

GEOGRAPHY (GEG)

GEG 503 CONSERVATION AND ENVIRONMENTAL MANAGEMENT

3, 3/0

Offered by contract only. Principles of natural resource conservation; selected problems in resource conservation: soil erosion; water pollution; destruction of forests, grasslands, and wildlife; flood control; depletion of minerals. Emphasizes conservation in the United States and New York State.

GEG 508 STUDIES IN THE GEOGRAPHY OF NEW YORK STATE

3, 3/0

Offered by contract only. Physical landscape; cultural geography and settlement; primary economic activities; urban systems and environments; planning and future development of the state.

GEG 516 WATERSHED POLLUTION

3, 3/0

Prerequisite: GEG 101 or GES 101 or instructor permission. Important pollutants and toxic chemicals generated by anthropogenic activities. Transport, transformation, and fate of these pollutants in watersheds. Impacts of these pollutants on soil, forest, and aquatic ecosystems using specific case studies.

GEG 518 REMOTE SENSING

3, 3/0

Prerequisites: CIS 151 or equivalent, or instructor permission. Concepts of remote sensing and its applications. Principles and methods of electromagnetic radiation, aerial and space remote sensing. Basics of digital image processing, spatial or geographic data capture and interpretations from remote sensors.

GEG 521 WATERSHED ANALYSIS

3, 3/0

Prerequisite: Instructor permission. Introduction to the systematic analysis of stream dynamics of watersheds and the impact of humans on these dynamics. Physical, chemical, and biological processes in watershed management. Class discussion and class project focus on a practical watershed assessment problem.

GEG 523 BIOGEOGRAPHY

3, 3/0

Prerequisite: Graduate-level standing. Global patterns of species distributions and the historic, environmental, and biological processes underlying these patterns. Spatial patterns of nature's geographic variation at multiple levels, from individuals to ecosystems to biomes. Impacts of humans and climate change on biogeography.

GEG 525 FUNDAMENTALS OF GIS

3, 3/0

Prerequisites: Instructor permission. Principles and methods of spatial data capture, automation, spatial database models and structures. Fundamentals of spatial data processing and analytical methods including spatial database query, database join and spatial join, geographic location and geographic coordinate systems, spatial geocoding, buffering, map overlay, and raster surface interpolations. Offered every semester.

GEG 528 ENVIRONMENTAL ASSESSMENT AND PLANNING APPLICATIONS IN GIS

3, 3/0

Prerequisite: Instructor permission. Advanced concepts of GIS with a focus on spatial analytical applications for environmental assessment and planning. GIS theories and software implementation through hands-on practice to solve real-world environmental and planning problems.

GEG 529 ADVANCED TOPICS IN GIS

3, 3/0

Prerequisites: GEG 425/525 or equivalent GIS course; or instructor permission. Builds from the topics covered in GEG 525 Fundamentals of GIS focusing on digital representation of the human and physical environment, including location referencing, database design, data quality issues, spatial statistical analysis using GIS, and understanding spatial analysis algorithms and models. Introduces programming in a GIS environment. Offered spring semesters only.

GEG 565 SOIL SCIENCE AND MANAGEMENT

3, 3/0

Prerequisite: Instructor permission. Introduction to soil properties and their influence on physical, chemical, and biological processes. The role of soils in the transportation and fate of water and chemicals. The importance of soils for watershed management and protection of aquatic ecosystems.

GEG 575 PRINCIPLES OF HYDROLOGY

3, 3/0

Prerequisite: Instructor permission. Principles of hydrology and the relationship to water resources management and watershed processes. Quantifying the processes governing surface, subsurface, and atmospheric movement of water. Methods to collect and analyze hydrologic data.

GEG 583 ADVANCED GEOGRAPHIC INFORMATION
INTERPOLATION METHODS

3, 3/0

Prerequisites: GEG 525 or equivalent. Geographic information interpolation methods to predict continuously distributed large datasets of geographic features using sampled data. Two approaches are identified in practice: deterministic interpolation and geo-statistical interpolation. Concepts and theories of geographic information interpolation models and their application, in particular for multi-variable analysis, will be studied.

GEG 584 GEOSPATIAL PROGRAMMING

3, 3/0

Prerequisites: Instructor permission; it is recommended that students have basic knowledge about spatial databases. Introduction to Python programming focusing on the development of Python scripts and custom tools for processing and analysis of geospatial data. Automating geoprocessing workflows, creating custom analysis tool, and customizing user interfaces.

GEG 585 INTERACTIVE AND WEB-BASED MAPPING

3, 3/0

Prerequisite: GEG 325 or equivalent introductory GIS course. Introduction to interactive and Web-based mapping. Different approaches to communicating with maps on the Internet; how to create Web-based mapping applications.

GEG 587 TOPICS IN GEOGRAPHY

1-4, 1/0

In-depth examination of rapidly and significantly changing disciplinary issues, topics, or practices; offered occasionally.

GEG 588 TOPICS COURSE

3, 3/0

GEG 590 INDEPENDENT STUDY

1-3, 0/0

GEG 610 SEMINAR

3, 3/0

Prerequisite: 12 hours of geography coursework or instructor permission. Investigation, examination, and discussion of topics of current interest to geographers. Topics to be announced. May be taken more than once.

GEG 616 ATMOSPHERIC DEPOSITION MONITORING
AND MODELING

3, 3/0

Offered by contract only. Atmospheric transport and deposition of pollutants. Data interpretation, sampling protocols, monitoring and modeling techniques. Case studies.

GEG 619 WETLAND HYDROLOGY AND ECOLOGY

3, 3/0

Instructor Permission; BIO 315 or equivalent; GEG 375/575 or equivalent. Introduction to physical, chemical, and ecological processes in wetlands. Impact of wetlands on watershed hydrology and nutrient cycling. Management approaches for wetlands and key regulations that protect wetlands.

GEG 690 MASTER'S PROJECT

3, 0/0

Research or investigation of a particular problem, planned and carried out by the student with consultation and guidance from the instructor, submitted in acceptable form according to the directions given by the Department of Geography and Planning.

GEG 721 THESIS/PROJECT CONTINUATION

0, 0/0

GEG 722 THESIS/PROJECT EXTENDED

0, 0/0