Geography and Environmental Studies

DEGREE PROGRAMS

The Department of Geography and Environmental Studies offers degree programs leading to a B.A. in Geography, a B.A. in Environmental Studies, and an M.A. in Geography & Environmental Studies.

CERTIFICATE PROGRAMS

The Department offers two certificate programs in Geographic Information Science (GIS), an exciting and fast-growing field with a broad range of applications. GIS combines data management, spatial analysis and cartography and is widely recognized as a powerful planning tool in resource and environmental management, business and marketing, urban and regional planning, terrain and environment modeling, and more. The certificate programs give students technical skills that they can immediately apply in the workplace.

- Major in Geography (http://catalog.neiu.edu/arts-sciences/geography-environmental-studies/geography)
- Major in Environmental Studies (http://catalog.neiu.edu/arts-sciences/geography-environmental-studies/environmental-studies)
- Minor in Geography (http://catalog.neiu.edu/arts-sciences/geography-environmental-studies/minor-geography)
- Minor in Environmental Studies (http://catalog.neiu.edu/arts-sciences/geography-environmental-studies/minor-environmental-studies)
- Minor in Geographic Information Science (GIS) (http://catalog.neiu.edu/arts-sciences/geography-environmental-studies/minor-geographic-info-science)
- Undergraduate Certificate in GIS (http://catalog.neiu.edu/arts-sciences/geography-environmental-studies/undergraduate-certificate-gis)
- Master of Arts in Geography and Environmental Studies (http://catalog.neiu.edu/arts-sciences/geography-environmental-studies/master-arts-geography-environmental-studies)
- Graduate Certificate in GIS (http://catalog.neiu.edu/arts-sciences/geography-environmental-studies/graduate-certificate-gis)

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GES-104. World Geography. 3 Hours.
Students will study world regions, applying geographic methods to local, regional, and global scales. This includes spatial patterns in both the physical environment (climate, soils, natural resources, topography, etc.) and the human environment (population, economic, political, urban, trade, culture, language, etc.) The course includes map interpretation and an introduction to modern geospatial technologies.

GES-109A. First Year Experience: Global Chicago. 3 Hours.
This is an introductory course in urban geography that provides a broad overview of the Chicago metropolitan area in the global context. We will explore the place of Chicago as a hub in the global economy, as well as the many different ways that global forces have impacted social relations and spatial practices in the metropolis.

GES-109B. First Year Experience: Chicago Geographies: Environmental Chicago. 3 Hours.
Students study the relationships between human settlement and the natural environments in the metropolitan area including environmental problems, their causes and possible solutions. Issues such as waste disposal and recycling, brownfields, suburban sprawl, air and water pollution, water supply, flooding and drainage, invasive species, and urban parks are investigated, with classroom discussion and field trips.

GES-150. Introduction To Environmental Studies. 3 Hours.
Environmental relations, problems and proposed solutions, such as environmental degradation, law and impact; land use planning; resource development; population-resource pressures; urbanization; and technological development; from local to global issues.

GES-199. Topics In Environmental Studies For Middle School Teaching. 4 Hours.

GES-205. Physical Geography. 3 Hours.
Introductory survey of the earth's physical environment emphasizing earth-sun relationships, interrelationships of climate, soil and vegetation, and landforms.

GES-218. Conservation Of Natural Resources. 3 Hours.
Contemporary approaches toward understanding and management of natural resources: air, water, minerals, soil, forrests, grasslands and wildlife.

GES-220. Pollution Control & Prevention. 3 Hours.
Introduction to environmental pollution including that involving air, water, solid waster and noise. Methods of measurement and analysis are covered, as well as legal and economic factors and possible solutions.
GES-240. Water Resources & Development. 3 Hours.
Survey of global water distribution, management, pollution, conservation, conflict and policy. Students will study measures taken to provide adequate water quality and quantity throughout the U.S. and in other world regions.

GES-250. Writing Intensive Program: Writing in GES. 3 Hours.
This course is a writing intensive experience, offering students the opportunity to develop written communication skills by utilizing basic concepts, theories, and techniques in Geography and Environmental Studies. Topics and exercises include note taking, outlines, drafts, styles, bibliography and references, essays, reviews, policy statements and reports of varying length. Sources including library, internet services, and direct observation will be explored. Students will incorporate maps, graphs, and other visual aids.
Prerequisite: ENGL-101 minimum grade of C.

GES-291. GIS Across Disciplines. 3 Hours.
This course introduces students from many disciplines to the use of a Geographic Information Systems (GIS) as a tool for storage, display, and analysis of any information for which a location is known. GIS integrates information drawn from many sources by using their location a linking field. GIS attaches attribute data to spatial objects, and offers a wide variety of tools with which to access, display and analyze that information in new ways. No prior geographic or GIS knowledge is assumed, and there is no course prerequisite. Students will gain conceptual understanding of GIS and experience manipulating prepared data.

GES-301. Great Lakes Environmental Management. 3 Hours.
This course will survey human/environmental issues in the Great Lakes basin with an emphasis on environmental policy, planning, governance, and management. This course will cover topics such as water resource use and management; wildlife management; industrial, urban and agricultural pollution and abatement; inter-state and inter-national transportation; as well as resource conflicts and solutions. There will be some field trips.

GES-302C. Regional Geography: Africa. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302D. Regional Geography: World Oceans. 3 Hours.
The geography and distribution of the oceans; physical geography of the ocean floor; coastal landforms; distribution of earthquakes and volcanoes; oceans and climate; distribution of life in the oceans; human use and abuse of the sea, including contemporary problems and future opportunities; ocean resources; laws of the sea; the importance of the oceans to environmental quality of the earth.

GES-302F. Regional Geography: Australia And The Pacific Islands. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302G. Regional Geography: Caribbean. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302H. Regional Geography: Eastern Europe. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302K. Regional Geography: East Asia. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302L. Regional Geography: Southeast Asia. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302M. Regional Geography: Russia & Central Asia. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302N. Regional Geography: South Asia. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302O. Regional Geography: Middle East. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302P. Regional Geography: Western Europe. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302Q. Regional Geography: Developing World. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region’s defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.
GES-302V. Regional Geography: U.S. And Canada. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region's defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-302X. Regional Geography: Latin America. 3 Hours.
Descriptive, explanatory, and predictive study of a major region. Emphasis is placed on the region's defining human/social and physical factors, on its distinct problems and opportunities, and its role in a wider spatial context.

GES-303A. Topics In Geography: Social Geography. 3 Hours.
A current topic in geography will be explored in depth. See Schedule of Classes, course notes, and consult the department for more information.

GES-303B. Topics In Geography: American Cities: Past, Present & Future. 3 Hours.
This course consist of an overview of historical development of American cities and an evaluation of contemporary urban issues. It employs the perspective of urban geography, i.e. emphasized spatial interactions and processes taking place within cities and within the American urban system. We will discuss how cities developed in response to changing means of transportation and how suburbanization affected social, economic and environmental aspects of city life. The course will provide you with an understanding of the fundamental aspects urban theory.

GES-305. Geography And Map Skills For Teachers. 3 Hours.
Focuses on five main themes in geography; methods and materials to teach the themes in K-12 classes. Map skills and instructional strategies will also be presented.

GES-307. Environmental Education Seminar. 3 Hours.
Analysis and development of environmental education instructional materials and teaching strategies. Seminar focus varies depending on the interest of the participants.

GES-308. Conservation Psychology. 3 Hours.
Students will explore the emerging field of conservation psychology with an emphasis on the psychological characteristics of the relationship between humans and nature, such as environmental values, attitudes, behavior, and decision-making practices. Course topics, including environmental perception, identity, personal morals, ecopsychology, wilderness psychology, domestic nature, managed nature, community dimensions, and environmental education, will be investigated in the context of promoting environmental responsibility.
Prerequisite: (100 - 399 or 100A - 399Z).

GES-309. Principles And Methods Of Environmental Interpretation. 3 Hours.
Naturalists and environmental educators learn how to interpret the environment to others in park and camp settings; philosophy, organization, administration, and program methods such as management of field trips, nature trails, campfire programs, overnight camping and trailside museums. Emphasis on meeting the needs of an urban population.

GES-311. Social Dimensions Of Water Resources Management. 3 Hours.
This course examines the social dimensions of water resources management and development by examining the relationship between humans and the hydrological cycle in the U.S. and world regions. Students will draw from key social theoretical frameworks to better understand and explain the development, use, management, and governance of water resources by humans at various scales and in different settings. Human impacts on natural water systems, the influence of natural water systems on humans, and water conflicts and resolutions will be highlighted. Field trips are possible.

GES-314. Political Geography. 3 Hours.
The relationship between geographical factors of the physical and human environments and political organization. Topics include territorial claims and conflicts, defining borders and districts, spatial patterns of legislation, development and evolution of nations and changing patterns in the world political map.

GES-315. Economic Geography. 3 Hours.
Exploration of how societies organize economic activities in space at the local, regional and global levels. Students learn how basic geographic frameworks, concepts, explanations and analytical tools show how space and location are critical elements affecting economic systems and why different places achieve different levels of well-being.
Prerequisite: (100 - 399 or 100A - 399Z).

GES-316. Location Analysis. 3 Hours.
Use of location theory and economic modeling to understand spatial patterns of land use and to determine optimal spatial arrangements relating to location of business, services, resources and trade. Environmental influences and impacts are discussed.

GES-319. Environmental & Natural Resources Policy. 3 Hours.
Physical, economic, social and political factors involved in policy determination and planning for natural resource development; emphasis upon relations between public and private enterprise and policies for international resource development.

GES-321. Environmental Impact Assessment. 3 Hours.
Analysis of the Environmental Policy Act and its requirement of environmental impact assessment. Topics include NEPA requirements, categories and methods of environmental assessment, agency direction for implementing NEPA, impact assessment in planning and decision making, public participation and conflict management.

GES-322. Aerial Photo Interpretation. 3 Hours.
GES-323. Green Infrastructure Planning & Management. 3 Hours.
This course focuses on the challenges and benefits of incorporating open space, native landscaping, street trees, and similar techniques into urban planning to ameliorate problems such as erosion, storm water management, climate change, habitat loss, and pollution. Local plans at differing scales (municipal to regional) will be compared, case studies of green infrastructure implementation will be examined, and management and maintenance of green infrastructure practices will be discussed. Field trips will be required.

GES-327. Forest Resource Management. 3 Hours.
Forest values, management, policies and practices for public and private lands, including national wilderness areas, parks and forests as well as urban parks and forests.

GES-328. Wildlife Resource Management. 3 Hours.
General wildlife management course for resource planners, interpretative naturalists, and educators. Fish and wildlife values, conservation principles and practices, and current policy issues.

GES-329. Sustainable Energy Policy. 3 Hours.
Study of renewable energy resources as alternatives to nuclear energy and the traditional fossil fuels; the use of sunlight, wind, water, biomass etc.; policy options and issues for managing energy resources towards a sustainable future.

GES-336. Solid Waste Issues. 3 Hours.
Examination of trends in municipal solid waste generation, collection, disposal, and management. Discussion of the roles of federal, state, county, and state governments, with a review of national and international waste issues.
Prerequisites: GES-150 minimum grade of D and GES-218 minimum grade of D and GES-220 minimum grade of D.

GES-337. Cultural Geography. 3 Hours.
Study of the cultural landscape: investigating and analyzing the patterns of language, religion, ethnicity, gender and livelihoods as they vary from region to region.
Prerequisite: (100 - 399 or 100A - 399Z).

GES-338. Sustainable Development. 3 Hours.
Students will explore the concepts of sustainability in the context of socio-economic development at various scales and around the world. Sustainable Development is an alternative to a traditional industrial-economic model of growth which can marginalize people and destroy nature. Specific strategies, policies, and implications of this approach will be explored.

GES-339. Geography Of Energy. 3 Hours.
Examination of the changing spatial patterns of the distribution, consumption, and transportation of traditional and alternative energy resources. Investigation of new technologies and management strategies against the background of a shifting resource base. One or more sessions may be held in the field. Prereq.: GES-205.

GES-341. Field Methods In Water Resources. 3 Hours.
Field exploration of portable water treatment facilities in urban and rural settings. Students will visit municipal treatment plants and distribution systems as well as small-scale operations, such as private wells and small municipal water plants. Methods of water acquisition, treatment and management used in other part of the country, and in other countries, will be explored. Field trips are required.

GES-342. Water Quality, Treatment, And Standards. 3 Hours.
Field exploration of waste and drinking water treatment facilities in urban and rural settings. Water intake, treatment, and distribution and sewerage system collection methods will be explored. Alternate methods used elsewhere will be discussed.

GES-344. Chicago River Issues. 3 Hours.
This field class explores the geographic, environmental, historic, economic, engineering, recreation and other aspects of the Chicago River. Students will study water quality, land use and ownership issues, habitat restoration, and the importance of rivers in metropolitan areas. Most classes are held in the field.
Prerequisite: (100 - 399 or 100A - 399Z).

GES-345. Medical Geography. 3 Hours.
A comprehensive introduction to the study of health-related topics by applying concepts and methodologies from the discipline of geography. The focus is equally on ecological, social, and spatial approaches using applied analytical tools. Special attention is given to the way that the processes of globalization and urbanization have impacted health locally and internationally.

GES-346. Geography Of Metropolitan Chicago. 3 Hours.
Detailed study of communities within Chicago and its surrounding area, with an emphasis on spatial distribution and arrangement of distinct regions; field trips.

GES-347. Gentrification & Urban Redevelopment. 3 Hours.
Issues and principles of historic urban neighborhood preservation, revitalization, restoration and gentrification emphasizing public and private market initiatives. Field work in the Chicago metropolitan area using various methods of surveying, collecting, recording and processing data.

GES-348. Latino Metropolis. 3 Hours.
A field-oriented course that explores the processes of Latino urbanization and the sociospatial context of Latino urbanism in the U.S., with an emphasis on metropolitan Chicago. Approved for graduate credit.
GES-349. Environment & Urbanization. 3 Hours.
The course focuses on issues of international urban development emphasizing the role of the natural environment. In this context, the rapid growth or urban areas both within and beyond the core industrialized regions necessitates understanding the processes involved and the implications for a livable present and sustainable future.

GES-351. Spatial Statistics. 3 Hours.
Introduction to statistical problems, principles, and techniques for the study of geography and the natural environment.

GES-352. Independent Study In Geography And Environmental Studies. 3 Hours.
Study of a topic of special interest to the student under the supervision of a faculty member. See the department policy on independent studies.

GES-353. Independent Study In Geography And Environmental Studies. 2 Hours.
(See GES-352 for description.).

GES-354. Independent Study In Geography And Environmental Studies. 1 Hour.
(See GES-352 for description.).

GES-355. Metropolitan Transportation: Problems & Planning. 3 Hours.
Problems of transportation in cities, focusing on commuting, expressway development, the automobile vs. public transportation, congestion, and relative location of jobs and workers. Emphasis on planning more effective transportation systems, particularly in the Chicago area.

GES-357. Geography Of Natural Hazards. 3 Hours.
Study of the location, impact, causes, and mitigation of natural hazards such as earthquakes, volcanoes, flooding, landslides, subsidence, erosion, extreme weather, wildfire, and Tsunamis. Local field trips possible.

GES-359. Environmental Planning. 3 Hours.
Principles of land development with emphasis on opportunities and limitation imposed by the physical environment; concepts of land ownership, tenure and use; ecological and environmental analysis; techniques of site design.

GES-360. Environmental Justice & Activism. 3 Hours.
Students investigate the history and process of environmental equity, grassroots activism, legislation and lobbying and community organization. Field trips and guest lectures.

GES-361. Urban Planning. 3 Hours.
City planning process; historical development of planning in the United States; basic components of a comprehensive plan; planning theory and practice; implementation procedures; social planning.

GES-362. Population Geography. 3 Hours.
Population structure, growth/decline, distribution, and migration from local to global scales. Problems including environmental degradation and human suffering will be discussed, as will population policies and initiatives.

GES-3631. Field Experience:Problems In Geography. 3 Hours.

GES-365. Urban Geography. 3 Hours.
A survey course in urban geography focusing on processes and outcomes of urbanization. The course will address the dramatic changes unfolding in the metropolitan landscape and will encourage students to develop a deeper and more nuanced understanding of cities and urban sociospatial processes.

GES-367. Advanced Physical Geography. 3 Hours.
Advanced topics in Physical Geography, including geomorphology, coastal landforms, biomes, diastrophism, weathering, weather and climate.

GES-368. Changing Global Climates. 3 Hours.
This course explores the normal cycles and also the changing patterns of global climates. Attention is given to both natural phenomena, such as El Nino, and human impacts on climate from deforestation, ozone depletion and the greenhouse effect.

GES-371. Advanced Physical Geography. 3 Hours.
Advanced topics in Physical Geography, including geomorphology, coastal landforms, biomes, diastrophism, weathering, weather and climate.

GES-372. GIS Across Disciplines. 3 Hours.
This course introduces students from many disciplines to the use of a Geographic Information Systems (GIS) as a tool for storage, display, and analysis of any information for which a location is known. GIS integrates information drawn from many sources by using their location as a linking field. GIS attaches attribute data to spatial objects, and offers a wide variety of tools with which to access, display and analyze that information in new ways. No prior geographic or GIS knowledge is assumed, and there is no course prerequisite. Students will gain conceptual understanding of GIS and experience manipulating prepared data.

Prerequisite: (100 - 399 or 100A - 399Z).
GES-374. Research Methods. 3 Hours.
Students will develop a variety of quantitative and qualitative research skill by way of case studies, historical research and discussion. Students will conduct their own original research, using appropriate methods.
Prerequisites: GES-250 minimum grade of C and (GES-104 minimum grade of C or GES-150 minimum grade of C).

GES-376. Principles Of Cartography. 3 Hours.
Principles of map making; history of cartography, modern techniques, projection, symbolization, visual appeal, thematic map design, production and interpretation.

GES-377. Computer Cartography. 3 Hours.
Students will design, create and publish a variety of thematic maps using cartographic convention and effective symbology with digital graphic programs.

GES-380. Field Methods. 3 Hours.
Introduction to the instruments, measurements, mapping techniques, and sampling procedures used to acquire primary data from field observations. Development of a field research plan, culminating research projects tailored to each student's interest. Approved for graduate credit.

GES-382. Field Camp. 3 Hours.
Consult the Schedule of Classes for specific destination and costs for this travel-based course. Students will perform a research project in a classroom setting prior to travel, and will meet for discussion and presentations of field work afterwards.

GES-383. Internship In Geography And Environmental Studies. 3 Hours.
Supervised field experience with an agency related to the student's career interest. Prior course work and other experience are evaluated before approval is granted to enroll in the internship. A handout to guide the internship is available from the faculty advisor. 160 work hours.

GES-384. Geographic Information Systems I. 3 Hours.
An introduction to GIS technology for research applications. Students will study the conceptual and technical process of GIS research including project design, data acquisition, data manipulation, analysis, interpretation and display. Approved for graduate credit.

GES-385. Geographic Information Systems II. 3 Hours.
Students will learn advanced skills in Geographic Information Systems, including the concepts, methods and techniques of geospatial analysis and modeling. A variety of spatial data (both raster and vector) integration and analysis tools will be explored.
Prerequisite: GES-391 minimum grade of C.

GES-386. Geographic Information Systems III. 3 Hours.
This course focuses on advanced analysis of GIS data using scripts and programming. A variety of topics will be explored, including database management, model building, scripting and programming, and open source GIS.
Prerequisite: GES-391 minimum grade of C.

GES-387. GIS Internship. 3 Hours.
Supervised field experience using geospatial technologies. A formal proposal and reports are required. See department materials for specific guidelines and instructions.
Prerequisite: GES-391 minimum grade of C.

GES-388. Food And The City. 3 Hours.
In the face of growing awareness of global warming, food insecurity, oceanic dead zones, and a declining sense of community, urban agriculture has been championed by government and civil society organizations as a promising solution to a variety of socio-economic and environmental concerns. So what is urban food production really all about? This course will examine the historical contexts of urban agriculture, its current state, and future directions. Through literature and site visits students will examine various forms of urban food production; they will learn how these sites function and evaluate them within the context of the local food system.

GES-389. Urban Design Studio. 3 Hours.
This studio course presents perspective, standards and techniques which integrate cultural, economic, political and social dimensions of urban life in the formulation and representation of urban plans and projects. Students gain an appreciation for theoretical and applied dimensions of urban design, and get hands-on training with computer assisted design projects.

Digital analysis of remotely sensed data using geographic information systems for large regions including rural and urban environments. Detection of a variety of natural resources in the natural and human environments, measurement of change and human impact.

GES-391. Geographic Information Systems I. 3 Hours.
An introduction to GIS technology for research applications. Students will study the conceptual and technical process of GIS research including project design, data acquisition, data manipulation, analysis, interpretation and display. Approved for graduate credit.

GES-392. Geographic Information Systems II. 3 Hours.
Students will learn advanced skills in Geographic Information Systems, including the concepts, methods and techniques of geospatial analysis and modeling. A variety of spatial data (both raster and vector) integration and analysis tools will be explored.
Prerequisite: GES-391 minimum grade of C.

GES-393. Geographic Information Systems III. 3 Hours.
This course focuses on advanced analysis of GIS data using scripts and programming. A variety of topics will be explored, including database management, model building, scripting and programming, and open source GIS.
Prerequisite: GES-391 minimum grade of C.

GES-394. GIS Internship. 3 Hours.
Supervised field experience using geospatial technologies. A formal proposal and reports are required. See department materials for specific guidelines and instructions.
Prerequisite: GES-391 minimum grade of C.

GES-395. Food And The City. 3 Hours.
In the face of growing awareness of global warming, food insecurity, oceanic dead zones, and a declining sense of community, urban agriculture has been championed by government and civil society organizations as a promising solution to a variety of socio-economic and environmental concerns. So what is urban food production really all about? This course will examine the historical contexts of urban agriculture, its current state, and future directions. Through literature and site visits students will examine various forms of urban food production; they will learn how these sites function and evaluate them within the context of the local food system.

GES-396. Geographic Information Systems I. 3 Hours.
An introduction to GIS technology for research applications. Students will study the conceptual and technical process of GIS research including project design, data acquisition, data manipulation, analysis, interpretation and display. Approved for graduate credit.

GES-397. Geographic Information Systems II. 3 Hours.
Students will learn advanced skills in Geographic Information Systems, including the concepts, methods and techniques of geospatial analysis and modeling. A variety of spatial data (both raster and vector) integration and analysis tools will be explored.
Prerequisite: GES-391 minimum grade of C.

GES-398. Geographic Information Systems III. 3 Hours.
This course focuses on advanced analysis of GIS data using scripts and programming. A variety of topics will be explored, including database management, model building, scripting and programming, and open source GIS.
Prerequisite: GES-391 minimum grade of C.

GES-399. GIS Internship. 3 Hours.
Supervised field experience using geospatial technologies. A formal proposal and reports are required. See department materials for specific guidelines and instructions.
Prerequisite: GES-391 minimum grade of C.

GES-401. Seminar In Cultural Geography. 3 Hours.
Selected theories and methodologies of cultural geography and the current trends within the discipline; students prepare a seminar paper that incorporates the concepts of a specific approach applied to a local phenomenon.

GES-402. Scope And Philosophy Of Geography And Environmental Studies. 3 Hours.
Historical development of geography as a spatial discipline. History of conservation and modern environmentalism. Relationship between these two fields, and overview of the M.A. program and graduate level studies.
GES-413. Advanced Research Methods. 3 Hours.
This course develops concepts and skills for those preparing for graduate research (thesis or research paper) in the Department of Geography and Environmental Studies. Research design, data-gathering techniques, data analysis, research planning, quantitative, qualitative, and mixed method approaches and research designs will be covered. Students will interpret published research and produce a research proposal by the end of the semester.
Prerequisite: GES-411 minimum grade of C.

GES-415. Geospatial Data Analysis. 3 Hours.
Use of modern technologies in preparation of thematic maps, and an overview of spatial analysis with geographic information systems. Topics include data collection, input, storage, retrieval, manipulation and output.

GES-416. GIS For Natural Systems Management. 3 Hours.
Theory and concepts of data storage, retrieval, visualization, modelling, and output for natural resource applications and management. Students will develop spatial analysis techniques for environmental data, culminating in independently designed research projects.
Prerequisite: GES-391 minimum grade of C.

GES-417. Urban Information Systems. 3 Hours.
Analysis of urban environment with GIS. Use of public data to study urban processes such as suburbanization, segregation, economic development, network-based transportation and site location. Student exploration will culminate in a research project of the student’s selection.
Prerequisite: GES-391 minimum grade of C.

GES-424. Human Dimensions Of Global Environmental Change. 3 Hours.
This course introduces students to the role of humans in driving environmental change across the planet. Drawing on the growing interdisciplinary literature on connections between social and ecological systems, students in this course will analyze the causes, consequences, and mitigation and adaptation options of anthropogenic environmental changes such as climate change and biodiversity loss. Students will be expected to integrate knowledge of human and non-human systems to enhance their understanding of contemporary global environmental problems.

GES-430. Research Seminar. 3 Hours.
Students conduct research and write a research paper on an approved topic to fulfill requirements for the Master of Arts degree. Credit for this course and GES-431 Thesis Seminar, will not be permitted. See departmental policies.

GES-435. Seminar In Physical Geography. 3 Hours.
Students will investigate geomorphic systems and the importance of physical geography for studying the Earth. This course will introduce the principles, models and theories of physical geography followed by a more applied look at the different landscapes. Book chapters, peer reviewed articles, discussion, and a research paper will be required.
Prerequisite: GES-205 minimum grade of C.

GES-437. Seminar: Global Wildlife Issues. 3 Hours.
Wildlife ecology, management, and policy are studied from global to local scales. Topics will include evolution and distribution of wildlife, habitat and territory, biomes and ecosystems. Human impacts will also be studied. These include habitat loss/disruption, hunting, pollution, introduction of new species and conservation efforts, environmental ethics, and environmental policies.

GES-440. Qualitative Research Methods In Geography & Environmental Studies. 3 Hours.
Students will explore advanced qualitative methodology topics and techniques related to Geography and Environmental Studies. Students will develop the foundational philosophical knowledge of qualitative inquiry, while practicing and applying various qualitative techniques related to the study of complex human-environment phenomena, resulting in individually tailored research projects. Research projects will involve collecting, analyzing, and representing qualitative data.
Prerequisites: GES-411 minimum grade of C and GES-413 minimum grade of C.

GES-442. Geographic Problems In Quantitative Measurements. 3 Hours.
Statistical applications in geography and environmental studies; reliability of quantitative formulas and studies; geometrics; statistical project required as part of the course.

Research seminar involving the principles of decision-making as utilized in the field of resource management; application of these principles through research projects conducted in the Chicago Metropolitan area.

GES-449. Seminar In Land Use Controls. 3 Hours.
Research seminar concerning the rationale and methods of regulating the use of private land: land subdivision, zoning, growth control.

GES-450. Seminar In Urban Planning. 3 Hours.
Urban land use planning process emphasizing the analysis and application of policies for urban spatial structure, activity systems and land development. Review and criticism of official comprehensive plans of cities in the Chicago metropolitan area.

GES-453. Seminar In Sustainable Development. 3 Hours.
Advanced study of sustainable development in the context of science, economics, politics, culture, ecology, and ethics. Development and globalization are critiqued from a political economy perspective; both strengths and limitations of conventional systems are investigated. Institutions, policies, and strategies are analyzed, as are indicators of sustainability and development.
GES-454. Seminar: Population & Environment. 3 Hours.
Students will investigate population dynamics at various scales, including distribution and structure, theories, trends, projections, and policies. Environmental constraints and impacts of population on the natural environment will be explored.

GES-455. Seminar In Environmental Planning. 3 Hours.
Proactive land use strategies to minimize pollution, protect biodiversity and water and energy resources, and reduce vulnerability to natural hazards. Issues such as smart growth, sustainable transportation, sprawl watershed management, preservation, natural hazard mitigation and green design will be discussed, particularly those relating to the Chicago area. Planning tools such as GIS, economic analysis, environmental impact assessment. Some field trips possible.

GES-456. Seminar In U.S. Environmental Policy. 3 Hours.
Detailed exploration of environmental law and policy in the United States, including legal structures, processes, and constraints, notable successes and failures, role and influence of advocacy and interest groups, and major controversies relating to decentralization, market-based mechanisms, risk-based analysis, environmental justice, and others. Differences in state laws and performance will also be explored.

GES-457. Seminar: International Environmental Policy. 3 Hours.
Investigation of international efforts to address global environmental problems such as deforestation, climate change, ozone depletion, fisheries decline, toxic chemicals, etc., and analysis of their effectiveness. Explores regime theory, evolution of different international regimes and their weaknesses, obstacles to international cooperation, and the role of different actors as promoters of or obstacles to progress. The impact of globalization, North-South divisions, and the role of international organizations such as the United Nations and the World Bank are also examined.

GES-461. Independent Study In Geography And Environmental Studies. 3 Hours.
Independent research on a topic chosen in consultation with the instructor.

GES-461A. Independent Study In Geography And Environmental Studies. 3 Hours.
Independent research on a topic chosen in consultation with the instructor.

GES-462. Seminar In Environmental Education. 3 Hours.
In this course, students will explore, analyze, and critique advanced environmental education theories and practices. Students will gain an understanding of pedagogical tools and techniques related to a variety of ages, locations, and mechanisms of conservation education. Foundational knowledge will be combined with current research trends in the context of individualized projects.

GES-471. Seminar In Urban Geography. 3 Hours.
Intensive discussion, study and research on the most essential topics in urban geography; central place theory, urban renewal programs, population and economic development; field work.

GES-472. Seminar In Regional Geography: Third World Issues. 3 Hours.
Students will explore issues and challenges facing the poorer countries including economic development, resource exploitation, social inequity, and environmental degradation. Many of these problems are quite different from those of the developed world, and they also differ widely between regions of the Third World. Location and spatial arrangements will be explored in detail with current academic literature, from a variety of theoretical perspectives.

GES-483. Internship. 3 Hours.
Supervised field experience (160 work hours) with an agency related to the student's career interest. Prior course work and other experience is evaluated before approval is granted to enroll in the internship. A handout describing the design and reporting requirements is available.

GES-5901. Thesis Hours. 1 Hour.
Students conduct research and write a thesis to fulfill requirements for the Master of Arts degree. Credit for this course and 430 will not be permitted. See department policies.

GES-5902. Thesis Hours. 2 Hours.
See course description for GES-5901.

GES-5903. Thesis Hours. 3 Hours.
See course description for GES-5901.