

# GEOGRAPHY (GEOG)

## **GEOG 1503 Physical Geography 3 s.h.**

An introductory analysis of selected elements of the natural habitat and their geographic distribution. Includes processes involved in weather, climates, soils, vegetation, and landforms.

**Gen Ed:** Natural Science.

## **GEOG 1503H Honors Physical Geography 3 s.h.**

An introductory analysis of selected elements of the natural habitat and their geographic distribution. Includes processes involved in weather, climates, soils, vegetation, and landforms.

**Gen Ed:** Natural Science.

## **GEOG 1503L Physical Geography Laboratory 1 s.h.**

Observation, collection and analysis of data pertaining to the Earth's weather and climate, surface landforms, drainage systems, soils, vegetation and changing global environmental conditions. In-class labs, local field excursions, and web-based assignments enable students to investigate these phenomena using the scientific method. The class meets two hours each week. Optional lab to accompany GEOG 1503.

**Prereq.:** GEOG 1503 or concurrent with GEOG 1503.

## **GEOG 2610 Map Use and Interpretation 3 s.h.**

The use of maps, aerial photography, and satellite imagery to depict physical and cultural landscapes. Topics include map elements and how to locate, read, and interpret maps and remotely-sensed imagery.

## **GEOG 2611 Geospatial Foundations 3 s.h.**

An overview of geospatial science and technology, including introductory concepts in spatial analysis, Geographic Information Systems, remote sensing, and GPS. The class provides a survey of theoretical geospatial topics as well as their applications.

**Gen Ed:** Social Science.

## **GEOG 2611H Honors Geospatial Foundations 3 s.h.**

An overview of geospatial science and technology, including introductory concepts in spatial analysis, Geographic Information Systems, remote sensing, and GPS. The class provides a survey of theoretical geospatial topics as well as their applications in a computer lab setting.

**Gen Ed:** Social Science.

## **GEOG 2626 World Geography 3 s.h.**

A comparative study of representative regions of the world. Attention is focused on an examination of the physical, cultural, social and political attributes of selected regions.

**Gen Ed:** International Perspectives, Social Science, Social and Personal Awareness.

## **GEOG 2626H Honors World Geography 3 s.h.**

A comparative study of representative regions of the world. Attention is focused on an examination of the physical, cultural, social and political attributes of selected regions.

**Gen Ed:** International Perspectives, Social Science, Social and Personal Awareness.

## **GEOG 2630 Weather 3 s.h.**

An examination of basic weather elements, their interrelationships and the natural laws that govern them. Focus is on both global scale atmospheric processes and localized factors that influence weather conditions and patterns.

**Gen Ed:** Natural Science.

## **GEOG 2630H Honors Weather 3 s.h.**

An examination of basic weather elements, their interrelationships and the natural laws that govern them. Focus is on both global scale atmospheric processes and localized factors that influence weather conditions and patterns.

**Gen Ed:** Natural Science.

## **GEOG 2630L Weather Lab 1 s.h.**

Students observe, collect and analyze atmospheric data, and determine and predict weather conditions. Atmospheric laws and meteorological principles, concepts, and processes are investigated using the scientific method. Weekly investigations are undertaken in this hybrid lab encompassing in-class and online instructions. The class meets in person as needed for guidance.

Optional lab to accompany GEOG 2630: Weather.

**Prereq.:** GEOG 2630 or concurrently with GEOG 2630.

## **GEOG 2640 Human Geography 3 s.h.**

An examination of the place to place variation in people's utilization of the earth. Topics include the distribution of people, spatial variations in culture, urbanization and politicization of space.

**Gen Ed:** International Perspectives, Social Science, Social and Personal Awareness.

## **GEOG 2640H Honors Human Geography 3 s.h.**

An examination of the place to place variation in people's utilization of the earth. Topics include the distribution of people, spatial variations in culture, urbanization and politicization of space.

**Gen Ed:** International Perspectives, Social Science, Social and Personal Awareness.

## **GEOG 3701 Introduction to Geographic Information Science 3 s.h.**

Introduction to the principles of collection, storage, manipulation, retrieval, analysis and visualization of spatial data in a computer environment. Credit will not be given for GEOG 3701 if a student has already received credit for GEOG 5810.

**Prereq.:** GEOG 2611.

## **GEOG 3702 Introduction to Remote Sensing 3 s.h.**

Analysis and interpretation of earth features from both airborne and satellite observation platforms. Topics include photogrammetry, digital data manipulation, multispectral imagery analysis, and interpretation of environmental features. Credit will not be given for GEOG 3702 if a student has already received credit for GEOG 5805.

**Prereq.:** GEOG 2611.

## **GEOG 3703 Human Impacts on the Environment 3 s.h.**

Focus is on the interaction between natural systems and human activities that results in environmental change and degradation of the Earth's atmosphere, waters, soil, vegetation, and animal life. Societal conflicts, mitigation, conservation, and sustainable resource strategies are discussed.

**Prereq.:** GEOG 1503 or GEOL 1504 or GEOL 1505 or ENST 1500 or ENST 2600 or HIST 3774.

## **GEOG 3705 Mountain Geography 3 s.h.**

Investigates the physical, biological, and cultural processes that take place in selected mountain environments. Topics also include resource use, environmental change, and sustainable development at both regional and global scales.

**Prereq.:** BIOL 1505 or ENST 1500 or ENST 2600 or GEOG 1503 or GEOL 1504 or GEOL 1505.

## **GEOG 3712 Thematic Map Design and Symbolization 3 s.h.**

An introduction to cartographic design. Emphasis is on composition elements and the construction and perception of point, line, and area map symbols. The use of color, statistical techniques, and animated maps are also explored.

**Prereq.:** GEOG 2610 or GEOG 2611 or GEOG 2626 or GEOG 2640.

## **GEOG 3713 Geography of South America 3 s.h.**

Spatial patterns found in the physical and cultural landscapes of South America.

**Prereq.:** GEOG 2626 or GEOG 2640; or HIST 3728.

## **GEOG 3715 Geography of Middle America 3 s.h.**

Spatial patterns found in the physical and cultural landscapes of Middle America (Mexico, Central America, and the Caribbean).

**Prereq.:** GEOG 2626 or GEOG 2640; or HIST 3727.

## **GEOG 3717 Geography of Europe 3 s.h.**

Spatial patterns found in the physical and cultural landscapes of Europe.

**Prereq.:** GEOG 2626 or GEOG 2640.

**GEOG 3719 Geography of the United States 3 s.h.**

Spatial patterns found in the physical and cultural landscapes of the United States.

**Prereq.:** GEOG 2626 or GEOG 2640; or HIST 2605 or HIST 2606.

**GEOG 3721 Geography of Ohio 3 s.h.**

Spatial patterns found in the physical and cultural landscapes of Ohio.

**Prereq.:** GEOG 2626 or GEOG 2640; or HIST 2605 or HIST 2606 or HIST 3748.

**GEOG 3724 Themes in Cultural Geography 3 s.h.**

A seminar focusing on cultural traditions in geography in the United States. Primary focus is on scholars, traditions, theory and methodology of cultural geography as published in the professional literature.

**Prereq.:** GEOG 2626 or GEOG 2640 or ANTH 1500 or SOC 1500.

**GEOG 3726 Urban Geography 3 s.h.**

A study of the changing spatial patterns associated with the rise of urbanization, comparative urban developments and cities as a part of the urban system.

**Prereq.:** GEOG 2626 or GEOG 2640; or HIST 3736; or SOC 3707.

**GEOG 3730 Global Climates 3 s.h.**

Focus is on the scientific foundations of Earth's climate system; basic understanding of climate behavior, patterns, variability and change; contributions of human activities to climate change; and societal vulnerabilities and responses to climate variability and change.

**Prereq.:** GEOG 1503 or GEOG 2630 or permission of instructor.

**GEOG 3733 Severe and Hazardous Weather 3 s.h.**

Focus is on severe weather that may threaten harm to life and/or property. The scientific underpinning of severe weather types and their geographic distributions, hazards, and mitigation measures. Topics include extratropical cyclones; thunderstorms; lightning; tornadoes; hurricanes; floods; droughts; cold and heat waves; blizzards; snow, ice and wind storms; and El Nino/La Nina.

**Prereq.:** GEOG 1503 or GEOG 2630.

**GEOG 3735 Water in the Earth System 3 s.h.**

Focus is on the cycling of water within the Earth system. Covers the unique properties of water, the global water cycle, the distribution of water within the various reservoirs of the hydrosphere, the role of water in energy transfer and systems interactions, and human impacts on water resources.

**Prereq.:** GEOG 1503 or GEOG 2630; or GEOL 1504 or GEOL 1505 or GEOL 2602; or ENST 1500 or ENST 2600.

**GEOG 3737 Soils and Land Use 3 s.h.**

Examination of soil characteristics influencing land use planning and development. Topics include the basic physical and chemical properties of soil, soil water, the soil-forming factors, the use and interpretation of county soil reports, and soil characteristics beneficial and detrimental to selected land use practices. Participation in field trips is required.

**Prereq.:** GEOG 1503; or GEOL 1504 or GEOL 1505; or ENST 2600; high school chemistry recommended.

**GEOG 3750 Topics in Regional Geography 3 s.h.**

Application of the regional method to selected areas of the world. Topic is announced each time the course is offered. May be repeated three times for credit if content is not repeated. Maximum credit 9 s.h.

**Prereq.:** GEOG 2626 or GEOG 2640.

**GEOG 3775 Field Methods in Geography 3 s.h.**

Practical experiences in geographic data collection. Emphasis on applying techniques of observation, sampling, surveying, interviewing and mapping to both physical and human spatial phenomena. Participation in field trips is mandatory.

**Prereq.:** GEOG 1503 or GEOG 2610 or GEOG 2640.

**GEOG 3781 GIS Applications for the Social Sciences 3 s.h.**

Applications of Geographic Information Science (GIS) techniques for the social sciences in disciplines such as economics, sociology, anthropology, political science, and urban/cultural geography, as distinct from physical or environmental sciences. Focus is on the integration of a spatial perspective in social research, analysis and policy development and how GIS can be useful for collecting and analyzing both qualitative and quantitative data.

**Prereq.:** GEOG 2611.

**GEOG 3782 GIS Applications for the Natural Sciences 3 s.h.**

Applications of Geographic Information Science (GIS) techniques for the natural sciences in disciplines such as physical geography, geology, biology, ecology, natural hazards, environmental monitoring, planning and infrastructure, water resources, climate change, and energy. Topics range from spatial data quality, data conversion, database design, data management, analysis, and visualization.

**Prereq.:** GEOG 2611.

**GEOG 3783 GIS Applications in Urban-Regional Studies 3 s.h.**

The application of Geographic Information Systems (GIS) to issues involved in urban and regional studies, such as economic development, housing development and redevelopment, neighborhood rehabilitation, city planning, rural planning, zoning decisions, and transportation planning. The course is designed to provide planners and developers with an analytical skill set for collecting and analyzing both qualitative and quantitative spatial data. Two hours of lecture each week and two structured hours of lab each week.

**Prereq.:** GEOG 2611.

**GEOG 4801 Advanced Geographic Information Science 3 s.h.**

A continuation of Introduction to Geographic Information Science focusing on theory and application of advanced techniques in spatial data handling, GIS modeling, and spatial analysis. Credit will not be given for GEOG 4801 if a student has already received credit for GEOG 5811. 3 s.h.

**Prereq.:** GEOG 3701 or GEOG 5810.

**GEOG 4802 Advanced Remote Sensing 3 s.h.**

A continuation of Introduction to Remote Sensing focusing on advanced theory of image classification, image processing and enhancement, and methods of spatial analysis. Credit will not be given for GEOG 4802 if a student has already received credit for GEOG 5806.

**Prereq.:** GEOG 3702 or GEOG 5805.

**GEOG 4820 Urban-Regional Studies Seminar 3 s.h.**

Selected aspects of urban-regional studies not covered in existing courses. Topic to be announced each time the course is offered. May be taken up to two times for credit if topic is not repeated.

**Prereq.:** GEOG 3726 or consent of instructor.

**GEOG 4825 Geography Internship 1-3 s.h.**

Practical application of geographic principles and skills in the public or private workplace. A minimum of 40 clock hours per credit hour per semester is required in the work setting. An activities log must be maintained and oral and written reports of the internship experience are required. May be repeated for up to 6 s.h. By permit only.

**Prereq.:** 3 s.h. upper-division geography.

**GEOG 4840 Seminar in Geography 3 s.h.**

Selected aspects of geography not covered in existing courses. Topic to be announced each time the course is offered. May be taken up to two times for credit if topic is not repeated.

**Prereq.:** 9 s.h. of geography.

**GEOG 4890 Geography Capstone 3 s.h.**

Investigation of research topics, methods, and issues in geography. Students select a geographic research topic, collect and analyze data using appropriate methods and present findings in oral and written form.

**Prereq.:** Senior standing in Geography.

**Gen Ed:** Capstone.

**GEOG 5802 Biogeography 3 s.h.**

The distribution and scale of flora and fauna and the factors and processes that produce these patterns. Topics also include disturbance events, dispersal, colonization and invasion, and biological hierarchy.

**Prereq.:** BIOL 1505 or BIOL 2602 or GEOG 1503.

**GEOG 5820 Directed Research in Geography 1-3 s.h.**

An in-depth study of a specific problem in geography. The problem is dependent upon the student's interest and competence, availability of faculty supervision and department equipment. May be repeated up to 3 s.h.

**Prereq.:** 20 s.h. of Geography.

**GEOG 5850 International Area Study 3 s.h.**

A course in the geography and history of a selected international area with emphasis on cultural development by traveling in the selected region. The class and travel is supervised by the geography and/or history faculty. The course grade is based upon a term paper which must be submitted within 60 days after the end of the course.

**Prereq.:** permission of the chairperson.

**GEOG 6901 Introduction to Geographic Information Science 3 s.h.**

Introduction to the principles of collection, storage, manipulation, retrieval, analysis and visualization of spatial data in a computer environment. Designed to support graduate research efforts. No credit if taken GEOG 5810.

**Prereq.:** GEOG 2611 or permission of instructor.

**GEOG 6902 Introduction to Remote Sensing 3 s.h.**

Analysis and interpretation of earth features from both airborne and satellite observation platforms. Themes include photogrammetry, digital data manipulation, multispectral imagery, and interpretation of environmental features. Designed to support graduate research efforts. No credit if taken GEOG 5805.

**Prereq.:** GEOG 2611 or permission of instructor.

**GEOG 6903 Advanced Geographic Information Science 3 s.h.**

Focus is on theory and application of advanced techniques in spatial data handling, modeling, and spatial analysis. Designed to support graduate research efforts.

**Prereq.:** GEOG 6901; no credit if taken GEOG 5811.

**GEOG 6904 Advanced Remote Sensing 3 s.h.**

Advanced digital image processing methods and algorithms. Themes include high-resolution multi-spectral imaging systems, SAR interferometry, and hyperspectral imaging systems, in addition to topics such as geometric corrections, atmospheric corrections, image enhancement, image segmentation and shape analysis and change detection. Designed to support graduate research efforts.

**Prereq.:** GEOG 6902; no credit if taken GEOG 5806.