

Geography

Certificate in Geographic Information Systems (GIS)

The Geography Department offers a certificate of special study in Geographic Information Systems. This 12-unit program consists of four required courses. The certificate is designed for students seeking employment opportunities, those considering postbaccalaureate studies, and professionals who wish to further their careers in GIS.

Units

Required Upper-Division Courses 9

GEOG 141, 142, 143

Electives 3

GEOG 152; FIN 123; IS 140; CE 261, 283; GME 174, 175; EES 185, 186

Total 12

Advising Notes

1. Open to all students and professionals.
2. A grade of C or better must be earned in each course to receive the certificate.

COURSES

Introductory Geography (GEOG)

GEOG 2. Introduction to Cultural Geography (3)

Prerequisite: G.E. Foundation A2. General background to cultural geography, including origins of cultural landscapes, man's modification of the natural environment, and problems of population and settlement geography. G.E. Breadth D3. **F even**

GEOG 4. World Geography (3)

Prerequisite: G.E. Foundation A2. Survey of world-wide social, cultural, economic and political forces; earth's physical features; economic development; cultural and natural resources; man-land relationships. Applicable concepts and methodologies. Approach is by continents and/or cultural realms. G.E. Breadth D3. **FS**

GEOG 5. Physical Geography: Global Concepts, Weather and Climate (3)

The earth as a planet, map projections, location on the earth's surface, time, oceans, weather, and climate. **F**

GEOG 7. Physical Geography: The Earth's Surface (3)

A survey of those elements of the physical environment at the earth-atmosphere contact. Fundamentals of landform features, soils, natural vegetation, and water bodies. **S**

GEOG 20. Introduction to Spatial Techniques (3)

Introduction to spatial/geographical techniques, including cartography, topographical map reading, geographical information systems, and aerial photo interpretation. **S**

GEOG 25. Critical Thinking in Geography (3)

Fundamentals of critical thinking with emphasis on evaluating claims, examining geographical and cultural influences on perception, constructing arguments, using deductive and inductive reasoning, recognizing fallacies and persuasive rhetoric, and exploring explanations. These skills are applied to select topics drawn from various geographic contexts. G.E. Foundation A3.

GEOG 30. Introduction to Spatial Statistics (3)

Introduction of elementary statistical principles and techniques: probability theory, sampling, descriptive statistics, spatial statistics, hypothesis testing, correlation analysis, bivariate regression, and forecasting. (2 lecture, 2 lab hours) (Formerly GEOG 110) **S**

Atmospheric Sciences (GEOG)

GEOG 111. Meteorology (3)

Prerequisites: MATH 75 (or equivalent) and GEOG 5 (or equivalent). Study of the earth's atmosphere; energy exchanges and temperature; pressure and air circulation; fog, clouds, precipitation and the hydrologic cycle; cyclonic storms and orographic processes; stability and thunderstorms; weather modification and predictions with application to agriculture, aviation, and other activities. **F even**

GEOG 112. Climatology (3)

Prerequisites: MATH 75 (or equivalent) and GEOG 5 (or equivalent). Study of various systems of climate classification. Climates as they exist throughout the world and the reasons for their occurrence. **S odd**

GEOG 114. Micrometeorology (3)

(Same as PLANT 134.) Prerequisites: MATH 75 (or equivalent) and GEOG 5 (or equivalent) or permission of instructor. Micrometeorological influences on local climates including natural ecosystems and varying agricultural canopies. Local climate influences on wildlife, domestic animals, and humans. Manipulation of local climate including frost protection, irrigation and wind sheltering. Microclimates of non-uniform terrain and urban environment. **S even**

GEOG 115. Violent Weather/ Climatic Hazards (3)

Prerequisites: G.E. Foundation and Breadth Area B. Studies hurricanes, tornadoes, thunderstorms, lightning, destructive winds, heat waves, drought, severe winter storms, and floods. Looks at physical laws and processes that account for their formation and behavior; examines human impacts. G.E. Integration IB. **FS**

Environmental Sciences (GEOG)

GEOG 121. United States Landform Regions (3)

Prerequisite: GEOG 7 or equivalent. Natural regions of the United States based on study of types of landforms. Analysis of unity and diversity in such landform regions as the Colorado Plateau, Sierra Nevada Province, Basin and Range, et. al. **F odd**

GEOG 122. Introduction to Biogeography (3)

Prerequisites: G.E. Foundation and Breadth Area B and GEOG 30 (or equivalent). Examination of the living planet and global patterns of life. Topics covered include evolution, biodiversity, extinction, conservation, and impacts of global change on our planet's biosphere. (Formerly GEOG 117) **F even**

GEOG 127. Global Environmental Change (3)

Prerequisite: G.E. Foundation and Breadth Area B. Effects of human activities on the natural world, from ancient times to the present, with emphasis on local, regional, and global environmental changes and their implications for the future. **S even**

GEOG 128. Environmental Pollution (3)

Prerequisites: G.E. Foundation and Breadth Area B. A discussion of current environmental pollution problems involving the atmosphere, land, and water. The adverse effects of transportation, surface mining, sewage and waste disposal, noise, the use of pesticides, energy production and consumption, and related topics are examined. G.E. Integration IB. **FS**

GEOG 132. U.S. Environmental Law (3)

Prerequisites: G.E. Foundation and Breadth Area D and junior standing. Contemporary environmental problems and their interrelationships. The conceptual, constitutional, and administrative framework for environmental protection and management. Legislation and case law for the protection and enhancement of the environment with emphasis on natural resources. (Formerly CRP 135) **S odd**

GEOG 135. Environmental Protection (3)

Prerequisites: G.E. Foundation and Breadth Area D. An examination of the plight of nature; the values of nature preserved; man's attempt to preserve nature. Attention focuses on the national park movement, wilderness, endangered species, the management of lands for the purpose of preservation, and related topics. **S odd**

GEOG 139T. Environmental Regions (1-3; max total 9 if no area repeated)

Prerequisite: G.E. Foundation and Breadth Area D. Systematic and regional investiga-