UNDERGRADUATE CERTIFICATE IN GEOGRAPHIC INFORMATION SCIENCE

Geographic information systems (GIS) consist of computer hardware, software, data, and people that is used to capture, manage, analyze, display, and distribute all forms of geographically referenced information. Effective use of GIS has evolved into a requisite skill in most academic research, as well as for agencies in both the public and private sectors. Undergraduate students from such varied disciplines as geography, atmospheric science, biology, engineering, economics, urban planning, landscape architecture, and sociology benefit from applying GIS and related technologies such as global positioning systems (GPS), remote sensing, spatial statistics, and computer programming to input, analyze, model, and display (map) location-based data. As such, it has found wide applications in the sciences and engineering, as well as in business, government, military, and consumer areas.

The certificate program is designed to provide undergraduate students with the knowledge and skills necessary to succeed in the rapidly expanding field of GIScience or apply GIScience concepts in their own field of study.

General requirements:

Students must maintain a 2.5 GPA in courses taken in the certificate program. A student pursuing the certificate can take no longer than 7 years to pursue the certificate unless a leave of absence or other extenuating circumstances are present.

Course requirements:

To complete the certificate, 14 credit hours must be completed within 7 academic years. Among them 8 credit hours are from two required core GIS courses and additional 6 credit hours are from electives. Only one course outside of the department can be included in these 14 credit hours.

Courses may be waived in consultation with the Director if the student can demonstrate satisfactory completion of similar coursework. If transfer courses are to be used to meet program requirements, the student must furnish the program director with a certified university transcript and, in some instances, a copy of the class syllabus. A maximum of 6 transfer credit hours may be used to meet program requirements.

Core Geographic Information Systems Courses (16) 8
GEOG 358 Principles of Geographic Information Systems 4
GEOG 558 Intermediate Geographical Information Systems 4
Elective courses (6) 6

Geographic Information Systems
GEOG 319 Topics in Techniques: _____
GEOG 528 Spatial Databases
GEOG 648 Location Modeling
GEOG 658 Topics in Geographic Information Science: _____
GEOG 758 Geographic Information Science

Programming
GEOG 360 Computer Programming for Mapping and Spatial Analysis

GEOG 560 GIS Application Programming
Cartography
GEOG 311 Introductory Cartography and Geovisualization
GEOG 511 Intermediate Cartography: _____
GEOG 514 Visualizing Spatial Data
GEOG 517 Data Handling and Map Symbolization
GEOG 710 Information Design
GEOG 711 Advanced Cartography: _____

Statistics
GEOG 316 Methods of Analyzing Geographical Data
GEOG 516 Applied Multivariate Analysis in Geography
GEOG 716 Advanced Geostatistics

Remote Sensing
GEOG 526 Remote Sensing of Environment I
GEOG 726 Remote Sensing of Environment II
ATMO 642 Remote Sensing

Geographic Information Systems focused internship or independent study
GEOG 490 Geographic Internship
GEOG 498 Special Topics in Geography: _____

Geographic Information Systems application courses from other departments (EEB, Geology, Urban Planning, SPAA, EVRN, Business, and Engineering)