

GEOG S101 – Local Places, Global Regions: An Introduction to Geography

Upon successful completion of this course, students will be able to:

1. Articulate a spatial perspective on issues including mobility, globalization, identity, and nature and culture.
2. Evaluate visual representations of space in multiple media.
3. Evaluate students' own spatial relationships on multiple scales.
4. Articulate and critically evaluate fundamental disciplinary concepts and methods of inquiry.

GEOG S102 – Earth and Environment (Cross-listed as ENVS 102)

Upon successful completion of this course, students will be able to:

1. Describe the fundamental workings of the atmospheric, hydrospheric, lithospheric, and oceanic systems of Earth
2. Explain the interactions between these Earth systems
3. Describe the basic geophysical methods used to monitor these Earth systems.
4. Solve basic analytical problems related to these Earth systems.
5. Quantify and describe key environmental parameters in meteorology, climatology, hydrology, and geomorphology using relevant field and laboratory methods.

GEOG S110 – Introduction to ArcGIS (Cross-listed as ENVS 110)

Upon successful completion of this course, students will be able to:

1. Correctly use GIS terminology and describe what it means to think of the world in spatial terms
2. Describe a GIS framework, its capability and its limitations
3. Acquire and compile data, conduct basic analyses and construct maps with ArcGIS, the commonly used GIS software today.
4. Design and execute an independent GIS project.

GEOG S111 – Introduction to Differential GPS (Cross-listed as ENVS 111)

Upon successful completion of this course, students will be able to:

1. Explain the basic principles of how GPS functions, including differential correction
2. Demonstrate the use of various GPS units for purposes of navigation and data acquisition
3. Correctly transfer data to and from GPS equipment, including mapping of GPS data with a geographic information system (GIS).
4. Design and execute an individual GPS project.

GEOG S210 Temperate Rainforest Ecosystems

Upon successful completion of this course, students will be able to:

1. Identify the major temperate rainforest regions of the world and their distinctive characteristics.
2. Demonstrate an understanding of the climatic forces that create temperate rainforests.
3. Explain the structural and functional aspects of temperate rainforests in Alaska.

GEOG S212 – Natural Hazards (Cross-listed as ENVS 212)

Upon successful completion of this course, students will be able to:

1. Differentiate between natural hazards and natural disasters.
2. Describe how human activities influence our relative safety while living on a tectonically dynamic planet.
3. List strategies for risk assessment and describe how mitigation plans are developed.
4. Identify methods used to collect data from specific natural disaster events.
5. Explain the simple mathematics and statistical methods used to analyze data from specific natural disaster events in determining recurrence intervals, the energy released by the event, and the cost of remediation.
6. Explain how results from the analyses of data from specific natural disaster events can be used in planning for mitigation for future occurrences.
7. List and describe how and where different types of natural hazards occur, and methods to better predict them and/or live with their inevitability.

GEOG S302 – Geography of Alaska: People, Places and Potential

Upon successful completion of this course, students will be able to:

1. Identify and describe the physical, cultural, and historical geography of Alaska.
2. Evaluate and interpret visual representations of Alaska across multiple media.
3. Situate contemporary Alaskan social and political issues within global geo-political context.
4. Evaluate and interpret the geographic data on Alaskan populations, languages, resources, political divisions, and urban planning.

GEOG S309 – Mobile GIS Technology and Applications (Cross-listed as ENVS S309)

Upon successful completion of this course, students will be able to:

1. Use Geographic Information Systems terminology.
2. Describe a mobile-based Geographic Information Systems platform, its capability and its integration with desktop-based Geographic Information Systems technology.
3. Acquire and map geographical data using mobile and desktop Geographic Information Systems.

Note: Covers both the 2 credit (GEOG S309) and 1 credit (GEOG S309A) options

GEOG S312 – Humans and the Environment (Cross-listed as ANTH S312)

Upon successful completion of this course, students will be able to:

1. Analyze and compare the theories, methods, and writing styles of key texts.
2. Describe how societies around the globe interact with their local ecology;
3. Identify and analyze the contemporary issues of one cultural group or community and their relationship to the local ecology in a modern global market economy.

GEOG S313 – Natural Resource Management

Upon successful completion of this course, students will be able to:

1. Describe major points in the history and philosophies of natural resource management in the United States;
2. Identify and discuss the different methods currently used to manage a variety of natural resources including: soil, water, forests, energy, and fisheries;
3. Recognize and summarize pollution sources and control methods used in each natural resource discussed;
4. Discriminate between the pros and cons of utilization/conservation issues facing natural resource managers, and debate for their chosen perspective.

GEOG S338 – Introduction to GIS (Cross-listed as ENVS S338)

Upon successful completion of this course, students will be able to:

1. Use Geographic Information Systems technology and software proficiently.
2. Identify and utilize the terminology of Geographic Information Systems and basic cartography.
3. Explain how to acquire datasets and information for use in Geographic Information Systems.
4. Create digital maps as visual aids to communicate concepts.
5. Design, create and present a research poster in a semi-professional setting.
6. Explain how Geographic Information Systems technology is used to support critical thinking and decision making.

GEOG S350 – Interdisciplinary Perspectives on Climate Change

Upon successful completion of this course, students will be able to:

1. Conduct guided research using primary and secondary data on issues related to climate change.
2. Communicate an interdisciplinary understanding of the dynamics of a variety of issues on climate change.
3. Explain the consequences, risks, and uncertainties of climate change.

GEOG S402 – Human Ecology

Upon successful completion of this course, students will be able to:

1. Identify and evaluate the primary theoretical perspectives employed in human ecology.
2. Identify and evaluate human impacts on global ecosystems in historical context.
3. Apply insights from human ecology to contemporary issues facing human communities globally.

GEOG S405 – Historical Geography of North America

Upon successful completion of this course, students will be able to:

1. Identify the origin and meanings of a number of distinctively American places, structures, cultural features, and landscapes.
2. Map the history of North America through key topics of imperialism, migration, frontier and borders, urbanism, and historical struggles over territory.
3. Delineate the way urban spatial patterns are generated by various social, economic, political, and psychological processes.
4. Identify the geographical concepts and projects of modernity as they have been practiced in the urban field of North America.
5. Apply critical interpretations to the interconnectedness of global dynamics as they produce urban formations in the present.

GEOG S406 – Remote Sensing (Cross-listed as ENVS S406)

Upon successful completion of this course, students will be able to:

1. Use remote sensing and Geographic Information Systems technology and software.
2. Describe the various forms of remotely sensed data, including aerial photography, satellite, and environmental-sensor data.
3. Identify, interpret, and measure physical and environmental features using remotely-sensed data and remote sensing software.
4. Apply remote sensing data to different scientific disciplines.

GEOG S407 – Snow Hydrology (Cross-listed as ENVS S407)

Upon successful completion of this course, students will be able to:

1. Explain the fundamental processes of the snow hydrologic cycle including: the formation of snow in the atmosphere, the development of seasonal snowcover on the ground, and the hydrological effects of snowmelt runoff.
2. Describe how seasonal snow-covers interact with and impact human activities and ecological processes.
3. Measure and describe fundamental properties of seasonal snow-covers including: energy balance characteristics, stability properties, and physical and stratigraphic characteristics.
4. Critique current research papers in snow hydrology.

GEOG S409 – GIS Jam: Projects in GIS and Remote Sensing (Cross-listed as ENVS S409)

Upon successful completion of this course, students will be able to:

1. Use Geographic Information Systems technology and software.
2. Conduct a Geographic Information Systems analysis to address a specific project or work-related need.
3. Incorporate Geographic Information Systems results into a specific deliverable product.

GEOG S410 – Advanced Geographic Information Systems (Cross-listed as ENVS S410)

Upon successful completion of this course, students will be able to:

1. Use geographic information technology proficiently in an analytical context.
2. Demonstrate proficiency with the terminology of geographic information systems, geodesy and technical cartography.
3. Acquire, process, and map datasets accurately in geographic information systems.
4. Carry out a research project with geographic information systems-based, analytical objectives.
5. Design, create and present a research poster in a semi-professional setting.

GEOG S411 – Specialized Training in GIS Software (Cross-listed as ENVS S411)

Upon successful completion of this course, students will be able to:

1. Demonstrate advanced proficiency with Geographic Information Systems technology and software.
2. Use online/distance training as a resource for learning Geographic Information Systems.

GEOG S414 – Biogeochemistry (Cross-listed as ENVS S414)

Upon successful completion of this course, students will be able to:

1. Describe and contrast the biological and geochemical mechanisms that control the carbon, nitrogen, phosphorus, sulfur, and mercury cycles in terrestrial and aquatic ecosystems at scales ranging from the plot to the globe.
2. Explain the influence of the human species on Earth's major biogeochemical cycles.
3. Describe contemporary research techniques that are used to quantify and evaluate the cycling of carbon, nitrogen, and phosphorus at the watershed scale.
4. Critically read and discuss current research papers in biogeochemistry.

GEOG S415 – Biogeography and Landscape Ecology (Cross-listed as ENVS S415)

Upon successful completion of this course, students will be able to:

1. Describe the foundational concepts and theories of landscape ecology.
2. Discriminate between different hierarchical scales in ecological drivers.
3. Explain the importance of differential spatial landscape patterning.
4. Apply spatial patterning theory to disturbance and management scenarios in natural landscapes.

GEOG S490 – Geography Seminar

Upon successful completion of this course, students will be able to:

1. Develop a research project that incorporates the analysis of spatial or geographic data.
2. Present research findings to peers and faculty in a professional manner.

GEOG S491 – Geography Internship

Upon successful completion of this course, students will be able to:

1. Function effectively in a professional work environment.
2. Provide evidence of participation in a project within a science agency or natural resource based industry.

GEOG S498 – Research in Geography

Upon successful completion of this course, students will be able to:

1. Design, carry out, and report on a scientific research project in collaboration with a faculty mentor.
2. Apply appropriate lab and/or field methods to answer a specific research question.