

GEO: Geography: Systematic Courses

Courses

GEO 1200  Physical Geography  
3 sh (may not be repeated for credit)

Relationship between natural environment and man. Weather, climate, soils, biogeography and land forms. Physical earth treated so that the student gains appreciation of man's place and activities within his/her environment. Material and supply fee will be assessed for corresponding lab. Meets General Education requirement in Natural Sciences.

GEO 1200L  Physical Geography Lab  
1 sh (may not be repeated for credit)  
Prerequisite: GEO 1200*

Corresponding lab for Physical Geography.

GEO 2905  Directed Study  
1-12 sh (may be repeated indefinitely for credit)

GEO 3210  Geomorphology  
3 sh (may not be repeated for credit)  
Prerequisite: GEO 1200/L OR GLY 2010/L OR ESC 2000/L

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  
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  
3 sh (may not be repeated for credit)

Nature and extent of mineral, soil, water 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  
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  
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  
1-12 sh (may be repeated indefinitely for credit)

GEO 4004  Environmental Science, Politics and Policy  
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  
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.

GEO 4164  Geostatistics  
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  
3 sh (may not be repeated for credit)  
Prerequisite: GEO 1200/L OR GLY 2010/L OR ESC 2000/L  
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  
1 sh (may not be repeated for credit)  
Co-requisite: GEO 4221

Laboratory correlating with GEO 4221. Offered concurrently with GEO 5225L; graduate students will be assigned additional work. Material and supply fees will be assessed.
GEO 4250   Weather and Climate
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. Material
and supply fee will be assessed for corresponding lab.

GEO 4250L   Weather and Climate Lab
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
3 sh (may not be repeated for credit)
Prerequisite: GEO 3250
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
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
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
3 sh (may not be repeated for credit)
Prerequisite: CHM 2046/L AND GEO 3210*/L*
Co-requisite: GEO 4280L
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
1 sh (may not be repeated for credit)
Prerequisite: GEO 4280*
Co-requisite: GEO 4280
Corresponding Lab for Basic Hydrology.

GEO 4332   Senior Seminar
1 sh (may not be repeated for credit)
Prerequisite: EVR 4941 OR EVR 4970 OR EVR 4039
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 4333   Seminar in Environmental Issues
3 sh (may not be repeated for credit)
Examines a wide spectrum of current topics that are concerned with
or affect the interaction between humans and the environment. Policy
issues, economic processes, and natural phenomena will all be
considered as each topic is analyzed and solutions to environmental
problems are sought. Offered concurrently with GEO 5930; graduate
students will be assigned additional work.

GEO 4357   Environment and Economy
3 sh (may not be repeated for credit)
Prerequisite: ESC 2000/L
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.

GEO 4376   Landscape Ecology
3 sh (may not be repeated for credit)
Prerequisite: BOT 2010/L OR GEO 1200/L OR GLY 2010/L OR
ESC 2000/L
Co-requisite: GEO 4376L
A geographical perspective on the relationship between landscape
pattern and the distribution, dispersal, abundance, and diversity of
plant species. Course begins with a general consideration of terrestrial
plant geography and then moves towards providing an understanding
of landscape ecology. Offered concurrently with GEO 5378; graduate
students will be assigned additional work.
GEO 4376L Landscape Ecology Lab
1 sh (may not be repeated for credit)
Co-requisite: GEO 4376
Laboratory section offered with existing Landscape Biogeography course. Lab investigates spatial patterns and processes in woody species occurrence. Analyzes physical landscape characteristics and disturbance processes leading to woody species presence and patterns. Offered concurrently with GEO 5378L. Graduate students will be assigned additional work.

GEO 4801 Global Agricultural Sustainability
3 sh (may not be repeated for credit)
The world is experiencing increased pressures to increase agriculture production for food and biofuel. Taking a global perspective, this course addresses the major prospects, problems, and practicalities of creating sustainable agriculture systems. This course examines the ecological foundations of sustainable agriculture and takes a whole-systems approach to agricultural management.

GEO 4905 Directed Study
1-12 sh (may be repeated indefinitely for credit)
GEO 5165 Geostatistics
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
3 sh (may not be repeated for credit)
Co-requisite: GEO 5225L
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 4221; graduate will be assigned additional work.

GEO 5225L Coastal Morphology and Processes Laboratory
1 sh (may not be repeated for credit)
Co-requisite: GEO 5225
Laboratory correlating with GEO 5225. Offered concurrently with GEO 4221L; graduate students will be assigned additional work. Material and supply fee will be assessed.

GEO 5256 Advanced Climatology and Climate Change
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 4XX3 (Advance Climatology); graduate students will be assigned additional work.

GEO 5289 Basic Hydrology
3 sh (may not be repeated for credit)
Co-requisite: GEO 5289L
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. Co-requisites: GEO 5289L.

GEO 5289L Basic Hydrology Lab
1 sh (may not be repeated for credit)
Co-requisite: GEO 5289
Hydrologic cycle with emphasis upon 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.

GEO 5378 Landscape Ecology
3 sh (may not be repeated for credit)
Co-requisite: GEO 5378L
A geographical perspective on the relationship between landscape pattern and the distribution, dispersal, abundance, and diversity of plant species. Course begins with a general consideration of terrestrial plant geography and then moves towards providing an understanding of landscape ecology. Offered concurrently with GEO 4376; graduate students will be assigned additional work.

GEO 5378L Landscape Ecology Lab
1 sh (may not be repeated for credit)
Co-requisite: GEO 5378
Laboratory section offered with existing Landscape Ecology course. Lab investigates spatial patterns and processes in woody species occurrence. Analyzes physical landscape characteristics and disturbance processes leading to woody species presence and patterns. Offered concurrently with GEO 4376L (Landscape Ecology Lab); graduate students will be assigned additional work.

GEO 5805 Global Agricultural Sustainability
3 sh (may not be repeated for credit)
Co-requisite: GEO 5805L
The world is experiencing increased pressures to increase agriculture production for food and biofuel. Taking a global perspective, this course addresses the major prospects, problems, and practicalities of creating sustainable agriculture systems. This course examines the ecological foundations of sustainable agriculture and takes a whole-systems approach to agricultural management. Graduate students will be assigned additional work. This course will be offered concurrently with GEO 4801.

GEO 5905 Directed Study
1-12 sh (may be repeated indefinitely for credit)
GEO 5930  Seminar in Environmental Issues
3 sh (may not be repeated for credit)
Examines a wide spectrum of current topics that are concerned with or affect the interaction between humans and the environment. Policy issues, economic processes, and natural phenomena will all be considered as each topic is analyzed and solutions to environmental problems are sought. Offered concurrently with GEO 4333; graduate students will be assigned additional work.

GEO 6118  Research Design
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
1-12 sh (may be repeated indefinitely for credit)

GEO 6936  Graduate Seminar
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.