

## GEO

## Geography

### #GEO 109 DIGITAL MAPPING. (3)

This course introduces the concepts, techniques, and histories behind mapping as a creative and artist practice. It covers the centrality of the map in everyday life and the changing role of maps as society becomes increasingly saturated by digital information technologies such as geographic information systems (GIS) and global positioning systems (GPS). The course introduces principles in cartographic design and geovisualization culminating in a series of maps created by each student.

### GEO 130 EARTH'S PHYSICAL ENVIRONMENT. (3)

A course exploring the fundamental characteristics of earth's physical environment. Emphasis is placed on identifying interrelationships between atmospheric processes involving energy, pressure, and moisture, weather and climate, and terrestrial processes of vegetative biomes, soils, and landscape formation and change. Fulfills General Education requirements for Inquiry in Natural Sciences, and elementary certification requirements in education.

### GEO 135 GLOBAL CLIMATE CHANGE. (3)

This course provides a broad overview of the processes that have shaped the climate in which we live, and of consequences of changes to this climate. The principle functions of climate in relation to the hydrosphere and biosphere are introduced, and climate change over geological time is described. The basic data used by climate science to identify and explain historical climate change, paleoclimate change, and more recent climate trends are examined. The course also considers the difference between climate science and 'pseudoscience' and how to evaluate predictions of future climate change. Fulfills the Gen Ed Intellectual Inquiry – Natural/Physical/Mathematical Sciences requirement.

### GEO 152 REGIONAL GEOGRAPHY OF THE WORLD. (3)

A geographical study of the world by regions with a focus on the world's physical and human landscapes. Emphasis on how regions are connected to each other. Also how each region is affected by, and affects, global issues such as economic restructuring, food production, and environmental change, will be examined. Fulfills elementary certification requirement for Education and USP disciplinary social science requirement.

### GEO 160 LANDS AND PEOPLES OF THE NON-WESTERN WORLD. (3)

The geographic study of the conceptual and historical definition of regions of the world as "Non-Western." Global patterns of social, cultural, economic, and political difference between the West and Non-West as well as the processes key to the making of the Non-Western world (such as colonialism and imperialism) are discussed. In addition, selected current issues of significance to peoples in the Non-Western world, such as sustainable development, environment, human rights, and gender relations, are considered. Fulfills the General Education Global Citizenship requirement.

### GEO 161 GLOBAL INEQUALITIES. (3)

This course focuses on basic spatial patterns of wealth and poverty at the global scale, comparing places and regions. Contemporary trends are identified and viewed in their historical context. Inequalities in access to basic human needs – food and water – are investigated through case studies drawn from around the world. The highly unequal world we live in raises serious questions of justice and sustainability, and these are considered in this course. Fulfills General Education requirements for Global Citizenship.

### GEO 162 INTRODUCTION TO GLOBAL ENVIRONMENTAL ISSUES. (3)

This course addresses environmental questions of global importance, including population growth, resource consumption, environmental degradation, biodiversity conservation, toxic contamination and environmental justice. Fulfills Gen Ed Global Dynamics requirement.

### GEO 163 GLOBAL CONFLICTS. (3)

This course will focus on the dynamics and effects of conflicts over boundaries, territory, environmental resources, and civil and political rights. A geographic lens will be used to understand contemporary world conflicts. This course introduces students to an understanding of conflict as grounded both in localities and an effect of global interconnections – political, economic, and cultural. The course will focus on six major contemporary conflicts. Students will become versed in the debates and possible options for solution of these problems. While lectures will provide students with an understanding of the coordinates of the conflicts, recitations sections provide an opportunity for discussion and debate. The readings are chosen to supplement lecture material, providing a greater depth of understanding of the issues at stake. Fulfills the Global Dynamics requirement of General Education.

## GEO

## Geography

### **GEO 164 iWORLDS: GLOBAL INFORMATION GEOGRAPHIES.**

**(3)**

This course examines the ways that existing and emerging information technologies are helping to transform places and the way in which the world interacts. It covers the intertwining of society and technology and how different cultures produce distinct technologies and use similar technologies in unique ways. Of particular focus will be the history and evolution of mapping technologies to present days systems such as global positioning systems (GPS), geographic information systems (GIS) and the geoweb. In addition the course will introduce the spatial implications of information technologies and contemporary debates on digital divides, surveillance and privacy, proximity and distance, democracy, and relationships between virtual, real-world and hybridized communities. Fulfills the Global Dynamics Requirement of General Education.

### **\*GEO 172 HUMAN GEOGRAPHY.**

**(3)**

An introduction to geographic perspectives on human political, economic, social, and cultural activities (such as trade, economic development, empire, colonialism and nation building, agriculture, pollution, urbanization, population dynamics). Emphasis is on spatiality (including concepts of location, scale, globalization, maps, migration, and diffusion), place making and regions (including concepts of the cultural landscape, place meaning, race, class and gender identities, and territoriality), and nature/society relations (including concepts of environmental adaptation and modification, climate change, and sustainability). Fulfills Gen Ed Intellectual Inquiry – Social Science and elementary certification requirement for education.

### **\*GEO 200 ORIENTATION TO GEOGRAPHY.**

**(3)**

Introduces students to geographic perspectives, theories, research and professional opportunities. Applied quantitative and qualitative approaches to geographic research are reviewed and examples from current literature presented and discussed. Prereq: GEO 130, GEO 172.

### **GEO 220 U.S. CITIES.**

**(3)**

This course introduces salient contemporary U.S. urban topics as seen from and analyzed by a geographic perspective. Topics include migration, urban sprawl, city services, gentrification and urban redevelopment, school districts, parks, housing, financing, and others. The course examines key issues, problems, and debates facing diverse U.S. urban communities, and will address the possibilities for citizen engagement in their resolution. Fulfills the Gen Ed U.S. Citizenship requirement.

### **GEO 221 IMMIGRANT AMERICA: A GEOGRAPHIC PERSPECTIVE.**

**(3)**

This course uses a geographic and spatial perspective to introduce students to contemporary immigration to the United States, its origins, adaptation patterns, and long-term effects on American society. Current immigration debates, humanitarian migration, immigrants' experiences (local and transnational), and questions of citizenship and civic participation of immigrants are central to the course.

### **\*GEO 222 CITIES OF THE WORLD.**

**(3)**

Focuses on the historical development, contemporary character, and alternative futures of cities in both developing and developed regions. The spatial, social, economic, and political processes of major world cities are studied and contemporary urban problems are discussed. Fulfills Gen Ed Global Dynamics requirement.

### **GEO 230 WEATHER AND CLIMATE.**

**(3)**

A survey of the atmospheric controls associated with local, regional, and global weather and climate variability. Includes fundamental coverage of the physics and chemistry of energy, gasses, pressure and moisture, with a goal of promoting understanding of general weather analysis and forecasting, severe storms, atmospheric pollution, descriptive climatology, and global climate change. Prereq: GEO 130 or consent of instructor.

### **GEO 231 ENVIRONMENT AND DEVELOPMENT.**

**(3)**

This course explores the intertwining of environment, development and sustainability. It analyzes the political economy of environmental destruction (at macro and micro levels) to understand its origins and strategies to prevent it.

### **GEO 235 ENVIRONMENTAL MANAGEMENT AND POLICY.**

**(3)**

An introduction to environmental systems such as weather and climate, vegetation, land forms and soils, and how the quality of these systems is modified by human use. Resource issues discussed include: atmospheric pollution and global warming; groundwater, flooding, and flood plain management; volcanic activity and earthquakes; and biospheric processes associated with deforestation and lake eutrophication. Case studies based upon important environmental problems illustrate how human activity and environmental systems interrelate. Fulfills USP Cross-Disciplinary requirement.

## GEO

## Geography

### **GEO 240 GEOGRAPHY AND GENDER. (3)**

Adopts a geographic approach to the study of gender relations. The role of space and place in shaping the diversity of gender relations throughout the world will be considered. Through case studies the importance of gender relations in understanding a variety of issues will be stressed. Such issues include: the design and use of urban and rural environments; “Third World” development; regional economic restructuring; changing political geographies; and migration.

### **GEO 255 GEOGRAPHY OF THE GLOBAL ECONOMY. (3)**

This course reviews the globalization of the world economy as a historical process with specific local, regional, and national outcomes. It introduces students to the factors and dynamics of ongoing globalization of the economy. Fulfills General Education requirements for Global Citizenship.

### **GEO 260 GEOGRAPHIES OF DEVELOPMENT IN THE GLOBAL SOUTH. (3)**

The course focuses on differences between the richer global north and the poorer global south – sometimes referred to as the “Third World”. The basic global patterns of “development” are studied and the various explanations for development or lack thereof are examined critically. Differences between regions of the global south are investigated through selected case studies from Latin America, Asia, and Africa. Fulfills the Gen Ed Global Dynamics requirement.

### **GEO 261 GLOBAL DYNAMICS OF HEALTH AND DISEASE. (3)**

This course is an introduction to health and disease from a geographical perspective. It provides an introduction to globalization; global health; epidemiology; the immune system; major pandemics of the 20th and 21st Centuries; and, global attempts to confront current and future pandemics. Connections are made to medicine, nursing, public health and related fields. Fulfills the Global Dynamics requirement of Gen Ed.

### **GEO 285 INTRODUCTION TO PLANNING. (3)**

An introduction to the history, purpose, and objectives of planning with emphasis on urban and regional planning, planning processes, techniques, and legislation.

### **GEO 300 GEOGRAPHIC RESEARCH. (3)**

Provides a detailed examination and discussion of the methods of initiating and executing research projects in human or physical geography. Includes identification of geographic dimensions of research topics, theoretical/conceptual frameworks, conduct of literature reviews, research designs, data collection/analysis and presentation. Prereq: GEO 130 or 152, 160 or 172, or consent of instructor.

### **GEO 305 ELEMENTS OF CARTOGRAPHY. (3)**

Fundamental training in map drafting, compilation, symbolization, scales, projections, and map reproduction, including emphasis on the conceptual planning and designing of maps and graphs as a medium for communication. Prereq: Students must be Geography Majors or Minors.

### **\*GEO 309 INTRODUCTION TO GIS. (3)**

This course introduces students to the use of geographic information systems and their basic principles. Topics addressed include data collection, processing and output. Students will learn about types of geographic information and data: sources, constraints, and uses; the range of secondary spatial data sets available; and the collection of primary spatial data using global positioning systems (GPS) and other technologies. Prereq: Geography major or consent of the instructor.

### **GEO 310 QUANTITATIVE TECHNIQUES IN GEOGRAPHY. (3)**

The application of spatial techniques geographers use to collect, sample, map, and analyze data in human and physical geography. Students will be introduced to automated data processing.

### **GEO 320 GEOGRAPHY OF THE UNITED STATES AND CANADA. (3)**

A systematic review of the physical context, economic, historic, and cultural diversity that distinguish U.S. and Canadian regions. Topical emphasis on the geographic aspects of regional problems. Fulfills General Education requirements for U.S. Citizenship. Prereq: GEO 130 or 152 or 172, or consent of instructor.

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**GEO**

**Geography**

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**GEO 321 LAND, PEOPLE, AND DEVELOPMENT IN APPALACHIA. (3)**

Major themes revolve around regional diversity and regional development. Major topics examined include physical environmental context, historical development, and economic and population geography. The study region includes the upland areas between southern New York State and central Alabama. Prereq: GEO 130, 152 or 172, or consent of instructor.

**GEO 322 GEOGRAPHY OF KENTUCKY. (3)**

An examination of the cultural, economic, political, and environmental diversity of Kentucky. In addition to studying the state's historical evolution, emphasis will be placed on contemporary problems facing the state. Kentucky's regional, national, and international contexts are discussed. Prereq: GEO 130, 152, 160, or 172.

**GEO 324 GEOGRAPHY OF CENTRAL AND SOUTH AMERICA AND THE CARIBBEAN. (3)**

A study of the diversity of physical environments and human societies. The various historical geographies (pre-Columbian and after) of the region are presented as essential to an understanding of contemporary geographical patterns and processes in transport, agricultural, industry and mining, urbanization, and population. Throughout the course case-studies are presented and students are guided as they develop their own case studies. Prereq: GEO 152 or 160 or 172.

**GEO 326 GEOGRAPHY OF EUROPE. (3)**

This course explores the physical, cultural, and political geography of the European continent. Diversity of populations and physical landscapes is stressed. The geographic context for current events that are changing the face of Europe are presented. Prereq: GEO 152 or 172.

**GEO 328 GEOGRAPHY OF THE MIDDLE EAST AND NORTH AFRICA. (3)**

A comprehensive regional overview, emphasizing cultural adaptation to desert environments. The interrelationships among religions, cultures, and the physical environment will be examined, along with the region's position and influence in the global system. Prereq: GEO 152, GEO 160, GEO 172, or consent of instructor. (Same as AAS 328.)

**GEO 329 GEOGRAPHY OF THE FORMER SOVIET UNION. (3)**

A study of this region's diverse physical and human landscapes, emphasizing the historical and contemporary interlinkages between the various states. Contemporary problems of the post-Soviet era (such as environmental degradation, economic and regional restructuring, or the international position of the region) will be studied from a geographical perspective. Prereq: GEO 152, 160, or 172.

**GEO 330 GEOGRAPHY OF THE INDIAN SUBCONTINENT. (3)**

A study of the human, economic, and environmental aspects of India, Pakistan, Bangladesh, Himalayan Nepal and Bhutan, and Sri Lanka. Topics include basic physical and cultural regionalisms, land use and population problems, and patterns of economic development involving urbanization, resources, and industrialization. Prereq: GEO 152 or 160 or 172.

**GEO 331 GLOBAL ENVIRONMENTAL CHANGE. (3)**

This course focuses on environmental processes (in the atmosphere, hydrosphere, lithosphere and biosphere) and the effects of historic and long-term environmental changes. Climatic change and natural system adjustments will be discussed, but the course will concentrate on human-induced environmental changes. Prereq: GEO 130 or equivalent, or consent of instructor.

**GEO 332 GEOGRAPHY OF SOUTHEAST ASIA. (3)**

A study of the cultural, economic, and political patterns and processes in mainland and insular Southeast Asia. Major themes examined are how the region's diverse physical geography, uneven natural resource base, cultural diversity, and colonial heritage provide a background to understanding contemporary development. Prereq: GEO 152 or GEO 160 or GEO 172 or consent of instructor.

**GEO 333 GEOGRAPHY OF EAST ASIA. (3)**

Provides an understanding of the life and landscapes in East Asian nations, with special focus on China and Japan. Emphasis is placed on contemporary issues of sustainable development, environmental management, minority groups, human rights and gender relations. Prereq: GEO 152, GEO 160, GEO 172 or consent of instructor.

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**GEO**

**Geography**

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**GEO 334 ENVIRONMENT, SOCIETY AND ECONOMY OF JAPAN. (3)**

This course examines some of the major aspects of the society, culture, and economy of Japan. It discusses Japan's human and natural environments; natural hazards and disasters; cultural history and geography; economic and technological developments, their prospects and potentials; challenges to the management of environment and its resources; and Japan's role in global economy. (Same as JPN 334.)

**GEO 336 GEOGRAPHY OF SUB-SAHARAN AFRICA. (3)**

This course focuses on the cultural and environmental geographies of the subcontinent, rural landscapes and cultures and environmental problems, the historical geography of precolonial and colonial Africa, and the social geography of contemporary economic development. Prereq: GEO 130 and 152, 160, or 172. (Same as AAS 336.)

**GEO 351 PHYSICAL LANDSCAPES. (3)**

A study of earth surface processes and land forms. The focus is on the analysis and interpretation of earth surface features and topography in terms of process-response mechanisms, and on an understanding of the fundamental physical, chemical, biological, and human processes which create and modify landscapes. The course emphasizes the dynamic nature of land forms and Landscapes, and the interrelationships between land forms and hydrology, climate, soils, and the biosphere. Prereq: GEO 130, or consent of instructor.

**GEO 365 SPECIAL TOPICS IN REGIONAL GEOGRAPHY (Subtitle required). (3)**

Offers coverage of world regions not usually covered in other geography courses, or in-depth examinations of specific subregions. Topics covered include: elements of climate and physical landscapes; political and economic systems and their historical development and dynamics; social and cultural processes and landscapes. May be repeated to a maximum of six credit hours under different subtitles. Prereq: Any 100-level geography course or consent of instructor.

**GEO 399 INTERNSHIP IN GEOGRAPHY. (3)**

Provides supervised professional experience in public and private sector positions, and is intended to introduce students to the skills and working environments of careers in geography. Students should consult with a geography faculty member in advance of registering for this class. Prereq: Junior or senior standing in the major.

**GEO 406G FIELD STUDIES (Subtitle required). (1-9)**

Field-based, regionally specific study of selected topics in cultural, economic, environmental, physical, political, social or urban geography. May be repeated to a maximum of 18 credits with change in field site. Prereq: Consent of instructor.

**\*GEO 409 ADVANCED GIS. (3)**

This course is developed to introduce intermediate and advanced topics in geographic information science and spatial analysis including theoretical and applications areas. Building upon a range of GIS software systems this course covers geographic data collection, entry and editing, spatial analysis, interpolation and map development and display. Prereq: GEO 309 or consent of instructor.

**GEO 415 MAP INTERPRETATION. (3)**

An introduction to reading and interpreting maps. Special attention given to the study of physical and cultural geography as portrayed on large scale topographic maps. Emphasis on the relationship between the environmental setting and human activities, surveys and boundaries, transportation, urban and rural settlement and land use, and place names. Prereq: GEO 130 or 172 or consent of instructor.

**#GEO 419 INTRODUCTION TO REMOTE SENSING. (3)**

This course offers an introduction to remote sensing technologies and their application to land use/land cover analysis, environmental monitoring, natural resources management, and urban planning. This course covers the fundamental remote sensing principles, overview of space/air borne sensors/data, essential techniques for digital image processing, and applications particular related to diverse land surfaces such as vegetation, water, urban, and soil/bedrocks. Theoretical training and lab exercises are integrated components in this course. Prereq: GEO 309 or consent of instructor.

**GEO 422 URBAN GEOGRAPHY. (3)**

Examines the relationship between urbanization and the larger social and economic contexts within which city growth occurs. Surveys a range of theoretical perspectives on the internal socio-economic structure and built environment of cities, including the contributions by Chicago School, neoclassical, marxist, and postmodern theorists. Emphasis also placed on relevant environmental, social, and political problems of cities. Primary focus is on North American cities, but includes cross-cultural comparisons. Prereq: GEO 152, 160, 172, or 222, or consent of instructor.

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**GEO**

**Geography**

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**GEO 430G PHYSICAL GEOGRAPHY FOR TEACHERS. (3)**

The basic content of this course is quite similar to GEO 130 Physical Geography, with emphasis on atmospheric processes of weather and climate, and terrestrial processes of landscape formation and alteration. The human element, in terms of impacts on the environment and the converse impact through pollution and natural hazards, presents a common theme throughout the class. The primary focus in this course, however, is in developing effective teaching techniques for levels K-12 by fostering an understanding of material, a knowledge of resource materials, and experience in applying physical geography to situations outside the classroom. Open to senior education majors and practicing instructors. Lecture, ten hours per week for four weeks.

**GEO 431 POLITICAL ECOLOGY. (3)**

This course examines the relationship between political economics and the biophysical environment and seeks to understand the challenges of development, agriculture, gendered divisions of labor, and the representation of nature in the context of the globalization of economic relations.

**GEO 442G POLITICAL GEOGRAPHY. (3)**

This course examines how space and political activities are related. Major topics will include: history of political geographic thought; geopolitics; nationalism and identity; the territorial state; regionalism; conflicts; borders and frontiers, and electoral geography, at a range of scales.

**GEO 451G FLUVIAL FORMS AND PROCESSES. (3)**

An examination of erosion, deposition, and sediment transport processes associated with flowing water, landforms associated with fluvial processes, and landscape evolution in areas dominated by fluvial dissection and deposition. Field trips may be required. Prereq: GEO 351 or GLY 341.

**GEO 452G WORLD GEOGRAPHY FOR TEACHERS. (3)**

Approaches to teaching geographic themes and concepts within the context of the world's major regions and countries in grade levels K-12. Addresses those issues and problems that affect world regions in the context of the following broad themes: location, place, movement, regions, and human-environment interactions. Among those topics discussed are the use and importance of maps and related resource materials in instruction, presentation of themes at different grade levels, and identification and utilization of a broad range of reference materials for student and teacher use. Lecture, ten hours per week for four weeks.

**\*GEO 455 GLOBALIZATION AND THE CHANGING WORLD ECONOMY. (3)**

This course provides an advanced review of the ongoing restructuring of the geography and organization of the capitalist global economy. Emphasis will be placed on contemporary issues (such as industrial restructuring or the financial industry), and specific regions (such as Kentucky or China). Competing theories (classical, neoclassical, and marxian) and empirical analysis aimed at explaining these patterns and processes are discussed and applied.

**GEO 465 SPECIAL TOPICS IN GEOGRAPHY (Subtitle required). (3)**

Offers coverage of issues and themes not covered in other geography courses, or in-depth examinations of specific issues and themes. Topics covered will commonly address emerging national and global issues of both general and scholarly interest. May be repeated for a maximum of six credit hours (under different subtitles). Prereq: Any 100-level geography course or consent of instructor.

**GEO 470G AMERICA'S CULTURAL GEOGRAPHIES. (3)**

This course examines the diversity of cultural attributes (both tangible and intangible) in the American landscape through a range of perspectives, e.g., environmental/historical, politics, economic, gender, race, etc., to understand how deeply held values manifest in minds and places. Prereq: GEO 172 or ANT 220.

**GEO 475G MEDICAL GEOGRAPHY. (3)**

An examination of the basic principles of the two major traditions of medical geography: disease ecology and medical care. Examined are the etiology, diffusion, and distribution of selected major diseases. Issues pertaining to the spatial-temporal distribution, accessibility and utilization of medical care resources are presented. Prereq: GEO 172 or consent of instructor.

**GEO 485G URBAN PLANNING AND SUSTAINABILITY. (3)**

An analysis of urban and regional planning with emphasis on the contemporary urban and regional planning activities. Prereq: GEO 285 or consent of instructor.



## GEO

## Geography

### **GEO 490G AMERICAN LANDSCAPES.**

**(3)**

A review and analysis of America's vernacular landscapes. Topics include: the history of settlement by Europeans, Africans, and others; evolving political allegiances; and the expansion of agricultural and industrial technologies in the context of diverse physical environments. The role of political philosophy in landscape development and historic preservation will be highlighted. Prereq: GEO 172 or consent of instructor.

### **GEO 491G JAPANESE LANDSCAPES.**

**(3)**

A study of the landscapes of Japan as vivid portrayal of Japanese culture and their value system, including review and analysis of major primary and secondary components of the Japanese landscape. Prereq: JPN 334 or GEO 334 or consent of instructor. (Same as JPN 491G.)

### **GEO 499 SENIOR RESEARCH SEMINAR.**

**(3)**

Course is intended to provide a capstone experience in geographical research and problem-solving through demonstrating students' ability to identify an appropriate research topic in geography; developing and implementing appropriate research strategy; and presenting research results. Prereq: GEO 300.

### **GEO 505 PRACTICUM IN CARTOGRAPHY.**

**(3)**

Experience credit in which a small number of advanced students work under the direct supervision of the faculty or staff cartographer and in conjunction with other faculty members on departmental and contracted projects. May be repeated to a maximum of six hours. Prereq: GEO 305 and GEO 506 and consent of instructor.

### **GEO 506 INTRODUCTION TO COMPUTER CARTOGRAPHY.**

**(3)**

A basic introduction to computer-assisted cartography. Emphasis on basic computer graphics literacy and automated techniques for spatial data acquisition, storage, processing, and output. Introduction to current mainframe, workstation, and desktop mapping programs. Prereq: GEO 305 or permission of instructor.

### **\*GEO 509 WORKSHOP IN GEOSPATIAL TECHNOLOGIES.**

**(3)**

This course focuses on the development of applied GIS skills and follows a participatory workshop model with intensive, hands-on collaboration with community partners. The course covers a full range of collaborative GIS: working with team members and project partners to identify project goals, acquiring and preparing spatial data for GIS analyses, communicating with clients to assess progress, managing spatial data, and producing necessary maps and analyses. Prereq: GEO 309 or GEO 609 or consent of instructor.

### **GEO 530 BIOGEOGRAPHY AND CONSERVATION.**

**(3)**

An introduction to the geographic patterning of biological diversity, exploring its origins, dynamics, and present trends. Examines the interplay among physical conditions, ecological interactions, evolutionary processes, and the historical movements of organisms and land masses as they have combined to affect the distribution of species, with particular attention to the application of biogeographic knowledge to current problems of species loss and conservation. Prereq: Two semesters of introductory biology or physical geography, or consent of the instructor. (Same as BIO 530.)

### **GEO 531 LANDSCAPE ECOLOGY.**

**(3)**

This course explores the field of landscape ecology – the causes, development, importance of ecological processes, and the interactions of dynamic processes over broad spatial scales that can serve as foundation for decision-making and problem solving. Prereq: Six hours of physical geography or biology.

### **GEO 544 HUMAN POPULATION DYNAMICS.**

**(3)**

The study of human population distributions, densities, and growth patterns through analyses of the processes of fertility, mortality and mobility. Topical coverage includes the environmental, social, political, economic, and behavioral impacts on personal action and population change. Emphasis is placed on historic and contemporary meanings and influences of population diversity, with special attention given to issues of gender, race, and class.

## GEO

## Geography

### **GEO 545 TRANSPORTATION GEOGRAPHY.**

**(3)**

This course addresses concepts critical to understanding transport systems. Economic, social and political as well as spatial perspectives to transport matters are emphasized. Problems, issues and trends facing the sector in both the developed and developing world along with appropriate responses are paramount. Topics include the bases and impact of transport, communications, mass transit, Third World cities, regional development, shipping, railway policies, and the dynamics of airline survival. Prereq: GEO 455 or consent of instructor.

### **GEO 546 TOURISM AND RECREATION GEOGRAPHY.**

**(3)**

Tourism is the world's fastest-growing economic sector, creating and transforming places, regions and broader geographies of travel, movement, and investment. The course will examine concepts, models, and theories in the study of tourism and recreation. Selected themes include major travel flows and patterns; economic, environmental, and socio-cultural impacts; mass vs. "new" (e.g., eco-tourism, adventure tourism, extreme tourism) types of tourism; heritage tourism; marketing; place boosterism; tourism and recreation planning; and the politics of tourism. Local, national, and international examples in both developed and developing countries are discussed. Prereq: GEO 152, 172, 455, or consent of instructor.

### **GEO 550 SUSTAINABLE RESOURCE DEVELOPMENT AND ENVIRONMENTAL MANAGEMENT.**

**(3)**

A study of the theories and strategies for environmental management and sustainable development of resources. Topics covered include contemporary environmental degradation and resource use problems, political economy of resource use and environmental change, design and management of sustainable resource development, impact of sustainable development on gender issues and poverty, and environmental accounting. Prereq: GEO 130 or GEO 210 or consent of instructor.

### **GEO 551 JAPANESE MULTINATIONAL CORPORATIONS.**

**(3)**

A study of the giant Japanese multinational corporations in the world economy and their impact on development and environment of selected countries. Topics include: geographical organization of multinational corporate system; their locational decisions; affect of multinationals policies on the environment; and local economy. Prereq: Consent of instructor. (Same as JPN 551.)

### **GEO 560 INDEPENDENT WORK IN GEOGRAPHY.**

**(3)**

Individualized study and/or research intended to provide opportunities for students to explore topics in more depth than is offered in existing courses, or to address topics not covered in existing courses. Students work with a faculty supervisor in defining a specific area of study, appropriate learning objectives, and suitable evaluation criteria. Course format may range from critical reading of selected literatures to innovative research projects. Students should identify and consult with faculty supervisor well in advance of registration for this course. Prereq: Restricted to Geography majors with GPA of 3.0 or above in the department.

### **GEO 565 TOPICS IN GEOGRAPHY.**

**(3)**

Discussion, readings, and papers focusing on relevant topics in geography directed by a staff member having specific competence for the topics under study. Current research developments in particular geographic subfields will be stressed. May be repeated under different subtitles to a maximum of six credits. Prereq: Consent of instructor.

### **GEO 585 AGING AND ENVIRONMENT.**

**(3)**

Explores the elderly person's changing experience of environment. Physiological, psychological and social changes are related to adjustment within urban and rural community environments, special housing for the elderly, and long-term care environments. Prereq: Graduate or advanced undergraduate standing and consent of instructor. (Same as FAM/GRN 585.)

### **GEO 600 INTRODUCTION TO METHODS IN GEOGRAPHY.**

**(3)**

A broad survey of methods and methodological debates of research in human/physical geography. Emphasis on contemporary research examples. Prereq: Graduate standing.

### **#GEO 609 GISCIENCE FUNDAMENTALS.**

**(3)**

This course introduces students to the use of geographic information systems and the science behind their use. Topics include an introduction to types of geographic information and data; the sources, constraints, and uses of data; the techniques for processing and visualizing spatial data and the methodological, epistemological and ontological issues associated with GIScience.



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**GEO**

**Geography**

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**GEO 610 ANALYTICAL METHODS IN GEOGRAPHY. (3)**

An introduction to the application of analytical methods to geographic problem solving. Topics cover sampling theory, probability theory and both parametric and nonparametric statistical techniques. Prereq: STA 570 or equivalent or consent of instructor.

**#GEO 619 REMOTE SENSING FUNDAMENTALS. (3)**

This course covers the use of remote sensing technologies and their application in natural resource management, land use/land cover analysis, city and regional planning and environmental monitoring. This course covers the basic remote sensing principles, the range of space/air borne sensors/data, key techniques for digital image processing, and applications particular related to diverse land surfaces including the built environment, water, soil and vegetation.

**GEO 655 SPECIAL STUDY OF SYSTEMATIC GEOGRAPHY. (3)**

The application of the methods of systematic geography to particular special studies in topical areas, such as conservation, urban areas, climatology, cartography, or others. May be repeated to a maximum of six hours. Prereq: Appropriate 500-level course work in systematic or topical geography (e.g., conservation, urban, climatology, cartography).

**GEO 700 ADVANCED ANALYTICAL METHODS IN GEOGRAPHY. (3)**

A survey of the application of multivariate statistical techniques to geographic problem solving. Prereq: GEO 600 or consent of instructor.

**GEO 702 CONCEPTS IN GEOGRAPHY. (3)**

Contemporary geographic concepts and theories are examined with emphasis on concepts within human geography, especially with reference to the economic, urban, cultural, and population subfields within the discipline. Prereq: Graduate student status.

**GEO 705 ADVANCED GEOGRAPHIC METHODS (Subtitle required). (3)**

In-depth study and application of one or more research methods/techniques (e.g., qualitative methods, ethnography, textual analysis, visual analysis, GIS). Intended to offer M.A. and Ph.D. students advanced methodological specialization in geography. May be repeated to a maximum of six credits under different subtitles. Prereq: GEO 600 or equivalent.

**GEO 706 ADVANCED FIELD STUDIES (Subtitle Required). (1-9)**

Field-based, regionally specific study of selected topics in cultural, environmental, political, social, urban, or economic geography. May be repeated to a maximum of 18 credits with change in field site. Prereq: Consent of instructor.

**GEO 707 DEVELOPMENT OF GEOGRAPHIC THOUGHT. (3)**

An analytical review of the evolution of geographic thought, in terms of concepts, methodologies and scholars, emphasizing the basic literature through a series of topics.

**GEO 708 GEOGRAPHIC INFORMATION SYSTEMS RESEARCH METHODOLOGIES. (3)**

Following a brief overview of GIS, remote sensing, GPS, and other relevant information technologies as information collection, presentation, and analytical aids, this course will consider current developments of geographic information technologies. These include, but are not limited to, field GIS, public participation GIS, participatory information technology, collaborative environments, and spatial decision-making. Discussion of these developments will be complemented by a rigorous examination of theoretical and methodological issues. Prereq: GEO 409G or its equivalent, or consent of instructor.

**#GEO 709 ADVANCED GISCIENCE. (3)**

This course explores advanced applications and topics within GIScience including data mining, scripting, point pattern analysis, data interpolation, geospatial modeling and network analysis and the methodological, epistemological and ontological issues with the classification requirements and analytical capabilities of GIScience. Prereq: GEO 609 or consent of instructor.

**GEO 711 CULTURAL STUDIES AND GEOGRAPHY (Subtitle required). (3)**

Seminar in cultural studies and geography, including, for example, interpretation and analysis of the built environment; space and representation; the political economy of landscape production; regional imagery; media studies; popular culture; the social construction of community; historic preservation; recreation, tourism and society. May be repeated to a maximum of nine credits under different subtitles.

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**GEO**

**Geography**

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**GEO 712 DEVELOPMENT STUDIES AND GEOGRAPHY (Subtitle required). (3)**

Seminar in selected topics in the policies, practices, and processes of development, including, for example, political economy perspectives on development; anti-development and postcolonial theory; economic restructuring and transition economies; gender and development; the relations between development and migration, transportation and tourism; environmental management and sustainable development. May be repeated to a maximum of nine credits under different subtitles.

**GEO 713 ECONOMIC GEOGRAPHY: (Subtitle required). (3)**

A seminar in economic geography, including, for example, global, regional, and local economic restructuring, global financial systems; foreign direct investment and trade; geography of multinational corporations; geography of labor; spaces of production and spaces of consumption; gender and economic space; space-time convergence; information and communications. May be repeated to a maximum of nine credits under different subtitles.

**GEO 714 POLITICAL GEOGRAPHY: (Subtitle required). (3)**

A seminar in political geography, including, for example, electoral systems; state theory; post-Cold War democratization; the geography of revolutionary change; critical geopolitics; political economy of environmental movements; political economy of globalization discourses and practices. May be repeated to a maximum of nine credits under different subtitles.

**GEO 715 GEOGRAPHY AND SOCIAL THEORY (Subtitle required). (3)**

Seminar in geography and social theory, including, for example, theories of human spatiality; marxist, neo-marxist, and post-marxist theory; postmodernism and poststructuralism; feminist theory; actor network theory; identity theory; geographic thought and society; technology and society. May be repeated to a maximum of nine credits under different subtitles.

**GEO 717 URBAN GEOGRAPHY (Subtitle required). (3)**

Seminar in urban geography, including, for example, urban morphology; urban systems; the local state; urban social fragmentation; conflicts over urban growth and development; urban transportation planning; urban historical geography; gender and urban space; race and urban space; urban landscapes. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**GEO 718 TOPICAL SEMINAR IN GEOGRAPHY OF ENVIRONMENT AND RESOURCES (Subtitle required). (3)**

Study of selected topics on agriculture resource allocation, resource conflict, public land policy, natural hazards, environmental management, energy and biogeography. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**#GEO 719 GEOSPATIAL TECHNOLOGIES (Subtitle required). (3)**

A seminar in the social construction of geospatial technologies and the implications of their use. Topics may include crowd-sourcing, privacy and surveillance, open source software, code/space, censorship and control, copyright and locative media usage. May be repeated to a maximum of nine credits under different subtitles.

**GEO 720 REGIONAL STUDIES (Subtitle required). (3)**

Seminar in the study of selected topics in cultural, environmental, political, social, urban or economic geography, set within a regional context. May be repeated with change in regional focus to a maximum of nine credits under different subtitles.

**GEO 721 TOPICAL SEMINAR IN PHYSICAL GEOGRAPHY (Subtitle required). (3)**

Examination of selected topics in geomorphology, hydrology, pedology, biogeography, climatology, and earth system science. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

**GEO 722 SOCIAL GEOGRAPHY (Subtitle required). (3)**

Seminar in social geography, including, for example, race and gender, feminist geography, health care, disease and society; the geography of AIDS; the geography of aging and the life course; poverty and social policy; human behavior in space and time; population and migration studies; spatial structure of social networks; transportation of disadvantaged groups. May be repeated to a maximum of nine credits under different subtitles. Prereq: Consent of instructor.

## GEO

## Geography

### **GEO 731 EARTH SURFACE SYSTEMS.**

**(3)**

A treatment of earth surface systems from the perspective of complex systems theory. The course takes a holistic viewpoint, emphasizing interactions between the atmo-, litho-, hydro-, and biospheres and the manifestations of those signatures in soils, landforms, and ecosystems. Prereq: Consent of instructor.

### **GEO 740 RESEARCH INTERNSHIP (Subtitle required).**

**(1-6)**

To provide students with course credit for faculty supervised internships with governmental and non-governmental organizations. May be repeated to a maximum of nine credits.

### **GEO 741 TEACHING PRACTICUM.**

**(1)**

Introduction to teaching, with particular focus on pedagogical issues in geography courses. Intended to provide students with background sufficient to enable them to assume full responsibility for university and college level courses.

### **GEO 742 PREPARING FUTURE FACULTY IN GEOGRAPHY.**

**(1)**

Introduction to the professoriate, with particular focus on geography within the academy. Intended to provide students with background sufficient to assume responsibility as new faculty members in universities and colleges.

### **GEO 743 RESEARCH PROPOSALS AND GRANT WRITING.**

**(1)**

Introduction to basic geographic research proposal design standards, with particular emphasis on the requirements of granting agencies.

### **GEO 748 MASTER'S THESIS RESEARCH.**

**(0)**

Half-time to full-time work on thesis. May be repeated to a maximum of six semesters. Prereq: All course work toward the degree must be completed.

### **GEO 749 DISSERTATION RESEARCH.**

**(0)**

Half-time to full-time work on dissertation. May be repeated to a maximum of six semesters. Prereq: Registration for two full-time semesters of 769 residence credit following the successful completion of the qualifying exams.

### **GEO 767 DISSERTATION RESIDENCY CREDIT.**

**(2)**

Residency credit for dissertation research after the qualifying examination. Students may register for this course in the semester of the qualifying examination. A minimum of two semesters are required as well as continuous enrollment (Fall and Spring) until the dissertation is completed and defended.

### **GEO 768 RESIDENCE CREDIT FOR THE MASTER'S DEGREE.**

**(1-6)**

May be repeated to a maximum of 12 hours.

### **GEO 769 RESIDENCE CREDIT FOR THE DOCTOR'S DEGREE.**

**(0-12)**

May be repeated indefinitely.

### **GEO 772 SPECIAL RESEARCH PROBLEMS IN GEOGRAPHY.**

**(1-6)**

Open to doctoral candidates who have the necessary training and ability to conduct research on a selected problem. May be repeated to a maximum of 12 credits. Prereq: Approval of the director of graduate studies.