GEOG208. Geography of the United States and Canada. 4 Credits.
Historical and geographical analysis of the physical and human geography of the U.S. and Canada. Topics include physical regions, settlement patterns, economic development, and urbanization. Offered alternate years.

GEOG209. Geography of the Middle East and North Africa. 4 Credits.
Physical and cultural processes that have shaped the rural and urban landscapes of the Middle East and North Africa.

GEOG214. Geography of Latin America. 4 Credits.
Physical, cultural, and economic processes that have shaped the rural and urban character of Latin America.

GEOG321. Climatology. 4 Credits.
Energy and moisture in the atmosphere, atmospheric circulation, controls of regional and microclimates, applied climatology, climatic variations, past and future climates.
Prereq: GEOG 141.

GEOG322. Geomorphology. 4 Credits.
Landforming processes with emphasis on mass movements, rivers, eolian, glacial, and coastal processes. Special fee.
Prereq: GEOG 141 or GEOL 102 or 202.

GEOG323. Biogeography. 4 Credits.
Relation of plants and animals to the environment, distribution of individual species, historical changes in plant distribution.
Prereq: one from GEOG 141, GEOL 103, 203, BI 370.

GEOG341. Population and Environment. 4 Credits.
Patterns of population growth over history and place, current policies and programs, and impacts and trends in United States and international contexts. Includes method and theory.

GEOG342. Geography of Globalization. 4 Credits.
Historical and geographical dimensions of globalization; emphasizes economic and social factors. Topics include multinationals, trade agreements, sustainability, global inequalities, and racial and gender divisions of labor.

GEOG343. Society, Culture, and Place. 4 Credits.
Examines ways in which geographical context reflects and shapes cultural and social processes. Importance of place and territory in human affairs.

GEOG360. Watershed Science and Policy. 4 Credits.
Physical and biological processes of watersheds; problems of land use, water quality, riparian zones, aquatic ecology; scientific basis of watershed management and policy. Special fee.
Prereq: GEOG 141, or GEOL 102 or 202, or BI 130 or 213.

GEOG361. Global Environmental Change. 4 Credits.
Natural and human-induced environmental changes and their impact on different environmental systems. Not available to those who have taken GEOG 143.
Prereq: GEOG 141.

GEOG391. Social Science Inquiry and Research. 4 Credits.
Understanding scientific inquiry, the scientific method and learning to critique social science research. Readings and discussion focus on the questions, methods, conclusions and outcomes of research.

GEOG399. Special Studies: [Topic]. 1-5 Credits.
Repeatable.

GEOG401. Research: [Topic]. 1-21 Credits.
Repeatable.

GEOG403. Thesis. 1-12 Credits.
Repeatable.

GEOG405. Reading and Conference: [Topic]. 1-21 Credits.
Repeatable.

GEOG406. Field Studies: [Topic]. 1-6 Credits.
Repeatable.

GEOG407. Seminar: [Topic]. 1-5 Credits.
Repeatable.

GEOG408. Workshop: [Topic]. 1-16 Credits.
Repeatable.

GEOG409. Practicum: [Topic]. 1-21 Credits.
Repeatable.

GEOG410. Experimental Course: [Topic]. 1-4 Credits.
Repeatable. Topics are listed in the class schedule each term.

GEOG421. Advanced Climatology: [Topic]. 4 Credits.
Topics in climatology, including physical climatology, dynamic and synoptic climatology, and paleoclimatology. Repeatable when topic changes.
Prereq: GEOG 321.

GEOG423. Advanced Biogeography: [Topic]. 4 Credits.
Selected topics in biogeography including relation of plants and animals to their environment, historical changes in plant distribution, and palynological analysis. Special fee. Repeatable when topic changes.
Prereq: GEOG 323.

GEOG425. Hydrology and Water Resources. 4 Credits.
Emphasis on surface water including precipitation, evapotranspiration, surface runoff, and stream flow. Understanding and analysis of processes. Management for water supply and quality. Special fee.
Prereq: GEOG 321 or 322; MATH 111.

GEOG427. Fluvial Geomorphology. 4 Credits.
Hydraulics and hydrology of stream channels; channel morphology and processes; drainage network development; fluvial deposits and landforms; field and analytical methods. Required field trips. Special fee.
Prereq: MATH 112; one from GEOG 322, GEOG 425, GEOL 334.

GEOG430. Long-Term Environmental Change. 4 Credits.
Evolution of the physical landscape during the Quaternary period. Elements of paleoclimatology, paleoecology, and geomorphology. Required field trips. Special fee.
Prereq: GEOG 321, 322, or 323.

GEOG432. Climatological Aspects of Global Change. 4 Credits.
Role of the climate system in global change, the Earth's climatic history, and potential future climatic changes.
Prereq: GEOG 321, 322, or 323.

GEOG433. Fire and Natural Disturbances. 4 Credits.
Wildfire and other landscape disturbance processes, historical and current patterns of fire, use and management of fire. Offered alternate years.
Prereq: BI 307 or GEOG 323 or BI 370.

GEOG441. Political Geography. 4 Credits.
Spatial perspectives on global political patterns and processes. Relationship of political territories to resources, ethnic patterns, and ideological communities. Impact of political arrangements on landscapes.
Prereq: Junior standing.

GEOG442. Urban Geography. 4 Credits.
Urbanization throughout the world, the structure of urban settlements; cities as regional centers, physical places, and homes for people; geographic problems in major urban environments.
Prereq: Junior standing.

GEOG443. Global Migration. 4 Credits.
Explores political, economic, and sociocultural dimensions of labor migration. Topics include capitalism and colonialism; state territoriality; urbanization; globalization; race, gender, and citizenship. Junior standing required.

GEOG444. Cultural Geography. 4 Credits.
Patterns of culture as a force in human affairs. Dynamics of identity, place, and power. The creation of culture at different scales.

GEOG445. Culture, Ethnicity, and Nationalism. 4 Credits.
Relationship of ethnic groups and nationality to landscapes, perception, and cultural geographic phenomena. Distribution of ethnic and national groups. Junior standing required.

GEOG448. Tourism and Development. 4 Credits.
Tourism-related concepts and practices associated with tourism planning, development, marketing, and impacts in different geographic contexts.

GEOG461. Environmental Alteration. 4 Credits.
Human alterations of the earth's major ecosystems. Consequences of human activity at different times and places with respect to soils, atmosphere, vegetation, landforms, and water.
Prereq: Junior standing.

GEOG463. Geography, Law, and the Environment. 4 Credits.
Values underlying American legal approaches to environmental issues; the role of laws in reflecting and shaping human understanding and use of the environment. Special fee.
Prereq: Junior standing.

GEOG465. Environment and Development. 4 Credits.
Critical analysis of development concepts. Economic activity and environmental impacts. Sustainable development. Development projects and landscapes in the industrializing world.
Prereq: Junior standing.

GEOG466. Gender and Environment. 4 Credits.
How gender shapes understandings of and interactions with nature. Gender, science, and nature in Western thought; global environmental justice; population debates; feminist political ecology.
Prereq: junior standing.

GEOG467. International Water Policy. 4 Credits.
Examines problems in water policy and governance in a global context. Draws on interdisciplinary perspectives, compares case studies, and analyzes institutions.

GEOG468. Contemporary Food Systems. 4 Credits.
Explores contemporary food systems at local, national, and global scales. Emphasis on the political economy and sociocultural dynamics linking agriculture, food industries, and consumption.

GEOG471. North American Historical Landscapes. 4 Credits.
Examines the origin and evolution of cultural landscapes in North America through historical and contemporary sources, and draws upon the local region for student projects.
Prereq: Junior standing.

GEOG475. Advanced Geography of Non-European-American Regions: [Topic]. 4 Credits.
Repeatable. Examination of the settlement patterns, regional economies, political organization, and character of the landscapes of selected major regions of the non-European and American world. Repeatable when region changes.

GEOG481. GIScience I. 4 Credits.
Introduction to geographic information science, geographic information systems (GIS), the current population survey (CPS), remote sensing, and cartography. Sequence with GEOG 482/582, 491/591.

GEOG482. GIScience II. 4 Credits.
Spatial data collection, spatial data models, database design, data editing, geographic information system (GIS) project management, and advanced topics in geographic information science. Sequence with GEOG 481/581, 491/591, 493/593.
Prereq: GEOG 481.

GEOG485. Remote Sensing I. 4 Credits.
Introduction to remote sensing science including its physical basis, instruments, platforms, data, processing methods, and applications. Sequence with GEOG 486/586.
Prereq: GEOG 481.

GEOG486. Remote Sensing II. 4 Credits.
The use of digital electromagnetic data for classification, mapping, and monitoring biologic, hydrologic, atmospheric, geologic, and human processes and environmental change. Sequence with GEOG 485/585.
Prereq: GEOG 485.

GEOG490. GIScience: [Topic]. 4 Credits.
Repeatable. Advanced topics on geographic information systems science including spatial analysis and modeling, data visualization, cartography, volunteered geographic information, GIS programming. Repeatable five times for a maximum of 24 credits.
Prereq: GEOG 481 or GEOG 311.

GEOG491. Advanced Geographic Information Systems. 4 Credits.
Socioeconomic analysis with geographic information systems (GIS) and the U.S. census, network modeling, 3-D models of natural and urban landscapes, web-based GIS and programming. Sequence with GEOG 481/581, 482/582.
Prereq: GEOG 482.

GEOG493. Advanced Cartography. 4 Credits.
Map design and production methods; use of color, cartographic visualization, graphing, data graphics theory, and integration of geographic information systems (GIS) and graphics tools. Sequence with GEOG 481/581, 482/582.
Prereq: GEOG 481.

GEOG495. Geographic Data Analysis. 4 Credits.
Analysis and display of geographical data by traditional data-analytical methods and by scientific-visualization approaches.
Prereq: GEOG 481.

GEOG497. Qualitative Methods in Geography. 4 Credits.
Explores conceptual and practical dimensions of qualitative research. Includes linking theory and method; research question formulation; project design; ethics; data gathering, analysis, and presentation.
Prereq: GEOG 341, 342, or 343.

GEOG503. Thesis. 1-16 Credits.
Repeatable.

GEOG507. Seminar: [Topic]. 1-5 Credits.
Repeatable.

GEOG508. Workshop: [Topic]. 1-16 Credits.
Repeatable.

GEOG510. Experimental Course: [Topic]. 1-4 Credits.
Repeatable. Topics are listed in the class schedule each term.

GEOG521. Advanced Climatology: [Topic]. 4 Credits.
Topics in climatology, including physical climatology, dynamic and synoptic climatology, and paleoclimatology. Repeatable when topic changes.

GEOG523. Advanced Biogeography: [Topic]. 4 Credits.
Selected topics in biogeography including relation of plants and animals to their environment, historical changes in plant distribution, and palynological analysis. Special fee. Repeatable when topic changes.

GEOG525. Hydrology and Water Resources. 4 Credits.
Emphasis on surface water including precipitation, evapotranspiration, surface runoff, and stream flow. Understanding and analysis of processes. Management for water supply and quality. Special fee.

GEOG527. Fluvial Geomorphology. 4 Credits.
Hydraulics and hydrology of stream channels; channel morphology and processes; drainage network development; fluvial deposits and landforms; field and analytical methods. Required field trips. Special fee.

GEOG530. Long-Term Environmental Change. 4 Credits.
Evolution of the physical landscape during the Quaternary period. Elements of paleoclimatology, paleoecology, and geomorphology. Required field trips. Special fee.

GEOG532. Climatological Aspects of Global Change. 4 Credits.
Role of the climate system in global change, the Earth's climatic history, and potential future climatic changes.

GEOG533. Fire and Natural Disturbances. 4 Credits.
Wildfire and other landscape disturbance processes, historical and current patterns of fire, use and management of fire. Offered alternate years.

GEOG541. Political Geography. 4 Credits.
Spatial perspectives on global political patterns and processes. Relationship of political territories to resources, ethnic patterns, and ideological communities. Impact of political arrangements on landscapes.

GEOG542. Urban Geography. 4 Credits.
Urbanization throughout the world, the structure of urban settlements; cities as regional centers, physical places, and homes for people; geographic problems in major urban environments.

GEOG543. Global Migration. 4 Credits.
Explores political, economic, and sociocultural dimensions of labor migration. Topics include capitalism and colonialism; state territoriality; urbanization; globalization; race, gender, and citizenship.

GEOG544. Cultural Geography. 4 Credits.
Patterns of culture as a force in human affairs. Dynamics of identity, place, and power. The creation of culture at different scales.

GEOG545. Culture, Ethnicity, and Nationalism. 4 Credits.
Relationship of ethnic groups and nationality to landscapes, perception, and cultural geographic phenomena. Distribution of ethnic and national groups.

GEOG548. Tourism and Development. 4 Credits.
Tourism-related concepts and practices associated with tourism planning, development, marketing, and impacts in different geographic contexts.

GEOG561. Environmental Alteration. 4 Credits.
Human alterations of the earth's major ecosystems. Consequences of human activity at different times and places with respect to soils, atmosphere, vegetation, landforms, and water.

GEOG563. Geography, Law, and the Environment. 4 Credits.
Values underlying American legal approaches to environmental issues; the role of laws in reflecting and shaping human understanding and use of the environment. Special fee.

GEOG565. Environment and Development. 4 Credits.
Critical analysis of development concepts. Economic activity and environmental impacts. Sustainable development. Development projects and landscapes in the industrializing world.

GEOG566. Gender and Environment. 4 Credits.
How gender shapes understandings of and interactions with nature. Gender, science, and nature in Western thought; global environmental justice; population debates; feminist political ecology.

GEOG567. International Water Policy. 4 Credits.
Examines problems in water policy and governance in a global context. Draws on interdisciplinary perspectives, compares case studies, and analyzes institutions.

GEOG568. Contemporary Food Systems. 4 Credits.
Explores contemporary food systems at local, national, and global scales. Emphasis on the political economy and sociocultural dynamics linking agriculture, food industries, and consumption.

GEOG571. North American Historical Landscapes. 4 Credits.
Examines the origin and evolution of cultural landscapes in North America through historical and contemporary sources, and draws upon the local region for student projects.

GEOG575. Advanced Geography of Non-European-American Regions: [Topic]. 4 Credits.
Repeatable. Examination of the settlement patterns, regional economies, political organization, and character of the landscapes of selected major regions of the non-European and American world. Repeatable when region changes.

GEOG581. GIScience I. 4 Credits.
Introduction to geographic information science, geographic information systems (GIS), the current population survey (CPS), remote sensing, and cartography. Sequence with GEOG 482/582, 491/591.

GEOG582. GIScience II. 4 Credits.
Spatial data collection, spatial data models, database design, data editing, geographic information system (GIS) project management, and advanced topics in geographic information science. Sequence with GEOG 481/581, 491/591, 493/593.
Prereq: GEOG 581.

GEOG585. Remote Sensing I. 4 Credits.
Introduction to remote sensing science including its physical basis, instruments, platforms, data, processing methods, and applications. Sequence with GEOG 486/586.
Prereq: GEOG 581.

GEOG586. Remote Sensing II. 4 Credits.
The use of digital electromagnetic data for classification, mapping, and monitoring biologic, hydrologic, atmospheric, geologic, and human processes and environmental change. Sequence with GEOG 485/585.
Prereq: GEOG 585.

GEOG590. GIScience: [Topic]. 4 Credits.
Advanced topics on geographic information systems science including spatial analysis and modeling, data visualization, cartography, volunteered geographic information, GIS programming. Repeatable five times for a maximum of 24 credits.
Prereq: GEOG 581.

GEOG591. Advanced Geographic Information Systems. 4 Credits.
Socioeconomic analysis with geographic information systems (GIS) and the U.S. census, network modeling, 3-D models of natural and urban landscapes, web-based GIS and programming. Sequence with GEOG 481/581, 482/582.
Prereq: GEOG 582.

GEOG593. Advanced Cartography. 4 Credits.
Map design and production methods; use of color, cartographic visualization, graphing, data graphics theory, and integration of geographic information systems (GIS) and graphics tools. Sequence with GEOG 481/581, 482/582.
Prereq: GEOG 582.

GEOG595. Geographic Data Analysis. 4 Credits.
Analysis and display of geographical data by traditional data-analytical methods and by scientific-visualization approaches.
Prereq: GEOG 581.

GEOG597. Qualitative Methods in Geography. 4 Credits.
Explores conceptual and practical dimensions of qualitative research. Includes linking theory and method; research question formulation; project design; ethics; data gathering, analysis, and presentation.

GEOG601. Research: [Topic]. 1-16 Credits.
Repeatable.

GEOG602. Supervised College Teaching. 1-5 Credits.
Repeatable.

GEOG603. Dissertation. 1-16 Credits.
Repeatable.

GEOG605. Reading and Conference: [Topic]. 1-16 Credits.
Repeatable.

GEOG606. Field Studies: [Topic]. 1-16 Credits.
Repeatable.

GEOG607. Seminar: [Topic]. 1-5 Credits.
Repeatable.

GEOG608. Workshop: [Topic]. 1-16 Credits.
Repeatable.

GEOG609. Practicum: [Topic]. 1-16 Credits.
Repeatable.

GEOG610. Experimental Course: [Topic]. 1-5 Credits.
Repeatable.

GEOG611. Theory and Practice of Geography I. 4 Credits.
Introduction to professional practice in geography and the development of geographic concepts and theories from Ancient times through the mid-twentieth century. Sequence with GEOG 612, 613.

GEOG612. Theory and Practice of Geography II. 4 Credits.
The development of geographic concepts and theories from the mid-20th century to the present. Students learn to refine effective geographic research questions. Sequence with GEOG 611 and 613.
Prereq: GEOG 611.

GEOG613. Research Design. 4 Credits.
Examines main components of research design, including research questions, methodological approach, institutional review boards, funding programs, proposal writing, and application. Sequence with GEOG 611 and 612.
Prereq: GEOG 612.

GEOG631. Progress in Physical Geography. 1 Credit.
Recent developments in climatology, geomorphology, hydrology, and biogeography. Lectures, readings, and presentation of faculty and student works in progress. Repeatable for maximum of 12 credits.

GEOG632. Progress in Human Geography. 1 Credit.
Recent developments in cultural, economic, environmental and political geography. Lectures, readings, and presentation of faculty and student works in progress. Repeatable for maximum of 12 credits.

GEOG633. Progress in Geographic Information Science. 1 Credit.
Recent developments in cartography, GIS, remote sensing, data analysis, and visualization. Lectures, readings, and presentation of faculty and student works in progress. Repeatable for maximum of 12 credits.