What is GIS?

A Geographic Information System (GIS) is a system designed to capture, store, manage, and present spatial or geographic information. It is an essential and in-demand research tool for a wide range of disciplines because it allows researchers to visualize, question, analyze, and interpret data in order to better understand relationships, patterns, and trends.

The undergraduate GIS certificate program focuses on developing students’ basic understanding and specific applications of GIS in a variety of contexts. In it, students develop a deeper understanding of this computer system that is used to capture, store, check, and display data relative to positions on the Earth’s surface. GIS shows different kinds of data, including streets, buildings, vegetation, anything that will contribute to a better understanding of spatial patterns and relationships. GIS spans multiple fields of interest and can be applied to most any aspect of science and society. Social scientists may use GIS to explore social or economic inequalities in communities. Physical scientists may use GIS to understand processes such as coastal erosion and restoration. Disaster response teams may use GIS to prepare for and respond to natural disasters. Environmental scientists may use GIS to compare pollution to sensitive natural areas. Qualitative researchers may use GIS for spatial storytelling to represent local knowledge, oral histories, and community narratives.

“GIS is a U.S. Department of Labor High Growth Industry; that means that the jobs of tomorrow in this high-impact technology field are here today. Location matters now more than ever. GIS and related geospatial technologies (mobile mapping, location-based services, crowdsourced spatial data, and drones) are in nearly every aspect of science and society. GIS can complement nearly any major on campus. We’re going places with GIS at UCF!”

Dr. Timothy Hawthorne

For more information, please contact:

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Geographic Information Systems (GIS)
Undergraduate Certificate
Careers that Utilize GIS:

Business: Planning new business and retail development in relation to potential customer demographics.

Environmental Science/Studies: Identifying sites that produce pollution and sites that are sensitive to pollutants such as rivers and wetlands.

Health and Medicine: Tracking disease outbreaks and projected impacts on population.

Law Enforcement: Examining crime data to determine where to assign police officers.

Non-Profit Sector: Tracking affordable housing and social service provisions.

Politics: Exploring voting patterns related to income, education level, and other demographic information.

Learn more about GIS careers at www.esri.com/what-is-gis/jobs

Elective Courses

Choose 2 courses from among the elective courses below. Other courses may be substituted with permission of the Coordinator.

BSC 4821 Biogeography 4 hrs
CGN 3700C Civil Engineering Measurements 4 hrs
CJE 4654 Crime and Place 3 hrs
CJE 4663 Crime Mapping and Pattern Analysis 3 hrs
CJE 3662 CJ Information Technology and Data Management 3 hrs
CWR 5634 Water Resources in a Changing Environment 3 hrs
EEL 5432 Satellite Remote Sensing 3 hrs
EEL 5820 Image Processing 3 hrs
HFT 4735 Tourism Geography 3 hrs
HUM 4394 Place and Space 3 hrs
LIT 3206 Place and Space in Literature 3 hrs
OSE 4830 Imaging and Display 3 hrs
PCB 4408 Urban Ecology 3 hrs
PUP 4209 Urban Environmental Policy 3 hrs

Only one of the following two database courses may be chosen:
CET 4427 Applied Database 3 hrs
CGS 2545C Database Concepts 3 hrs

Only one of the following three Computer Science courses may be chosen:
COP 2500C Concepts in Computer Science 4 hrs
COP 3223C Introduction to Programming with C 3 hrs
COP 3223H Honors Introduction to Programming with C 3 hrs

GIS Certificate Requirements

12 Hours Total

Two Core Courses  (6 hrs)

Two Elective Courses  (6 hrs)

First Core Course

Choose 1 course from among the courses below:

ANT 4852 GIS Methods in Anthropology 3 hrs
ANG 5852 GIS Methods in Anthropology 3 hrs
GIS 3043C GIS for Environmental Studies 3 hrs
PAD 4712 Information Systems for Public Managers and Planners 3 hrs
POS 4764 GIS for Political Analysis 3 hrs
SYA 3352 Spatial Sociology Intro to GIS 3 hrs

Second Core Course

Choose 1 course from among the courses below:

GIS 4310C Advanced GIS Applications in Environmental Studies 4 hrs
SYA 4354 Geographic Information Systems Applications 3 hrs
ANT 4854 Advanced GIS Methods in Anthropology 3 hrs

Please consult with the Coordinator or an advisor about possible additional course options and other requirements, including:

- Earn a grade of “C” 2.0 or better in each course used to satisfy the certificate.
- At least 12 credit hours used in the certificate must be earned at UCF.
- No credit by exam (TSD, Military credit) may be used.
- Internship, Co-op, or Independent Study credit cannot be used toward the certificate.

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