GEOPHYSICAL SCIENCE (GEO)

GEO193. GEO Selected Topic. 1-12 Credits.
Selected topics courses are regularly scheduled courses that focus on a particular topic of interest. Descriptions are printed in the Schedule of Classes each semester. Selected topics courses may be used as elective credit and may be repeated for credit, provided that the topic of the course changes.

GEO201. Human Geography. 3 Credits.
An analysis of the distribution and character of interrelationships between humankind and the environment, including such topics as origin and dispersal of technology, livelihood patterns, and urbanization.

GEO202. Physical Geography. 3 Credits.
Selected aspects of the physical environment and their relationships to humankind. Emphasis on study of maps, weather, and regional climatology.

GEO203. People-Environments Geography. 3 Credits.
Ecosystem and social processes involved in people-environment relations in different places and times, emphasizing social justice. Natural and social science approaches to understand causes and consequence of human-induced environmental degradation so as to formulate solutions.

GEO211. World Geography. 3 Credits.
"World Geography" introduces students to the field of regional geography through the study of distinctive features of the world's regions and countries, as well as the interaction of diverse groups in the process of global integration. We will address a range of themes, including economic development, population growth, migration, resource use, environmental issues, geopolitical issues and urbanization. Both Western and non-Western (developed and developing) regions will be included.

GEO212. Cities of the World. 3 Credits.
Global urbanization patterns at the world-regions scale using concepts from urban, economic, political, cultural and environmental geography. Key concepts include site & situation, settlement history, urban morphology, urban functional regions, and contemporary urban challenges.

GEO213. Economic Geography. 3 Credits.
Geographical factors and interpretive theories related to patterns of population density, economic development, international trade, and economic production.

GEO214. Introduction to Urban and Regional Planning. 3 Credits.
Broad range of contemporary issues in urban/regional planning. Topics include the history of spatial planning, legal underpinnings, theories of urban development, and emerging issues facing practicing planners. Case studies from the U.S. and abroad will complement the theoretical content.

GEO231. Geography of Hazards. 3 Credits.
Explores hazardous physical processes in the atmosphere and lithosphere, both natural and human induced. Introduces spatial analysis of hazards, and the science of risk assessment.

GEO241. Spatial Statistics. 3 Credits.
Introduces the benefits and limitations of quantitative methods to analyze geographical problems. Covers traditional descriptive and inferential statistics but with a specifically spatial approach, including shape, point pattern and cluster analysis as well as spatial autocorrelation.

GEO251. Current Issues in Latin American Geography. 3 Credits.
Introduction to selected geographic issues of Latin America such as migration, environmental impacts of agriculture and development, urban problems, and the roots of indigenous movements. Principles are introduced to help critically analyze problems and solutions.

GEO293. Geography Selected Topic. 3-12 Credits.
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GEO295. Indep Study Geography. 1-12 Credits.

GEO314. Issues in Urban Planning. 3 Credits.
Key concepts include planning theory, quantitative techniques employed by professional planners, infrastructure planning, decision-making at multiple scales (individuals and institutions), consideration of trade-offs in decision-making, and planning processes.

GEO315. Quantitative Analysis in Urban Planning. 3 Credits.
Content includes numerical techniques applied to various aspects of Urban Planning. Key concepts include Correlation/regression, urban transportation modeling, data collection principals, Fair Share (housing) calculations, economic analysis of development proposals, financial mechanisms, and Demographic Modeling.

GEO321. Geography of Soils. 3 Credits.
Study of geographical distribution of soils and their relationship to ecosystems, with emphasis on the interconnections between social relations, human impact, and soil quality. Possible field trip (s).

GEO322. Geography of Water Resources. 3 Credits.
Students will demonstrate understanding of occurrence, analysis, management, and conservation of water resources in the U.S. and around the world. Students will further demonstrate knowledge of the impacts of changing water resources on environment, economy, and society.

GEO331. Gender and Environment. 3 Credits.
The gendered nature of environment degradation;gender-sensitive theories and methodologies for the study of and solution to environmental problems.

GEO332. Geography, Health and Environment. 3 Credits.
Examination of the relationship between location, environmental conditions, and human well-being. The goal is a realistic view of the role of environment within a holistic concept of health.

GEO333. Advanced People-Environments Geography. 3 Credits.
Advanced level study of ecosystem and social processes involved in people-environment relations, emphasizing social justice. Theories and methods to understand causes and consequence of human-induced environmental degradation so as to formulate solutions. Field trip (s) may be required. Completion of introductory course and/or other coursework in ecology, earth science, or environmental science highly recommended.

GEO341. Introduction to Geographic Information Systems. 4 Credits.
An introductory overview of geographic information systems (GIS), a major technological innovation in the analysis and presentation of spatial data. Topics include theoretical and practical aspects of spatial data collection, storage, analysis, and display. Computer lab projects providing practical experience with popular GIS hardware and software are an essential part of this course.
GEO342. Cartography. 4 Credits.
History and principles of map-making, projections, scales, symbols, design, and mapping systems in relationship to effective presentation and communication of geographic data and analysis of spatial relationships. Computer applications are included. Lecture and laboratory.

GEO343. Remote Sensing. 4 Credits.
Principles, methods, techniques of remote sensing - including air photo interpretation and photogrammetry; their use in identification, analysis, and management of physical, cultural, and economic resources, application to geography and related physical and social sciences. Computer applications are included.

GEO351. Geography of the United States and Canada. 3 Credits.
Geographical patterns of the natural, economic, social and political features as they interrelate to form the regions of North America.

GEO352. Geography Of Europe. 3 Credits.

GEO353. Understanding Latin America. 3 Credits.
Synthesis of the physical, cultural, and economic realities in Latin America.

GEO354. Geography of Asia. 3 Credits.
This course examines the physical and cultural geography of China, Japan, Korea and Vietnam. Using case studies, the course focuses on rural and urban landscapes, natural resource distributions, population dynamics, economic development, and natural disasters.

GEO355. "Emerging" China and Critical Geopolitics. 3 Credits.
In this course, we will explore China's transition to a 'Socialist Market Economy' and what that means for China and the world. Our work throughout the course will be to investigate the significant processes and factors that drive China's urban growth, economic reforms, environmental interventions, as well as its geopolitical positioning.

GEO372. GPS Practicum. 1 Credit.
Overview of the components and use of the global positioning system (GPS). Use of survey-grade receivers and post-processing software to collect and prepare digital spatial data for use in a geographic information system (GIS).

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GEO411. Political Geography. 3 Credits.
Analysis of the causes and consequences of the geographical patterns of political phenomena, with emphasis on nations and states. General principles will be illustrated by case studies.

GEO412. Geography of Socialism. 3 Credits.
Diverse origins and meanings of socialism in geographical context. Emphasis on social movements, perspectives, and struggles. Selections from Africa, the Americas, Asia, Europe, Oceania. Comparisons of contemporary and past socialist currents, including anarchists, communists/Marxist, feminist, eco-socialist.

GEO441. Geographic Information Systems Applications. 4 Credits.
An intermediate-level exploration of theoretical and practical issues arising in the use of typical geographic information systems (GIS) applications. Representative examples of a variety of GIS applications will be analyzed. Computer lab projects providing practical experience with popular GIS hardware and software are an essential part of this course.

GEO480. Internship in Geography (3,6, or 9) . 3-12 Credits.
Opportunity for students to gain experience related to the geography curriculum. Work as an intern in one of the agencies cooperating in this program. These governmental and private agencies are involved in planning and environmental concerns. Content of the course varies with the interest of the student and the nature and needs of the cooperating agency. Students must have a GPA of 2.75 or higher to take this course.

GEO481. Internship Seminar . 1 Credit.
Academic complement to GEO480. Interns and faculty meet to relate concepts of academic discipline to internship experience.

GEO493. Geography Selected Topic. 3-12 Credits.
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GEO494. Fieldwork In Geography. 1-12 Credits.

GEO495. Indep Study Geography. 1-12 Credits.

GEO411. Political Geography. 3 Credits.
Analysis of the causes and consequences of the geographical patterns of political phenomena, with emphasis on nations and states. General principles will be illustrated by case studies.

GEO412. Geography of Socialism. 3 Credits.
Diverse origins and meanings of socialism in geographical context. Emphasis on social movements, perspectives, and struggles. Selections from Africa, the Americas, Asia, Europe, Oceania. Comparisons of contemporary and past socialist currents, including anarchists, communists/Marxist, feminist, eco-socialist.

GEO431. Natural Resources: Utilization and Management. 3 Credits.
Distribution, use, and management of natural resources as they affect economic development in both the historical and present sense.