Minor in Geographic Information Science

The Minor in Geographic Information Science is designed to give students the technical skills needed to acquire, manage, and analyze geographic data. Almost everything we do involves geographic information: deciding where to live and travel, environmental monitoring, law enforcement, public health, and urban planning. Influenced by computer technology, the academic disciplines of geographic information science such as remote sensing, spatial analysis, and geospatial visualization have evolved dramatically in the past few decades. The fields of remote sensing, the acquisition of geographic information from aircraft and satellites, and GIS, the management and analysis of different forms of digital geographic data, have been growing at an extraordinary rate. Computer cartography has revolutionized traditional cartography to vastly improve map making and visualization of geographic data in a multimedia environment. Students taking a minor in GIScience will receive extensive training in digital processing of remote sensing observations, learn about the wide range of geographic data for both natural and social science applications and how they can be combined, analyzed and finally be displayed to effectively inform decision makers in all walks of life. These skills are in great demand locally, nationally, and globally.

The Curriculum:

15/16 credit hours

Choose One: (3 or 4 hours)

- **GEOG 201/211 Geography of Environmental Systems.** A systematic introduction to the processes and associated forms of the atmosphere and earth’s surfaces emphasizing the interaction between climatology, hydrology, and geomorphology. (3, 1 cr.)

- **GEOG 202 The World in Cultural Perspective.** The imprint of cultural traits on the earth’s landscape. The transformation of the earth’s surface as a result of cultural diversity, settlement patterns, political organization, cultural evolution, and population growth. (3 cr.)

Required: (12 hours)

- **GEOG 306 Geographic Methods.** Something from Ralph or Shunlin.

- **GEOG 371 Digital Cartography.** Principles of cartographic database, earth-map relations, amp design, symbolization and color usage. Practical skills of making different thematic maps using a GIS. (3 cr.)

- **GEOG 372 Remote Sensing.** Principles of remote sensing in relation to photographic, thermal infra-red and radar imaging. Methods of obtaining quantitative information from remotely sensed images emphasizing the study of spatial and environmental relationships.

- **GEOG 373 Geographic Information Systems.** This hands-on course teaches you how to use the most common GIS software and provides you with the necessary background to understand how these software packages work. (3 cr.)

Admission to the Minor:

There are no special requirements for this minor. GIScience methods are applicable to many diverse
fields, such as agriculture, marketing, and archaeology. The Department of Geography welcomes students from every area of study. However, students should have basic computing skills.

All credits for the minor must be taken in the Department of Geography at the University of Maryland, College Park. No course with an earned grade below “C” may count towards the minor degree. No more than six credits are to be included in the student’s minor and major, supporting courses, and college requirements.

**Computer Facilities:**

The Department of Geography has state of the art computing facilities that are open to all students enrolled in the GIScience minor.