

Undergraduate Certificate in Geographic Information Science

"Everything is related to everything else, but near things are more related than distant things," said renowned geographer and cartographer Waldo Tobler. A certificate in Geographic Information Science (GIS) capitalizes on this by blending field equipment, computer hardware and software, data, and people to capture, manage, display, analyze, and distribute all forms of geographically referenced information. Through the application of GIS and its principles, you can perform quantitative analyses to make informed decisions and provide logistical support in virtually any field. Effective use of GIS has evolved into a requisite skill for most agencies in both the public and private sectors, and provides a transformative tool to address academic research. Students from such diverse 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 use location-based data. GIS has found wide applications in the sciences and engineering, as well as in business, government, military, and consumer areas. The director of the certificate program is available to meet with each student and design a curriculum that best meets your interests, goals, and academic level.

The certificate program is designed to provide undergraduate students with the knowledge and skills necessary to succeed in the rapidly expanding field of geographic information science (GIScience) or apply GIScience concepts in their own fields of study. A certificate in GIS shows employers you have the critical skills necessary to perform in public, private, and academic settings.

Students interested in pursuing the certificate should review the requirements and meet with Undergraduate Academic Advisor, or the GIS program director, Professor Xingong Li (lix@ku.edu). The University of Kansas is a member of University Consortium for Geographic Information Science (UCGIS).

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.

Code	Title	Hours
Core Geographic Information Systems Courses		
GEOG 358	Introduction to Geographic Information Systems	4
GEOG 558	Spatial Data Analysis	4
Elective courses		6
Geographic Information Systems		
GEOG 528	Spatial Databases	
GEOG 658	Topics in Geospatial Technologies: _____	
GEOG 748	Location Modeling	
Programming		
GEOG 360	Computer Programming for Mapping and Spatial Analysis	
GEOG 560	GIS Application Programming	
Cartography		
GEOG 311	Introductory Cartography and Geovisualization	
GEOG 512	Advanced Cartography and Geovisualization	
Statistics		
GEOG 316	Methods of Analyzing Geographical Data	
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)		
Total Hours		14

At the completion of this program, students will be able to:

- Analyze geographically based issues using approaches and tools appropriate to the problem.
- Demonstrate sub-disciplinary/thematic depth of training and comprehension.