

Geography (GEOG)

GEOG 202 WORLD REGIONAL GEOGRAPHY (3)

This course explores 4-5 world regions from a holistic perspective, examining their economic, political, demographic, cultural and environmental landscapes with considerable historic depth. The course also considers how each region fits within a larger global political and economic system, and how their roles have changed, particularly with globalization. Satisfies GE, category D5 (Contemporary International Perspectives).

GEOG 203 HUMAN GEOGRAPHY (3)

The course introduces students to a spatial perspective of cultural, economic, political, demographic, and environmental processes. We review the deep historical origins of many social processes and examine how they continue to influence our contemporary experience. We also study how these processes change as they move across geographic space and encounter other cultures and places. Satisfies GE, category D2 (World History and Civilization).

GEOG 204 GLOBAL ENVIRONMENTAL SYSTEMS (4)

An integrated study of the physical environment, focusing on the processes and relationships between the four spheres: the atmosphere, biosphere, hydrosphere, and lithosphere. Major topics include global and regional patterns of climate and weather, soils, distribution of plants and animals on earth, and erosional and depositional processes that create landforms on the earth's surface. Also explored are possible links between human activities and changes in climate and vegetation patterns and dominant landform processes. Field trips and hands-on lab exercises included. Satisfies GE, category B3 (Specific Emphasis in Natural Sciences).

GEOG 205 INTRODUCTION TO MAP READING AND INTERPRETATION (1)

The intent of this course is to provide students a background on map projections and reference systems, scale concepts, coordinate systems, a bit of air photo interpretation, and topographic maps. Class time is a mix of lecture and lab work. This course, or its equivalent, is required for entry into Geography 315, 380, 385 and 387.

GEOG 302 WORLD REGIONS IN GLOBAL CONTEXT (4)

Selected regions of the world form the basis of study. Economic development, political problems, man-land relationships and global issues are covered. The course uses geographical methodologies and concepts and is interdisciplinary in its observations of world regions. Satisfies GE, category D5 (Contemporary International Perspectives).

GEOG 314A FIELD EXPERIENCE IN NORTHERN CALIFORNIA (1-2)

Field experience is provided in a variety of areas not usually offered in the regular geography courses. The course titles and contents may vary from semester to semester and may be repeated for credit. Please see the current Schedule of Classes for particular interest areas offered. A fee will be charged for this course. Up to 2 units of GEOG 314A, B and C in total may be counted toward the major.

GEOG 314B FIELD EXPERIENCE IN NORTHERN CALIFORNIA (1-2)

Field experience is provided in a variety of areas not usually offered in the regular geography courses. The course titles and contents may vary from semester to semester and may be repeated for credit. Please see the current Schedule of Classes for particular interest areas offered. A fee will be charged for this course. Up to 2 units of GEOG 314A, B and C in total may be counted toward the major.

GEOG 314C FIELD EXPERIENCE BEYOND NORTHERN CALIFORNIA (2)

Field experience in areas beyond the normal range of GEOG 314A and 314B, including but not limited to attending professional meetings in nearby states. Field Experience outside the United States (2-3). Cultural and physical studies of people and places through travel, observation and interaction, oral and written analysis. Destinations include Central and south American countries. Course contents and locations will vary; may be repeated for credit. Check with instructor regarding destination and cost. Offered during Intersession or Summer Session. Prerequisite: consent of the instructor.

GEOG 314D FIELD EXPERIENCE ABROAD (2-3)

Field Experience outside the United States (2-3). Cultural and physical studies of people and places through travel, observation and interaction, oral and written analysis. Destinations include Central and south American countries. Course contents and locations will vary; may be repeated for credit. Check with instructor regarding destination and cost. Offered during Intersession or Summer Session. Prerequisite: consent of the instructor.

GEOG 315 FIELD METHODS IN GEOGRAPHY (2)

This course provides hands-on experience with field sampling techniques commonly used in biophysical data collection and spatial inquiry. Course topics include sample design, field measurements, statistical data analysis, report writing and the use of field equipment. Field work will be conducted mainly in the Fairfield Osborn Preserve and surrounding area. Data collected from vegetation sampling, soil descriptions, microclimate measurements, and geomorphologic observations will be used to interpret the natural and anthropogenic landscape. Throughout the course, students will work with Global Positioning System (GPS) units to accurately locate their field samples on the Earth, allowing for subsequent spatial analysis within a Geographic Information System (GIS). Prerequisites: Math 165 and GEOG 205, no exception but can be taken concurrently. Laboratory fee may be charged; see current Schedule of Classes.

GEOG 320 GEOPOLITICS (4)

In this course we dig deep into the field of geopolitics, the struggle for control over territory, transportation corridors, and natural resources. We analyze the origin of the discipline, its historical development, and key contemporary issues, including the Iraq War, the U.S. missile defense shield and the expansion of NATO, the promotion of democracy as a security strategy, Iranian nuclear ambitions, and Chinese military expansion. We will also examine the upsurge of nationalism since the end of the Cold War, and examine ethno-national rebellion from multiple perspectives, including the failure of nation-building, the failure of economic development, and competition over scarce natural resources.

GEOG 322 LIBERATION ECOLOGIES: GLOBALIZATION, ENVIRONMENTAL, AND SOCIAL MOVEMENTS (4)

This course examines some of the ways specific places and people have promoted, encountered, and negotiated the projects of development and globalization. We begin with a critical examination of 'development' and 'globalization,' and a public narrative that has obscured their origins, intentions, and operations. We will use case studies of specific places where development and globalization have motivated resistance; often leading to new identity-based social movements. We will examine cases related to environmental degradation, land dispossession, gender and justice, and personal and community security. The course has a global perspective which includes, but is not limited to cases from the Third World. The class often enlists political ecology and political economy perspectives in our analysis.

GEOG 330 HISTORICAL GEOGRAPHY OF NORTH AMERICA (4)

A study of the settlement history of North America and of the changing concepts of man-environment relationships in the chronology of the Europeanization of the American landscape. Investigations into where and why people settled as they did, and the origins of the economic and spatial relationships that constitute the present American scene will be the focus of the course.

GEOG 331 GEOGRAPHY OF WINE (3)

California's wine industry in perspective, with a brief look at wine origins and world production. An examination of the various wine-growing regions of California. Included are discussions of climate, soil, wine history, grape-growing and wine making. Guest speakers who are experts in enology and viticulture will be featured.

GEOG 335 GLOBAL FOOD SYSTEMS: SCARCITY AND SUSTAINABILITY (4)

This course explores the development of agriculture from its origins to its modern forms. It discusses the historical development and current structure of five agricultural systems: small and large corporate farms in the development of the world, as well as traditional peasant production systems, plantations and green revolution forms in the developing world. It then considers issues such as world hunger, food aid, global commodity trade, and the affect of biotechnology in both the developed and developing world.

GEOG 338 SOCIAL GEOGRAPHY (3)

Studies aspects of demography, migration and the spatial dimension of social organization. Included in the course are the spatial perspectives of social well-being, poverty, crime and ethnicity. The spatial structure of human settlement, as well as political, religious and social values will be discussed. Satisfies upper-division GE, category E (Integrated Person).

GEOG 340 CONSERVATION OF NATURAL RESOURCES (4)

This class explores the use and management of natural resources. Each year, it focuses on a different set of renewable and non-renewable resources, such as water, oil, diamonds, rangeland, and others. It addresses topics such as distribution, scarcity, substitution, access and use-rights, resource cartels, regulation and sustainability. It also looks at how these issues are changing under globalization and the rise of transnational corporations.

GEOG 345 TOURISM GEOGRAPHIES (4)

Tourism is an essentially geographic activity. For tourists and the toured, it involves learning about and anticipating a 'different' place. For host communities, tourists increase foreign contact and generate nearly 100 million jobs. And while the process is similar everywhere (anticipate, travel, experience the place and people, and return), each place is affected differently. With that concern with difference at the front, the class will explore the western history of tourism, different types of tourism, cultural representations of destinations, the affects of tourism on specific places and people (identity, cultural, economic, and environmental), and the political economy of tourism as a development strategy.

GEOG 350 URBAN GEOGRAPHY (4)

A consideration of urban origins, the diffusion of the city, and modern-day inter- and intracity phenomena. Topics to be discussed include urbanization, comparative urban forms, urban functional organization, land use, distribution of cities and their territories, and urban problems - pollution, housing and open space.

GEOG 360 GEOMORPHOLOGY (4)

Lecture 3 hours; laboratory, 3 hours. Explores the relationships between surface processes such as weathering, mass movements, running water, wind, waves and glacial ice, and the landforms these processes create. The course looks at geomorphic systems and the role of tectonics and climate in changing the balance of these systems. Actual research projects are presented to demonstrate geomorphic approaches to environmental questions. Students are exposed to research methods in the field and lab. Field trips and field reports, use of maps, and hands-on labs are included. A fee will be charged for this course. Prerequisites: GEOG 204, GEOL 102, or consent of instructor.

GEOG 365 BIOGEOGRAPHY AND LANDSCAPE ECOLOGY (4)

Biogeography is the study of plant and animal distributions at local to global spatial scales. This course seeks to understand the physical and biological processes that determine these patterns through time, as well as help design management strategies for conserving our planet's biological diversity. This is thus a highly integrative field of inquiry, pulling on concepts, theories and data from general ecology, landscape ecology, evolutionary biology, geology, and physical and human geography. Field trips consider the biogeography of plants and animals in the local anthropogenic landscape. Prerequisite: BIOL 115, 121, 122, or consent of instructor.

GEOG 370 WEATHER AND CLIMATE (4)

An exploration of the atmosphere, how it differs from place to place and time to time. The role of radiation, temperature, humidity, evaporation, cloudiness, precipitation and surface factors (topography, exposure and altitude) in differentiating world climates. Climate's influence on man physically and culturally, in history and prehistory. Climate change, drought and flood, and solar radiation are among the topics investigated in detail. Prerequisite: GEOG 204 or consent of instructor.

GEOG 372 GLOBAL CLIMATE CHANGE: PAST, PRESENT AND FUTURE (4)

An advanced course focusing on evidence of climate change in the past and potential climate change in the future. Present research methods used to investigate past climate and project possible climatic trends will be studied. The range of theories regarding past, present and future climate, and the response of the environment to such changes will be explored in detail. Prerequisite: GEOG 204 or consent of instructor.

GEOG 375 NATURAL HAZARDS (4)

Natural hazards do not exist alone, but in reference to people. This course provides a survey of natural hazards in relation to human populations and activities around the world. The focus is on natural disasters generated by weather, climate, geomorphic, and biogeographical events and processes. Students study natural occurrences such as drought, severe weather, hurricanes and tornadoes, as well as fires and air pollution events. We also look at landslides, floods, volcanic eruptions, tsunamis, earthquakes, and disease dispersals such as ebola, and bird flu. Hazards related to global climate change are also explored. Basic concepts regarding risk assessment, hazard perception, population change, and impact on the built environment are studied. Prerequisite: GEOG 204 or consent of instructor.

GEOG 380 REMOTE SENSING AND IMAGE PROCESSING (4)

Lecture, 3 hours; laboratory, 3 hours. In this class, students learn how to create land-cover maps from satellite imagery. Raw satellite images are imported into computer software programs, preprocessed for radiometric and geometric corrections, enhanced for better interpretation, and finally classified into land cover maps using various techniques. These land cover maps are then assessed for accuracy through field ground truthing using geographic positioning systems. Students make land-cover maps of Sonoma county and use these to monitor changing land-use and cover patterns. Students utilize various software programs, including IDRISI and ERDAS. The class incorporates hands on computer labs, field trips, and an independent project. Prerequisites: GEOG 205, no exception but can be taken concurrently. Laboratory fee may be charged; see current Schedule of Classes.

GEOG 385 CARTOGRAPHIC VISUALIZATION (3-4)

Lecture, 2 hours; laboratory, 3 hours. Map and graphic methods in geography: history, design, theory and construction. Topics include selection of map projections, use of scales, generalization, data input and processing, color, visualization of spatial data, and map production. Emphasis is placed on effective communication through graphic design. Covers the increasing role of geographic information systems (GIS) in cartography. Also examines the collection of geographic data, such as with global positioning systems (GPS). Exercises guide students through increasingly complex methods of data collection and cartographic construction. Prerequisite: GEOG 205, no exception but can be taken concurrently. Laboratory fee may be charged; see current Schedule of Classes.

GEOG 387 GEOGRAPHIC INFORMATION SYSTEMS (4)

Geographic information system (GIS) technologies provide researchers and policy makers with a powerful analytical framework for making decisions and predictions. As with any technology, the appropriate use of GIS depends greatly on the knowledge and skills of the user. This course addresses the scientific and technical aspects of working with geographical data, so that GIS users understand the general principles, opportunities, and pitfalls of recording, collecting, storing, retrieving, analyzing, and presenting spatial information. Both fundamental concepts and "hands on" experience with state-of-the-art software are incorporated through readings, lecture discussion and laboratory assignments. The first half of the course focuses on the "nuts and bolts" of how a GIS works, while the second half concentrates on methods for spatial analysis and modeling. Prerequisite: CS 101 or basic competency with Microsoft operating system and Office applications, and GEOG 205 with no exception but can be taken concurrently. Laboratory fee may be charged; see current Schedule of Classes.

GEOG 390 GEOGRAPHY OF CALIFORNIA (3)

California as a state and as a region is in many ways unique. This course examines both the singular physical and human aspects of the State, from its unusual geologic history, climate, and vegetation, through its earliest inhabitants, to its present day diverse population and trend-setting economic, political, and cultural atmosphere. Issues discussed include changing populations and regional differences, evolving urban areas, water resources, agriculture, and forestry.

GEOG 392 LATIN AMERICAN CULTURE AND ENVIRONMENT (4)

A consideration of topics of special importance to Latin America, including population growth, urbanization and economic development. Specific countries will also be examined in detail, with an emphasis on settlement patterns and environmental characteristics.

GEOG 393 SOUTH ASIA (4)

This course covers four broad topics in South Asia: (1) geopolitics, including foreign policy objectives of key states in the region, and competition for oil & gas; (2) the prospects for democracy in the region, with attention to Maoist rebellions in Nepal and India, tribal unrest and Islamist politics in Afghanistan and Pakistan, Hindu nationalism in India, the civil war in Sri Lanka, and the prospects for democratic reform in post-conflict Nepal; (3) economic development and stagnation, including the success of the high tech sector and the continuing poverty of agricultural and industry laborers; and (4) human-environment relations, including land degradation, water shortage, and environmental protest movements.

GEOG 394 AFRICA SOUTH OF THE SAHARA (4)

Students explore various historical and contemporary processes that have created Africa's diverse and complex geography. The course begins with a historical survey of the continent, starting with its great civilizations and continuing through its experiences through colonialism, independence, the cold war, and globalization. This section of the class examines how these major events have played out throughout the different regions of Africa, south of the Sahara. The class then turns directly to thematic issues that are central to a human-geographic perspective of the continent: population, rural/urban dynamics, education and health issues, and human-environment interactions including agricultural systems and conservation issues. Finally, with a deeper understanding of the region, the course addresses present-day political hot spots of post-cold war Africa, and the critical development problems plaguing the continent.

GEOG 396 SPECIAL TOPICS IN AREA STUDIES (4)

This course will cover regions not regularly taught in the department. Regions may include areas such as The Middle East, East Asia, Southeast Asia, Arid lands, The Pacific Rim/World or underdeveloped lands. Offerings will vary depending on visiting faculty, experimental courses, and educational needs.

GEOG 487 ADVANCED GEOGRAPHIC INFO SYSTEMS (3)

This course provides greater depth in the foundations of geographic information systems (GIS). Readings, group discussions, and lectures delve into database development issues, advanced spatial analysis, and GIS research applications. Students also complete a semester-long research project using GIS technologies. Students learn to identify problems that can benefit from a spatial-analytical approach and determine the appropriate data for pursuing such a project. Students build their own GIS database, mastering skills such digitizing and attributing spatial data; importing data from the internet; collecting field data for GIS integration; and converting GIS layers into a single coordinate system and map projection. Finally, students learn to choose and implement the most appropriate spatial analysis method for their research, and then interpret the results. Prerequisite: GEOG 387 or consent of instructor.

GEOG 490 SENIOR SEMINAR (3-4)

The focus of the seminar may vary, but the class will expose students to the nature of the discipline of geography through readings of scholarly literature. The class will emphasize a student research project and will include classroom discussions during the course of the semester.

GEOG 495 SPECIAL STUDIES (1-4)

Special studies may be arranged to cover an area of interest not covered in the courses otherwise offered by the department. Prerequisites: completed special studies form and consent of the instructor.

GEOG 496 SELECTED TOPICS IN GEOGRAPHY (2-5)

A single subject or set of related subjects not ordinarily covered by the geography department. Offerings will vary depending on visiting faculty, experimental courses and educational needs.

GEOG 499A GEOGRAPHY INTERNSHIP PROGRAM (2-5)

Students in the intern program will be given the opportunity to gain practical experience using geographical skills by working in a variety of county and city agencies in the Sonoma State University service area. Credit is given for three hours per unit work per week as arranged with the intern coordinator. Must have junior- or senior-level class standing, and a minimum GPA of 2.75, or permission from the Department Chair. GEOG 499A is offered in Fall; GEOG 499B is offered in Spring.

GEOG 499B GEOGRAPHY INTERNSHIP PROGRAM (2-5)

Students in the intern program will be given the opportunity to gain practical experience using geographical skills by working in a variety of county and city agencies in the Sonoma State University service area. Credit is given for three hours per unit work per week as arranged with the intern coordinator. Must have junior- or senior-level class standing, and a minimum GPA of 2.75, or permission from the Department Chair. GEOG 499A is offered in Fall; GEOG 499B is offered in Spring.

GEOG 595 GRADUATE SPECIAL STUDIES (1-6)

Advanced research and writing. Students work under close supervision of faculty members. Subject matter variable. May be repeated for credit. Prerequisites: consent of instructor and completed special studies form.

Geology (GEOL)

GEOL 102 OUR DYNAMIC EARTH: INTRODUCTION TO GEOLOGY (3)

Lecture, 2 hours; laboratory, 3 hours. A study of the minerals, rocks and landforms that make up our Earth in the context of the dynamic forces that form them. Emphasis on local geology, including earthquakes and other environmental aspects. Laboratory study of minerals, rocks and maps. Required one-day weekend field trip. Fee required. Satisfies GE, category B1 (Physical Sciences) and GE laboratory requirements.

GEOL 105 THE AGE OF DINOSAURS (3)

Lecture, 3 hours. The life and death of dinosaurs as evidenced by the fossil record will be studied to show how geology and biology combine in the discipline of paleontology. The evolution of dinosaurs over a 150 million- year time span sets the stage to investigate several interesting and ongoing controversies surrounding dinosaurs, including: why dinosaurs became extinct, the metabolism of dinosaurs, and the relationship between birds and dinosaurs. Satisfies GE, category B1 (Physical Sciences).

GEOL 107 INTRODUCTION TO EARTH SCIENCE (3)

This course studies the operation of the Earth system and its solar system home. It introduces the fundamental aspects of 4 major areas: astronomy; geology, including plate tectonics, and the planetary history of the Earth and its moon; physical oceanography; and weather and climate. There is no lab. The course is designed to prepare students for the earth science and astronomy parts of the SET examination. The prerequisite is that a student must be enrolled in the AMCS, LIBS, CALS, or ENSP credential program.

GEOL 110 NATURAL DISASTERS (3)

A course to examine the interaction between natural processes and human activities and the often costly and fatal results. Course emphasis will be on the principles underlying natural disasters such as earthquakes, volcanic eruptions, landslides, floods, severe weather, coastal processes, asteroid impacts, fires, great dyings, and population growth. Many examples will be drawn from the northern California area. Course content may vary with instructor. Satisfies GE, category B3 (Physical Sciences, Specific Emphasis).

GEOL 120 REGIONAL FIELD GEOLOGY (3)

Lecture, 1 hour. The heart of geology is in the field. The course is an examination of rocks, minerals and landforms, and the processes that form them. This course includes a 10-day field trip taken during spring vacation, or multiple weekend field trips, where the natural world becomes our classroom. Prerequisites or co-requisite: any 100 level geology course or instructor consent; students must be in good physical condition.

GEOL 205 MINERALOGY (4)

Lecture, 3 hours; laboratory, 3 hours. Principles of crystal chemistry, crystallography, properties, and origin of common rock-forming minerals. Laboratory sessions emphasize hand specimen and petrographic mineral identification characterization. Prerequisites: completion of or concurrent enrollment in GEOL 303 and CHEM 115A.

GEOL 205A MINERALOGY, OPTICS (2)

Supplementary course to be held concurrently with GEOL 205. For students who already have taken a mineralogy course but have not gained sufficient experience in optical mineralogy. Consists of the lecture and laboratory portion of GEOL 205 relevant to optical mineralogy. Pre/co-requisite: GEOL 303 and CHEM 115A.