GEO: Geography: Systematic Courses

Courses

GEO 2905 Directed Study
College of Sci and Engineering, Department of Earth & Environmental Sciences

1-12 sh (may be repeated indefinitely for credit)

GEO 3210 Geomorphology
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)
Prerequisite: (GEO 1200/L OR GEO 1200C OR GLY 2010/L OR GLY 2010C OR ESC 2000/L OR ESC 2000C) AND (EVR 2920*)

Description of landforms and landscapes on the Earth's surface, along with a systematic analysis of the geomorphic processes that produce them. Emphasis is placed on the climatic and geologic controls on landscape evolution.

GEO 3210L Geomorphology Lab
College of Sci and Engineering, Department of Earth & Environmental Sciences

1 sh (may not be repeated for credit)
Prerequisite: GEO 3210*

A one-credit, practical laboratory course, reinforcing concepts from an associated lecture section (GEO 3210), and requiring both quantitative and conceptual analyses of geomorphic data to draw conclusions about real-world geomorphic processes and landform/landscape evolution.

GEO 3372 Conservation of Natural Resources
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

Nature and extent of mineral, soil, water, forest and wildlife resources and their conservation, with particular emphasis on the United States against a general background of world resources. Conservation philosophies, practices and their geographic bases. Occasional field trips may be arranged.

GEO 3421 Cultural Geography
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

Sociocultural distributions with emphases on social regions, spatial behavior and cultural landscapes. Topics include population, spatial diffusion and processes, race, language, religion, political organization, methods of livelihood, settlement patterns, and the regional distribution of the elements over the earth. Meets Multicultural Requirement.

GEO 3471 Geography of World Affairs
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

Geographic study of world events; environmental influences on events; impact of events on environment; ramifications of events on social, economic, political, physical and psychological worlds. Credit cannot be received for both GEO 3471 and GEO 3470. Meets Multicultural Requirement.

GEO 3905 Directed Study
College of Sci and Engineering, Department of Earth & Environmental Sciences

1-12 sh (may be repeated indefinitely for credit)

GEO 4004 Environmental Science, Politics and Policy
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)
Prerequisite: ENC 1102

This course examines the role of science in the environmental policy-making process - both locally and internationally. It investigates the methods scientists use to learn about the natural world; the way scientific knowledge accumulates and disseminates; the treatment of science by advocates, dissenters, and the media; and the role of science in decision making about environmental issues.

GEO 4005 Environmental Management & Planning
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)
Prerequisite: EVR 2920

This course will cover important and substantive issues, concepts, and tools in the field of environmental planning and management. It will provide insight into the many actors (e.g., individuals, organizations, agencies, and levels of government) involved in environmental management and planning - both locally and internationally, and try to identify ways in which we are responsibly managing (or not) our physical environment. At the end of the course, you will have a better understanding of how the field of environmental management and planning has evolved, the issues that environmental managers and planners deal with, and the type of work environmental managers and planners engage in. Offered concurrently with GEO 5007. Graduate students will be assigned additional work.

GEO 4164 Geostatistics
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)
Prerequisite: GIS 4043/L AND STA 2023

Course reviews basic sampling and experimental design skills as a means to reintroduce data analysis using standard univariate techniques in the geosciences. Introduces spatial, multivariate and time series techniques for both pattern exploration and hypothesis testing. Offered concurrently with GEO 5165; graduate students will be assigned additional work. Material and Supply Fee will be assessed.

GEO 4221 Coastal Morphology and Processes
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)
Prerequisite: (GEO 1200/L OR GEO 1200C OR GLY 2010/L OR GLY 2010C OR ESC 2000/L OR ESC 2000C) AND (GEO 3210/L OR GEO 3210C)
Co-requisite: GEO 4221L

An introduction to the world's coastal landforms, with emphasis upon dominant processes (especially waves, tides, and currents), geographical variations, human impacts and policies, and environmental concerns. Offered concurrently with GEO 5225; graduate students will be assigned additional work.

GEO 4221L Coastal Morphology and Processes Laboratory
College of Sci and Engineering, Department of Earth & Environmental Sciences

1 sh (may not be repeated for credit)
Prerequisite: GEO 3210/L
Co-requisite: GEO 4221

Laboratory correlating with GEO 4221. Offered concurrently with GEO 5225L; graduate students will be assigned additional work.

GEO 4250 Weather and Climate
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)
Prerequisite: GEO 3210*/L*

Nature of individual weather elements, their measurements, and analysis over time and space. Analysis of global climate emphasizing control factors, resulting areal patterns and climatic classifications. Emphasis upon North American weather and climate patterns, micro climate, climate change, modification and related problems.

GEO 4250L Weather and Climate Lab
College of Sci and Engineering, Department of Earth & Environmental Sciences

1 sh (may not be repeated for credit)
Prerequisite: GEO 4250*

A one-credit, practical laboratory course, reinforcing concepts from an associated lecture section (GEO 3250), and requiring both quantitative and conceptual analyses of weather data and weather maps to draw conclusions about real-world weather and/or climate outcomes.

GEO 4251 Advanced Climatology and Climate Change
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)
Prerequisite: GEO 4250

A survey of Earth's climate during the past several millennia. Explores current scientific literature on global climate as well as paleoclimatic research. Changes in global climate prior to modern record-keeping (pre-1895) are compared and contrasted with observed contemporary global climate change. Offered concurrently with GEO 5256 Advanced Climatology and Climate Change; graduate students will be assigned additional work.

GEO 4260 Geography of Soils
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)
Prerequisite: ((CHM 2046/L AND GEO 3210 AND GEO 4260L*)) AND (GEO 1200/L OR GLY 2010/L OR ESC 2000/L)

Nature, properties and distribution of soils and their relationship to the influence of vegetation, climate, landforms, and human activity. Understanding how soils form and how and why they vary horizontally across the landscape and vertically with depth. Emphasis upon North American patterns. Occasional field trips. It is recommended that GEO 4260L be taken concurrently.

GEO 4260L Geography of Soils Laboratory
College of Sci and Engineering, Department of Earth & Environmental Sciences

1 sh (may not be repeated for credit)
Prerequisite: GEO 4260*

Deals with the nature, properties and distribution of soils and their relationship to the influence of vegetation, climate, landforms, and human activity. Intended to be fundamental soil science lab that provides hands-on experience. Field trips required. Material and supply fee will be assessed.

GEO 4280 Basic Hydrology
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)
Prerequisite: CHM 2046/L AND GEO 3210*/L*

Hydrologic cycle with emphasis upon surface water components. Particular topics include: precipitation, evapotranspiration, water budget, stream flow, and underground water sources and their measurements. Material and supply fee will be assessed for corresponding lab. Offered concurrently with GEO5289; graduate students will be assigned additional work.

GEO 4280L Basic Hydrology Lab
College of Sci and Engineering, Department of Earth & Environmental Sciences

1 sh (may not be repeated for credit)
Co-requisite: GEO 4280

Corresponding Lab for Basic Hydrology.

GEO 4332 Senior Seminar
College of Sci and Engineering, Department of Earth & Environmental Sciences

1 sh (may not be repeated for credit)
Prerequisite: EVR 4941 OR EVR 4970 OR EVR 4039 OR ESE 4940

This is a course designed to provide students with skills in researching topics in the field of environmental science and making presentations to their peers along with making post-graduation professional plans. The course consists of a combination of techniques workshops, learning to conduct and present research material, content lectures and guest lectures, discussion, and student presentations. The intent of the course is to prepare upper-level undergraduates for post-graduate study and/or the job market by teaching them research, presentation, and evaluation skills. Senior level standing is required.

GEO 4357 Environment and Economy
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

This course will cover important concepts to understanding the relationship between the environment and economy and how such an understanding can influence environmental action that is economically feasible and economic action that is environmentally supportive. It will provide an introductory insight into the history of thinking that has linked the economy and the environment, the main academic responses to resolve the tensions between the environment and economy, and introduce key topics and tools in understanding and resolving this tension. The course will also focus briefly on how environmental projects are funded in the US, and how to gain funding for such endeavors. Offered concurrently with GEO 5358. Graduate students will be assigned additional work.

GEO 4905 Directed Study
College of Sci and Engineering, Department of Earth & Environmental Sciences

1-12 sh (may be repeated indefinitely for credit)

GEO 5007 Environmental Management and Planning
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

This course will cover important and substantive issues, concepts, and tools in the field of environmental planning and management. It will provide insight into the many actors (e.g., individuals, organizations, agencies, and levels of government) involved in environmental management and planning - both locally and internationally, and try to identify ways in which we are responsibly managing (or not) our physical environment. At the end of the course, you will have a better understanding of how the field of environmental management and planning has evolved, the issues that environmental managers and planners deal with, and the type of work environmental managers and planners engage in. Course discusses ways in which we mediate human-environment interactions in order to promote a sustainable bio-physical and social environment. Offered concurrently with GEO 4005. Graduate students will be assigned additional work.

GEO 5165 Geostatistics
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

Course reviews basic sampling and experimental design skills as a means to reintroduce data analysis using standard univariate techniques in the geosciences. Introduces spatial, multivariate and time series techniques for both pattern exploration and hypothesis testing. Offered concurrently with GEO 4164; graduate students will be assigned additional work. Material and Supply Fee will be assessed.

GEO 5225 Coastal Morphology and Processes
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

This class will focus on investigations into the origin/evolution of coastal landforms and the physical processes responsible for their creation and modification. We will cover the following topics: geomorphic classification of coasts, sediment description and analysis, sea level fluctuation, tides, generation and transformation of waves, wave breaking, nearshore currents, longshore and cross-shore sediment transport, deltas, estuaries, beach and nearshore morphology, barrier island systems, rocky coasts, and the effects of climate change on coastal environments. We will also discuss the human interaction along the coastal zone, coastal engineering methods, and coastal management and legislation policies. Offered concurrently with GEO 4221; graduate will be assigned additional work.

GEO 5225L Coastal Morphology and Processes Laboratory
College of Sci and Engineering, Department of Earth & Environmental Sciences

1 sh (may not be repeated for credit)

Laboratory correlating with GEO 5225 Coastal Morphology and Processes. This class will focus on quantitative investigations of coastal processes and landform development. Intended to be a corresponding lab course with hands-on field activities and reinforcing concepts from the Coastal Morphology and Processes course lectures. Offered concurrently with GEO 4221L graduate students will be assigned additional work. Material and supply fee will be assessed.

GEO 5246 Weather and Climate
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

Nature of individual weather elements, their measurements, and analysis over time and space. Analysis of global climate emphasizing control factors, resulting areal patterns and climatic classifications. Emphasis upon North American weather and climate patterns, micro climate, climate change, modification and related problems.

GEO 5246L Weather and Climate Lab
College of Sci and Engineering, Department of Earth & Environmental Sciences

1 sh (may not be repeated for credit)
Prerequisite: GEO 5246*

A one-credit, practical laboratory course, reinforcing concepts from an associated lecture section, and requiring both quantitative and conceptual analyses of weather data and weather maps to draw conclusions about real-world weather and/or climate outcomes.

GEO 5256 Advanced Climatology and Climate Change
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

A survey of Earth's climate during the past several millennia. Explores current scientific literature on global climate as well as paleoclimatic research. Changes in Global climate prior to modern record-keeping (pre-1895) are compared and contrasted with observed contemporary global climate change. Offered concurrently with GEO 4251 (Advanced Climatology and Climate Change); graduate students will be assigned additional work.

GEO 5261 Geography of Soils
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

Nature, properties and distribution of soils and their relationship to the influence of vegetation, climate, landforms, and human activity. Understanding how soils form and how and why they vary horizontally across the landscape and vertically with depth. Emphasis upon North American patterns. Occasional field trips.

GEO 5262L Geography of Soils Lab
College of Sci and Engineering, Department of Earth & Environmental Sciences

1 sh (may not be repeated for credit)
Prerequisite: GEO 5261*

Deals with the nature, properties and distribution of soils and their relationship to the influence of vegetation, climate, landforms, and human activity. Intended to be fundamental soil science lab that provides hands-on experience. Field trips required. Material and supply fee will be assessed.

GEO 5289 Basic Hydrology
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

This course focuses on the hydrologic cycle, with emphasis on surface water components. Particular topics include: precipitation, evapotranspiration, water budget, stream flow, and underground water sources and their measurements. This course is built on basic concepts established in introductory Earth Science courses, so graduate students should be familiar with those concepts. Please consult with the course instructor for any questions regarding these prerequisite concepts. Material and supply fee will be assessed for corresponding lab. Cross listed with GEO 4280; Graduate Students will be assigned additional work.

GEO 5331 Environmental Science, Politics and Policy
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

This course examines the role of science and politics in the environmental policy-making process - both locally and internationally. It investigates the methods scientists use to learn about the natural world; the way scientific knowledge accumulates and disseminates; the treatment of science by advocates, dissenters, and the media; the role of science in decision making about environmental issues, and how environmental scientists can become better communicators. Offered concurrently with GEO 4004; graduate students will be assigned additional work.

GEO 5358 Environment and Society
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

This course will cover important concepts to understanding the relationship between the environment and economy and how such an understanding can influence environmental action that is economically feasible and economic action that is environmentally supportive. The course will provide an introductory insight into the history of thinking that has linked the economy and the environment, the main academic responses to resolve the tensions between the environment and economy, and introduce key topics and tools in understanding and resolving this tension. The course will also focus on how environmental projects are funded in the US, and how to gain funding for such endeavors. Offered concurrently with GEO 4357. Graduate students will be assigned additional work.

GEO 5905 Directed Study
College of Sci and Engineering, Department of Earth & Environmental Sciences

1-12 sh (may be repeated indefinitely for credit)

GEO 6118 Research Design
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

Introduces non-thesis-track Master's students to the essentials of designing and executing a research project in the environmental sciences using the scientific method. Students will design and complete a research project.

GEO 6905 Directed Study
College of Sci and Engineering, Department of Earth & Environmental Sciences

1-12 sh (may be repeated indefinitely for credit)

GEO 6936 Graduate Seminar
College of Sci and Engineering, Department of Earth & Environmental Sciences

3 sh (may not be repeated for credit)

An overview of the disciplinary evolution of the geosciences, the prevailing paradigms and methodologies, and current and future directions in the field. The scientific method, grant proposals, and research publications will be examined in detail.

* This course may be taken prior to or during the same term.