UNDERGRADUATE PROGRAMS

The Department of Geography and Anthropology offers courses of study leading to the Bachelor of Arts in Geography. A Minor in Geography is also offered, as well as Certificates in Geographic Information Systems (GIS) and Wetlands Science and Management. The Geography program is designed for students seeking professional careers in environmental fields, GIS, education, and graduate study. Typical career fields include computer cartography and GIS, urban and regional planning, community development, environmental analysis, park ranger, intelligence analyst, hydrologist, climatologist, natural resources specialist, demographer, historic preservation specialist and numerous other related environmental fields.

The Department of Geography and Anthropology has a number of physical facilities available for student use in conjunction with coursework. Included are a cartography lab, a map library and a GIS and computer-mapping laboratory.

Admissions Requirements for Geography and Anthropology

Students who plan to become candidates for advanced degrees are advised to complete two years of a foreign language. Also, Geography majors are advised to take at least one course in statistics.

Required courses in the following programs of study may have prerequisites. Reference the course description section for clarification.

BACHELOR OF ARTS (BA)

Student Learning Outcomes—students will:

• demonstrate proficiency in interpreting existing and creating new maps, in both paper and digital formats;
• demonstrate awareness of the diversity of cultural and natural landscapes on a global scale;
• demonstrate basic knowledge of the content and history of geography’s main sub disciplines, including physical, human, regional and cartographic techniques;
• apply basic research methodologies and field techniques to geographic research;
• demonstrate communication skills and critical thinking abilities required to interpret and express geographic information in clear written form.

GEOGRAPHY MAJOR

Note: two years of a single high school foreign language or one year of a single college level foreign language is required.

Faculty: M. Anderson, M. Folson, R. Quinn, S. Warren.

Note: a minor is strongly recommended for the Geography BA.

Cooperative studies and programs are coordinated with Environmental Science, Biology, Geology, History, Children’s Studies, International Affairs, Planning.

The Geography program has four major missions:

1. providing general education courses to enrich the liberal arts offerings in both the sciences and social sciences;
2. offering specialized or more advanced courses to service other programs in the university;
3. providing a solid academic major for students wishing to pursue graduate study or work as a professional; and
4. supporting research, consulting and other services for the region.

Required Disciplinary Foundation Courses (10 credits)

- GEOG 100 Fundamentals of the Physical Environment (5)
- GEOG 101 Fundamentals of Human Geography (5)

Required CSBS Foundation Course (10 credits)

- CSBS 310 Foundations of Social and Behavioral Science Theory (5)
- CSBS 320 Introductory Statistics for the Social Sciences (5)
  or GEOG 328 Geographic Information Systems I (5)

Disciplinary Core (20 credits)

- GEOG 201 Introduction to Field Research (5)
- GEOG 227 Introduction to Map and Air Photo Analysis (3)
- GEOG 230 World Regional Geography (5)
- GEOG 392 History and Philosophy of Geography (2)
- GEOG 490 The Geographer’s Capstone (5)

Required Elective Concentration: choose one of the following (20–25 credits)

CSBS Certificate Program

Students may select one of the approved interdisciplinary certificate programs from the CSBS Certificate Program List, with approval of the Geography Program Director. Additional Geography electives may be required to reach the 20 credit minimum if the approved Certificate is less than 20 credits.

Geography Graduate School Track

Students may follow the traditional four field focus (human, physical, regional, technical) that is the expected preparation for graduate school. See full Geography Graduate School Track list below.

Specialization Track

Under certain circumstances, students may be allowed to design 20 to 25 credit group of electives that best expose them to the branch of geography they wish to pursue, with approval of the Geography Program Director.

Geography Graduate School Track Coursework

Human

- GEOG 250 Global Economic Development (3)
- GEOG 317 Resources and Conservation (3)
- GEOG 355 The Geography of Theme Parks (2)
- GEOG 357 The Geography of Childhood (3)
- GEOG 406 Women and Men in the Cultural Landscape (1)
- GEOG 450 Global Transportation Development (3)
- GEOG 459 Political Geography (3)
- GEOG 465 Urban Geography: Origins, Forms and Functions (3)
- GEOG 469 Built Environments of North America: Symbol and Structure (3)

Physical

- GEOG 204 Atmospheric Environment (5)
- GEOG 305 Introduction to Oceanography (5)
- GEOG 306 Natural Vegetation Ecology of North America (5) BIOL 306
- GEOG 312 Fundamentals of Soil Science (4) BIOL 312
- GEOG 314 Weather and Climate (5)
- GEOG 315 Surface Hydrology (4)
- GEOG 325 Wetland Science I (4)
- GEOG 410 Geomorphology (5)
- GEOG 420 Applied Geography Studies (2–5)

Regional

- GEOG 330 Geography of the Pacific Northwest (4)
- GEOG 332 Geography of Latin America (4)
- GEOG 333 Geography of Monsoon Asia (4)
- GEOG 498 Seminar (Geography) (1–5)

Techniques

- GEOG 328 Geographic Information Systems I (5)
- GEOG 329 Air Photo Interpretation (5)
- GEOG 420 Applied Geographic Studies (2–5)
- GEOG 427 Desktop Mapping (3)
- GEOG 428 Geographic Information Systems II (5)

Minimum total credits for above major: 60 credits

CERTIFICATE

Student Learning Outcomes—students will:

• demonstrate mastery of foundational concepts of geographic information science;
• demonstrate mastery of foundational concepts of social context of geographic information;
• have the ability to critically evaluate quality and accuracy of spatial data;
• show demonstrated proficiency with GIS software;
• have the ability to communicate geographic information through well-designed maps;
• have the ability to work in teams.
CERTIFICATE IN GEOGRAPHIC INFORMATION SYSTEMS
The Certificate in Geographic Information Systems offers students an intensive, interdisciplinary course of study in the field of Geographic Information Systems (GIS) technology. Candidates must take four required classes and choose three additional classes from a list of options for a total of 24–30 credits. All students study a core of computer mapping and spatial analysis basics and then focus on their own application area (e.g., wildlife biology, wetlands, programming, cartographic design). An internship or similar participation in a "real world" GIS project is a required component of the certificate program. This certificate program is open to all majors and post-degree students. In order to qualify for admission to the GIS Certificate Program, full-time EWU students must hold a GPA ≥3.0 and be entering or past their junior year, or obtain special permission from the certificate program advisor. Post-degree continuing education students who did not graduate from their previous school with at least a GPA ≥3.0 will be admitted on a probationary basis. A grade ≥3.0 must be earned in each course for it to count toward the Certificate.

Required Certificate Courses (17 credits)
GEOG 320 Geographic Information Systems I (5)
GEOG 428 Geographic Information Systems II (5)
GEOG 429 Geographic Information Systems III (5)
GEOG 493 GIS Portfolio (2)
Electives
GIS Specialty—choose one (3 credits)
GEOG 427 Desktop Mapping (3)  
*or GEOG 499 Directed Study (3)
Interdisciplinary—choose one (1–5 credits)
GEOG 323 GIS Environmental Science (3)
*PLAN 496 Experimental Course (1–5 credits) can be substituted for the Interdisciplinary requirement on approval of the GIS Certificate Program advisor.
Application Area—choose one (3–5 credits)
Student selects appropriate (non-GIS) course with approval of certificate advisor, to complement chosen application area focus, e.g. Soils, Wetlands, Visual Basic, Global Issues.

Minimum total credits for above certificate 24 credits

CERTIFICATE
Student Learning Outcomes—students will:

• demonstrate mastery of the foundational concepts of wetlands science;
• demonstrate mastery of the foundational concepts of the social context of wetlands;
• be able to identify and analyze wetlands landscapes in a field work setting;
• be able to communicate information about wetlands in written, oral, and mapped forms;
• be able to work in teams.

CERTIFICATE IN WETLANDS SCIENCE AND MANAGEMENT
The Certificate in Wetlands Science and Management provides EWU students with a focused training in the field of Wetland Science. The curriculum encompasses both the physical science that defines wetlands and the social context of wetlands in terms of their functions and value to society. Successful completion of the Wetlands Certificate requires 23 credits of required class work and 8 to 10 credits of electives for a total of 31 to 33 credits. Coursework is interdisciplinary, blending together classes from biology, geography and planning. This certificate program is open to all majors.

Required Certificate Courses (23 credits)
BIOL 411 Field Botany (5)
GEOG 312 Fundamentals of Soil Science (4)
GEOG 325 Wetland Science I (4)
GEOG 490 The Geographer’s Capstone (5)
PLAN 430 Environmental Planning (5)

Electives—choose two courses from the following (8 to 10 credits)
BIOL 405 Limnology (5)
GEOG 315 Surface Hydrology (4)
GEOG 328 Geographic Information Systems I (5)
GEOG 410 Geomorphology (5)
GEOG 470 Hydrogeology (4)
GEOL 470 Hydrogeology (4)
PLAN 441 Environmental Impact Statements (3)
PLAN 440 Land Use Planning (5)

Other courses can be substituted as electives if selected in consultation with and approved by the Wetlands Certificate coordinator.

Minimum total credits for above certificate 31 credits

MINOR

GEOGRAPHY MINOR
Required Courses (10 credits)
GEOG 100 Fundamentals of the Physical Environment (5)
GEOG 101 Fundamentals of Human Geography (5)
Electives (4–5 credits)
Select courses in consultation with department advisor.

Minimum total credits for above minor 14 credits

GRADUATE CERTIFICATE
Student Learning Outcomes—students will:

• demonstrate mastery of foundational concepts of geographic information science;
• demonstrate knowledge of the history of the technologies, methodologies, and philosophies of geographic information science;
• critically evaluate research in the field of geographic information science;
• critically evaluate the quality and accuracy of spatial data;
• demonstrate proficiency with geographic information system software and related programming languages;
• design and implement methods and communicate results using geographic information system software as part of critical spatial analysis research.

GRADUATE CERTIFICATE IN GIS
The Graduate Certificate in Geographic Information Systems offers current graduate and post-baccalaureate students an intensive, interdisciplinary course of study in the field of Geographic Information Systems (GIS) technology and theory. All certificate students complete four required courses that introduce GIS concepts and applications, database formats, mapping, and spatial analysis. Based on area of specialization, students then elect to pursue GIS applications in either the environmental sciences or the social sciences. All students are required to participate in a “real world” GIS project in order to complete the graduate certificate. The graduate certificate is open to all current graduate students and to post-degree continuing education students. No prior background in GIS is required.

Required Core (17 Credits)
GEOG 528 Geographic Information Systems I (5)
GEOG 538 Geographic Information Systems II (5)
GEOG 548 Geographic Information Systems III (5)
GEOG 549 GIS Portfolio (2)
Elective Concentrations (11 Credits)
Application Area Concentration
GEOG 521 GIS for Social Sciences (3)
*or GEOG 523 GIS for Environmental Sciences (3)
Programming and Geospatial Database Concentration
GEOG 536 GIS Programming (5)
*or GEOG 599 Directed Study (5) with approval of GIS Certificate Director.
Visualization Techniques Concentration
GEOG 527 Desktop Mapping (5)
*or GEOG 399 Directed Study (5) with approval of GIS Certificate Director.

Minimum total credits for above certificate 28 credits

Note: Current graduate students in programs other than this certificate program will be required to demonstrate use of GIS analysis in their master’s research project. Current post-baccalaureate students will be required to complete an internship with a designated community partner as part of their GEOG 548 course.

Geography Courses

Terms offered: fall, winter, spring, summer (FWSU). If no terms are indicated, check with the department or EagleNET.

GEOG 100 Fundamentals of the Physical Environment (5)
Satisfies: a GECR for natural sciences, geography.
An introduction to the physical and environmental components of the earth’s natural systems of weather, climate, water, soils, natural vegetation and landforms and their interrelationships.

GEOG 101 Fundamentals of Human Geography (5)
Satisfies: GECR for social sciences, list 2, anthropology, geography, psychology, sociology.
An introduction to the study of spatial variations among human cultures and the patterns of interaction between humans and the natural environment, with special emphasis on topics including language, religion, demography, political systems, population, agriculture, manufacturing and urbanization.

GEOG 115 Investigating Earth Science (5)
Cross-listed: GEOL 115.
Prerequisite: pre-university basic skills in mathematics.
Satisfies: a GECR for natural sciences, geography.
For students planning to teach elementary school. Includes inquiry-based earth science investigations that support science instruction outlined in the National Science Education Standards and Washington Essential Academic Learning Requirements.

GEOG 201 Introduction to Field Research (5) F
This course presents the fundamentals of field research design and performance.

GEOG 204 Atmospheric Environment (5) FU
Satisfies: a GECR for natural sciences, geography.
An introduction to the earth-atmosphere system. The course surveys the physical nature of the atmosphere including weather elements, weather systems and climate. The course addresses the social and environmental issues related to natural and human induced changes in the composition of the atmosphere.

GEOG 226 Introduction to GIS Software Design (2) W
This course provides hands-on experience and teaches students technical proficiency using GIS software through demonstration and laboratory exercises.

GEOG 227 Introduction to Map and Air Photo Analysis (3) F
Prerequisite: GEOG 100 or GEOG 101 or permission of instructor.
The focus of this course is mastering the uses of maps and remote imagery as sources of geographic information, both environmental and cultural. Special attention is directed toward maps as communication devices. The course is of value for those wishing to move on to cartography and geographic information systems (GIS) courses as well as general background for geography, social science and education majors.

GEOG 230 World Regional Geography (5) FWS
Satisfies: international studies university graduation requirement.
A survey of world geographical relationships. Includes an examination of the distribution of selected physical and human phenomena and the processes responsible for the distributions and the varying interrelationships from place to place between humans and the environment.

GEOG 250 Global Economic Development (3)
This course is a survey of the patterns, structures and locational principles of economic activity, including world regional and historical economic development, natural resources, agriculture, manufacturing, transportation, communications and the distribution of service sectors. Particular emphasis will be placed on the process of globalization, free trade and the increasing significance of space and place in the 21st century global economy.

GEOG 299 Special Studies (1–15)
Prerequisite: permission of the instructor, department chair and college dean.
Subjects studied vary according to faculty and student interest.

GEOG 300 Physical Geography (5)
Prerequisite: GEOG 100 or permission of the instructor.
Systematic study of physical events and processes within the human environment including elements of landforms, weather and climate, vegetation and soils.

GEOG 301 Human Geography (5)
Prerequisite: successful completion of ENGL 201.
A study of human geography focused on their interaction with the physical and cultural environments of the earth.

GEOG 305 Introduction to Oceanography (5) S
Prerequisite: mathematics clearance.
An introduction to the nature, occurrence, distribution and interrelationships of phenomena in the oceans, the basins and margins.

GEOG 306 Natural Vegetation Ecology of North America (5) S
Cross-listed: BIOL 306.
Prerequisite: GEOG 100 or permission of the instructor.
This course is an introduction to the processes and patterns of vegetation, emphasizing the Pacific Northwest.

GEOG 312 Fundamentals of Soil Science (4) S
Cross-listed: BIOL 312.
Prerequisite: MTHD 104 or clearance by test.
A general introduction to physical, chemical and biological properties of soils.

GEOG 314 Weather and Climate (5) W
Prerequisite: GEOG 204 or 10 credits of upper division science or permission of the instructor.
Includes the principles of meteorology, description and use of instruments, weather and climate controls.

GEOG 315 Surface Hydrology (4) W
Prerequisite: mathematics clearance.
A comprehensive treatment of the hydrological environment of the earth. Topics include: components of the hydrologic cycle, hydrography of major climate regions, water quality assessment and global water resource problems.

GEOG 317 Resources and Conservation (3) S
Studies the nature and distribution of natural resources and problems and principles of their use and conservation.

GEOG 320 Middle Eastern History and Culture (5)
Cross-listed: ANTH 320, HIST 320.
Examines the various ethnic, religious and national communities of the Middle East in historical and contemporary context.

GEOG 321 GIS for Social Sciences (3) WS
Prerequisite: CPLA 101.
Introduction to Geographic Information Systems (GIS) with an emphasis on its application in the Social Sciences, including census data, demographic analysis, social justice and related mapping of social phenomena. Course includes hands-on GIS work in the lab.

GEOG 323 GIS for Environmental Sciences (3) WU
Cross-listed: ENVS 323.
Prerequisite: CPLA 101 or CPLA 120.
Introduction to Geographic Information Systems (GIS) with an emphasis on its application in the Environmental Sciences. Course includes hands-on GIS work in the lab. This course satisfies an option for the Certificate in GIS.

GEOG 325 Wetland Science I (4) S
Prerequisite: permission of the instructor.
An introduction to the fundamental processes that form and sustain wetlands. Emphasizes the distinctive hydrology, soils and vegetation of wetlands and field experience in delineation. Examines issues of regulation. Focus is on Pacific Northwest wetlands.

GEOG 328 Geographic Information Systems I (5) FS
Prerequisite: Computer Literacy.
Introductory survey of geographic information systems. Focus is on I. computer techniques for the input, storage, manipulation, analysis and output of spatial data and 2. the social and administrative creation and dissemination of geographic information. Lecture and laboratory.

GEOG 329 Air Photo Interpretation (5) W
Prerequisite: junior standing or permission of the instructor.
Aerial photographs as records of the earth surface; recognition, measurement and interpretation of natural and man-made features.

GEOG 330 Geography of the Pacific Northwest (4) F
Prerequisite: junior standing.
An introduction to regional geographic studies on a local scale. A survey and appraisal of the interrelated elements of the economy, resources, population and physical environment as they affect the growth and development of the region.

GEOG 332 Geography of Latin America (4) F
Prerequisite: junior standing.
The study of the physical and human geography of the Americas south of the Rio Grande. Emphasizes explanatory description.

GEOG 333 Geography of Monsoon Asia (4)
This course is a regional study of non-Russia Asian and adjacent islands, from humid monsoon lands of the far east to the arid eastern Mediterranean.

GEOG 334 The Historical Geography of Canada (4)
Cross-listed: HIST 334.
Canada occupies a strategic place in world geography owing to its central location with regard to Europe, Asia and the United States; its resource base, its role in regional and world organizations and the distinctive national characteristics and traditions that its peoples have developed. This course provides an overview of the major geographic regions of Canada based on physical environments, history, settlement patterns, natural resources, transportation and industry, urbanization and cultural and ethnic diversity.

GEOG 335 The Geography of the Pacific Rim (4)
The growing importance of the nations surrounding the Pacific Ocean in world economic development and international relations has been apparent since the early 1900s, but today—at the threshold of a new century—it is of critical importance. The destiny of the United States and the Pacific Rim, in particular, is inextricably linked to events in such places as China, Japan, the Koreas, Indonesia, Australia, Latin America, Canada and Russia, to name but a few. This course will focus on the major trading nations of the Pacific Rim and examines their relationships with the nations of North America and each other with an approach that blends geography, economics, political science and cultural awareness.
GEOG 336 Geographies of Conflict in the Middle East (5) W
Cross-listed: ANTH 336, HIST 336
Examines the Middle East and its various ethnic, political, economic, religious and environmental conflicts from a geographic perspective. The course’s holistic combination of geographic and anthropological inquiry will offer insights into how the natural environment and built environment interact and engage with the cultural and political landscapes of the Middle East.

GEOG 355 The Geography of Theme Parks (2) F
Prerequisite: ENGL 201.
Examination of the geographic history and characteristics of the theme park as a ‘serious’ part of the built environment. We consider the environmental, economic, political, architectural and technological impacts of theme parks on urban and suburban space around the world.

GEOG 357 The Geography of Childhood (3) FWS
Prerequisite: ENGL 201.
Examination of the geographic aspects of childhood across space and time. Focus on how cultures in different places and at different times have created, maintained and controlled spaces for children, including where children are born, who cares for infants, the conditions of schooling, leisure spaces provided and the ‘virtual geographies’ of television and the Internet.

GEOG 390 Earth Science Teaching Methods (1) F
Cross-listed: GEOL 390.
Prerequisite: GEOL 120, GEOL 121, GEOL 314, PHYS 121, EDUC 303 or permission of the instructor. SCED 390 co-requisite.
This course is designed for Earth Science majors planning to teach middle school, junior or senior high school. It includes the development of curriculum and the organization of teaching materials, techniques and evaluation.

GEOG 392 Seminar in History and Philosophy of Geography (2) W
Prerequisite: junior standing or permission of the instructor.
The development of geographic thought from early to contemporary time.

GEOG 399 Directed Study (1–15)
Note: maximum of 6 credits may be earned.
Prerequisites: permission of the instructor, department chair and college dean.
Individual study concerned with an appropriate problem closely directed by a geography staff member. Science or social studies credits may be earned depending on the nature of the problem undertaken.

GEOG 406 Women and Men in the Cultural Landscape (1)
Cross-listed: WMAST 406.
The created landscape reflects human values and experience. This course examines ways in which women and men create, use and experience the humanized landscape. We will examine spatial patterns of human activity from a variety of times and places, linking geographic theory to everyday environments. The course will include map work, slide analysis and a field exercise as tools for identifying and interpreting cultural landscapes.

GEOG 410 Geomorphology (5) F
Prerequisite: GEOG 100 or GEOL 121 or permission of the instructor.
This course treats the development of the surface features of the earth caused by mountain-building, weathering, erosion and deposition.

GEOG 420 Applied Geographic Studies (2–5) W
Note: May be repeated for different problems. Credits vary, depending on type of study undertaken.
Prerequisite: junior or permission of the instructor.
This course is a departmental capstone highlighting original geographic research projects designed by students, integrating both physical and human geography topics. The course culminates in a Geography Conference that students plan and host to display their work.

GEOG 427 Desktop Mapping (3) F
Prerequisite: CLPA 101 or permission of the instructor.
Advanced production of maps and related graphics using computer techniques. Emphasis is placed on the design and creation of thematic maps. Lecture and laboratory.

GEOG 428 Geographic Information Systems II (5) W
Prerequisite: GEOG 328.
Advanced course in geographic information systems and their applications. Through detailed examination of conceptual issues and in-depth laboratory work, students develop and implement a project that involves the computer analysis of spatial data. Lecture and laboratory.

GEOG 429 Geographic Information Systems III (5) S
Prerequisite: GEOG 428 or permission of the instructor.
Advanced course in geographic information systems and their applications. Each student will be responsible for designing and carrying out a GIS project using real world data. Course required for certification in GIS.

GEOG 436 Politics of Culture: Israel and Palestine (5) S
Cross-listed: ANTH 436, HIST 436.
Examines the role of culture in the political struggles between Israelis and Palestinians. Explores the influence of national, religious, ethnic and historical narratives in the conceptualization of the Israeli-Palestinian conflict. This course will consider how a detailed knowledge of these ‘politics of culture’ can provide meaningful insights to potential avenues of cultural reconciliation and, ultimately, a more peaceful environment for Israelis and Palestinians.

GEOG 437 Women and Islam (5) S
Cross-listed: ANTH 437, HIST 437, WMAST 437.
Prerequisite: junior or senior standing.
This course examines the status and identity of women in Islamic communities throughout the world and assesses how different interpretations of Islam, as a simultaneous religious, social, cultural, political and economic system, influences perceptions of women within Islamic communities. It further considers the perceptions of Islam vis-à-vis women and Islamic women themselves by non-Muslim communities.

Prerequisite: junior or senior standing.
This course is a collective exercise in critical thinking on the intersection and interaction of peace, violence and culture. It explores the cultural dimensions of peace and violence, including the role of culture in defining and understanding the manifestation and enactment of peace and violence both by and against individuals as well as groups.

GEOG 450 Global Transportation Development (3) S
Prerequisite: GEOG 101 or permission of the instructor.
Transportation, involving the movement of goods, people and information, is the most tangible expression of interaction between regions and places. Because it is a major force in shaping the landscape, transportation studies assume a central position in the field of geography. The creation of rapid and economical access is central to the process of development at local, regional and national scales. Changes in modes of transport, particularly since the mid-19th century, have revolutionized trade, travel and communication. The evolution of transport networks has been critical in fostering urbanization and a specialized space economy. In this course we will explore the basic concepts of geographical transportation analysis and apply them to a variety of historical and contemporary topics.

GEOG 459 Political Geography (3) W
Prerequisite: junior standing or permission of the instructor.
Spatial aspects of political phenomena. Examines the geographical environment as it affects and is affected by political phenomena.

GEOG 465 Urban Geography: Origins, Forms and Functions (3) S
Urbanization has been such a central aspect of human civilization that the forces affecting cities and towns are almost as diverse as those shaping culture itself. This course in urban geography will deal with two major aspects of urbanization: the role, purpose and evolution of cities, and the processes at work in our society that both create and transform the physical structure of cities. Because urban places are central to our economy as well as society, we will consider a broad and varied range of material from other academic disciplines, with the primary focus on the North American city.

GEOG 469 Built Environments of North America: Symbol and Structure (3) S
Cross-listed: HIST 469, PLAN 469.
Prerequisite: GEOG 101 or permission of the instructor.
This course is a survey of North American architectural landscapes from the colonial period to the present. This course will examine such topics as the diffusion of major styles of residential, commercial and public architecture across the continent, the relationship of geology and climate to the availability of building materials and technology and the effects of these on the human built environment, especially in the Pacific Northwest. Special emphasis will be placed on the visual differentiation of building styles and the symbolic, political and philosophical foundations of architectural form and decoration.

GEOG 490 The Geographer’s Capstone (5) W
Prerequisite: senior standing or permission of the instructor.
Satisfies: senior capstone university graduation requirement.
This course is a departmental capstone highlighting original geographic research projects designed by students, integrating both physical and human geography topics. The course culminates in a Geography Conference that students plan and host to display their work.
GEOG 521 GIS for Social Sciences (5)
This course emphasizes the application of Geographic Information Systems in the Social Sciences, including census data, demographic analysis, social justice and related mapping of social phenomena. Course includes hands-on GIS work in the lab.

GEOG 522 Research Design (3)

Cross-listed: ANTH 522.
Provides for the continued development of a practical toolkit with which to conduct applied social science research. Addresses research design elements necessary in areas such needs assessments and program evaluations through techniques such as participatory research, action research, evaluation, assessment and surveying. The course covers development of research proposals for independent, grant funded or contract designs.

GEOG 525 Data Analysis and Visualization (3)
Cross-listed: ANTH 522.
Prerequisite: ANTH 522 or GEOG 522.
This course introduces students to data analysis and data visualization. In particular, students will learn basic data analysis approaches, explore their use and apply them to qualitative and quantitative data sets. In addition students will synthesize the results of their data analysis into a variety of data visualization formats.

GEOG 528 Geographic Information Systems II (5)
Prerequisite: GEOG 527.
This course focuses on the design and implementation of geographic information system database structures. Emphasis is on the construction and analysis of contemporary and legacy vector structures, with basic exploration of raster structures. The course includes hands-on GIS work in the lab.

GEOG 548 Geographic Information Systems III (5)
Prerequisite: GEOG 528, GEOG 538.
This an advanced course in GIS project design and execution. Students will be expected to work independently on a real-world GIS project, based on either thesis research or an on-going project developed with a community partner. Students will oversee all stages of the project from design to data collection to presentation of results. The course is required for the GIS Certificate program.

GEOG 599 Directed Study (1–5)
Prerequisite: permission of the instructor, department chair and college dean.

GEOG 515 Spacial Methods (5)
This course provides advanced experience with the qualitative and quantitative methods of spatial research. Students research, compare and critically apply a variety of geographic methods to different case study scenarios in order to develop proficiency across the spectrum of geographic methods. Priority is given to contemporary digital methods, but older forms are introduced for comparative purposes also. Throughout the course, students build up a suite of methods they then will apply later in the program to their own research.

GEOG 520 GIS Portfolio (2) x
Prerequisite: GEOG 429 or permission of the instructor.
Exit synthesis for the certificate in GIS or related GIS studies. Students will produce two versions of a GIS portfolio highlighting their GIS work, one in hard copy and one on the web using appropriate web publishing and map serving software.

GEOG 527 Desktop Mapping (3)
This course explores the various ways that spatial information is communicated through cartographic and related methods. The course covers both contemporary theories of cartographic visualization and applied digital design strategies. The course includes hands-on lab work using GIS and related mapping software.

GEOG 528 Geographic Information Systems I (5)
Introductory survey of geographic information systems. Focus is on 1. computer techniques for the input, storage, manipulation, analysis and output of spatial data and 2. the social and administrative creation and dissemination of geographic information.

GEOG 531 Topics in Social Justice (5)
Note: may be repeated for credit when topics differ.
This seminar examines the breadth of research in human geography focused on issues related to social justice. Through an intensive engagement with relevant literature, students will be exposed to a series of select historical and contemporary debates in critical human geography as we examine the ontological, epistemological and practical dilemmas concerning research driven by and concerned with social justice.

GEOG 533 Topics in Environmental Justice (5)
Note: may be repeated for credit when topics differ.
This seminar examines the breadth of research in human and physical geography focused on issues related to environmental justice. Through an intensive engagement with relevant literature and contemporary data, students will be exposed to a series of select historical and contemporary debates in critical geographic studies as we examine the ontological, epistemological and practical dilemmas concerning research driven by and concerned with environmental justice.

GEOG 536 GIS Programming (5)
Prerequisite: GEOG 528.
This is an advanced course in GIS programming concepts and techniques. Students will be exposed to both legacy and contemporary programming languages integrated with GIS packages. Emphasis will be on creating and interpreting scripts using languages supported by current GIS software. The course includes hands-on GIS and programming work in the lab.

GEOG 538 Geographic Information Systems II (5)
Prerequisite: GEOG 528.
This course focuses on the design and implementation of geographic information system database structures. Emphasis is on the construction and analysis of contemporary and legacy vector structures, with basic exploration of raster structures. The course includes hands-on GIS work in the lab.

GEOG 497 Workshops, Short Courses, Conferences (1–5)
Prerequisite: 15 credits successfully completed in geography or permission of the instructor.
Advanced group study. Discussion topics selected for each seminar.

GEOG 499 Directed Study (1–15)
Prerequisite: permission of the instructor, department chair and college dean.

GEOG 505 Spacial Theory (5)
This seminar focuses on the development and evolution of spatial theory both within and beyond the discipline of geography. Working from a post-structuralist perspective, students explore and critically compare seminal theoretical contributions and their broader social contexts that underscore specific moments in the history of geographical studies. We investigate the ways in which contemporary western geographic thought is inseparable from the interconnected global networks within which it emerged. Original texts are used as often as possible and form the core of seminar discussion material.

GEOG 510 GIS Portfolio (2) x
Prerequisite: GEOG 429 or permission of the instructor.
Exit synthesis for the certificate in GIS or related GIS studies. Students will produce two versions of a GIS portfolio highlighting their GIS work, one in hard copy and one on the web using appropriate web publishing and map serving software.

GEOG 511 GIS for Environmental Sciences (3)
This course emphasizes the application of Geographic Information Systems in the Environmental Sciences, including mapping and analysis of topographical, hydrological, geological, biological and other environmental data. The course includes hands-on GIS work in the lab.

GEOG 520 GIS Portfolio (2) x
Prerequisite: GEOG 429 or permission of the instructor.
Exit synthesis for the certificate in GIS or related GIS studies. Students will produce two versions of a GIS portfolio highlighting their GIS work, one in hard copy and one on the web using appropriate web publishing and map serving software.

GEOG 522 Research Design (3)
Cross-listed: ANTH 522.
Provides for the continued development of a practical toolkit with which to conduct applied social science research. Addresses research design elements necessary in areas such needs assessments and program evaluations through techniques such as participatory research, action research, evaluation, assessment and surveying. The course covers development of research proposals for independent, grant funded or contract designs.

GEOG 525 Data Analysis and Visualization (3)
Cross-listed: ANTH 522.
Prerequisite: ANTH 522 or GEOG 522.
This course introduces students to data analysis and data visualization. In particular, students will learn basic data analysis approaches, explore their use and apply them to qualitative and quantitative data sets. In addition students will synthesize the results of their data analysis into a variety of data visualization formats.

GEOG 527 Desktop Mapping (3)
This course explores the various ways that spatial information is communicated through cartographic and related methods. The course covers both contemporary theories of cartographic visualization and applied digital design strategies. The course includes hands-on lab work using GIS and related mapping software.

GEOG 528 Geographic Information Systems I (5)
Introductory survey of geographic information systems. Focus is on 1. computer techniques for the input, storage, manipulation, analysis and output of spatial data and 2. the social and administrative creation and dissemination of geographic information.

GEOG 531 Topics in Social Justice (5)
Note: may be repeated for credit when topics differ.
This seminar examines the breadth of research in human geography focused on issues related to social justice. Through an intensive engagement with relevant literature, students will be exposed to a series of select historical and contemporary debates in critical human geography as we examine the ontological, epistemological and practical dilemmas concerning research driven by and concerned with social justice.

GEOG 533 Topics in Environmental Justice (5)
Note: may be repeated for credit when topics differ.
This seminar examines the breadth of research in human and physical geography focused on issues related to environmental justice. Through an intensive engagement with relevant literature and contemporary data, students will be exposed to a series of select historical and contemporary debates in critical geographic studies as we examine the ontological, epistemological and practical dilemmas concerning research driven by and concerned with environmental justice.

GEOG 536 GIS Programming (5)
Prerequisite: GEOG 528.
This is an advanced course in GIS programming concepts and techniques. Students will be exposed to both legacy and contemporary programming languages integrated with GIS packages. Emphasis will be on creating and interpreting scripts using languages supported by current GIS software. The course includes hands-on GIS and programming work in the lab.

GEOG 538 Geographic Information Systems II (5)
Prerequisite: GEOG 528.
This course focuses on the design and implementation of geographic information system database structures. Emphasis is on the construction and analysis of contemporary and legacy vector structures, with basic exploration of raster structures. The course includes hands-on GIS work in the lab.

GEOG 548 Geographic Information Systems III (5)
Prerequisite: GEOG 528, GEOG 538.
This an advanced course in GIS project design and execution. Students will be expected to work independently on a real-world GIS project, based on either thesis research or an on-going project developed with a community partner. Students will oversee all stages of the project from design to data collection to presentation of results. The course is required for the GIS Certificate program.

GEOG 599 Directed Study (1–5)
Prerequisite: permission of the instructor, department chair and college dean.

GEOG 600 Thesis (5)
Prerequisite: permission of the instructor, department chair and college dean.
The goal of this course is the successful production of a master's thesis of defensible quality. The master's thesis will be the presentation of original research in the field of geography and critical GIS. This document provides partial fulfillment of the MA requirement. This course provides an opportunity to sharpen research, writing and organizational skills under the direction of the student's graduate committee.

GEOG 601 Research Project (5)
Prerequisite: permission of the instructor, department chair and college dean.
The goal of this course is the successful completion of a master's research project of defensible quality. The research project will be the culmination of applied research in the field of geography and critical GIS. This research project provides partial fulfillment of the MA requirement for student's not pursuing the thesis track. This course provides the opportunity to sharpen research, writing, cartographic, advocacy and organizational skills under the direction of the graduate committee.

GEOG 602 Independent Study (1–15)
Prerequisite: permission of the instructor, chair and college dean.
The goal of this course is the successful completion of a master's research project of defensible quality. The research project will be the culmination of applied research in the field of geography and critical GIS. This research project provides partial fulfillment of the MA requirement for student's not pursuing the thesis track. This course provides the opportunity to sharpen research, writing, cartographic, advocacy and organizational skills under the direction of the graduate committee.