GEOGRAPHICAL INFORMATION SYSTEMS

The program in Geographical Information Systems is a four course (12 credit) interdisciplinary program that leads to an undergraduate certificate in geographical information systems and spatial literacy. It can be completed by students in conjunction with any major across the university.

Learning Goals and Outcomes

Goal 1: Develop critical interdisciplinary spatial literacy

Goal 2: Acquire proficiency in geospatial technologies and methods in order to discover, retrieve, interpret, analyze, visualize, and store spatial data

Goal 3: Understand and adopt the ethical principles and collaborative spirit of the academic GIS community

Goal 4: Understand the relationship between geography, culture, and justice and how they relate to real world issues

Requirements

Code	Title	Hours
GIS 101	Introduction to GIS	3
GIS 201	Intermediate GIS	3
Choose 2 courses:		6
GIS 170	Special Topics in GIS	
GIS 270	Special Topics in GIS	
GIS 370	Special Topics in GIS	
Total Hours		**12**

Courses

GIS 101 Introduction to GIS (3 credits)
This course is designed to acquaint students with an introductory examination of geographic information systems (GIS). GIS tools are used to analyze spatial information, manage spatial data, and create maps used to present and visualize data. This course focuses on ArcGIS and how to apply GIS skills to answer research questions. GIS technology is used in a variety of disciplines including humanities, engineering, economics, environmental studies, engineering, management, urban planning, agriculture, forestry, public health, and many others.
Attributes: Undergraduate

GIS 127 Religion & Race in Philadelphi (3 credits)
"Religion and Race in Philadelphia" is a religious studies course that examines the co-constitution of religious beliefs, racial identities, and regional cultures from an historical perspective. This course will look at how the meanings of both "race" and "religion" are produced through the intersections of individuals, institutions, and ideologies in Philly. Using this religious and racial lens, this course will examine how Philadelphians have come to define their city, themselves, their communities, and their relationships to their natural and cultural environments. This course will use various geographical information systems (GIS) to visualize and analyze various aspects of Philadelphia's cultural landscape. No prior experience in GIS is required.
Attributes: Diversity Course, Globalization Course, Non-Western Studies (GEP), Undergraduate, Writing Intensive Course- GEP

GIS 170 Special Topics in GIS (3 credits)
This course examines selected introductory topics and techniques in GIS. Examples include map making, geospatial thinking, web-mapping, cartography and visualization, and the use of applications for specific majors or fields. Course content reflects recent trends in GIS and the job market.
Prerequisites: ECN 101 or GIS 101
Attributes: Undergraduate

GIS 172 Urban Economics (3 credits)
Urban Economics is broadly defined as the economic study of urban areas. This course will teach you how to examine issues that typically occur in urban areas, such as crime, poverty, education, inequality, public transit, and the distribution of public goods and government resources, from an economic perspective. Throughout this course, we will not only examine urban issues theoretically, but also use real-world data and geographic information systems software (GIS) to apply economic theory to examine these issues in real-time.
Prerequisites: ECN 101 or GIS 101
Attributes: Diversity Course, Globalization Course, Non-Western Studies (GEP), Undergraduate

GIS 175 Environmental Economics (3 credits)
This course examines the interactions between people and the environment by addressing the challenge of meeting the increasing demand for goods and services while simultaneously conserving natural resources for future generations. This course will also look at several current environmental issues including the effects of climate change, land tenure, globalization and trade, natural resource management, food waste, eco-labelling, and environmental justice. Since human numbers are increasing more rapidly in poor countries than anywhere else, special attention is paid to population growth and the prospects for environmentally sound agricultural development in Africa, Asia, and Latin America. There is a writing component to this course that requires students to write a technical paper on a developing country of their choice. This course will also utilize geographic information systems (GIS) software to apply economic theory to examine global environmental issues; no prior experience with GIS is required.
Prerequisites: ECN 101 or GIS 101
Attributes: Globalization Course, Undergraduate

GIS 201 Intermediate GIS (3 credits)
A continuation of GIS 101, this course will prepare students for more advanced geographical analysis and use of geographical information systems (GIS). Students will learn intermediate techniques to analyze spatial information, manage spatial data, and create map layouts to present and visualize data. This course focuses on ArcGIS and other softwares as well as how students can integrate geographic concepts and GIS skills in their major and intended field.
Prerequisites: GIS 101 or INT 170
Attributes: Undergraduate

GIS 270 Special Topics in GIS (3 credits)
This course examines selected intermediate topics and techniques in GIS. Examples include map construction, geovisualization, spatial analysis, and the use of applications for specific majors or fields. Course content reflects recent trends in GIS and the job market.
Prerequisites: GIS 101 or INT 170
Attributes: Undergraduate

GIS 370 Special Topics in GIS (3 credits)
This course examines selected topics and innovative techniques in GIS. Examples include remote sensing, location analysis, web mapping, cartographical design, GIS programming, and the use of specialized applications for specific majors or fields. Course content reflects recent trends in GIS and the job market.
Prerequisites: (GIS 101 and GIS 102) or (INT 170 and INT 270)
Attributes: Undergraduate

GIS 601 Introduction to GIS (3 credits)
This course is designed to acquaint students with an introductory examination of geographic information systems (GIS). GIS tools are used to analyze spatial information, manage spatial data, and create maps used to present and visualize data. This course focuses on ArcGIS and how to apply GIS skills to answer research questions. GIS technology is used in a variety of disciplines including humanities, engineering, economics, environmental studies, engineering, management, urban planning, agriculture, forestry, public health, and many others.
Restrictions: Enrollment is limited to Graduate level students.

GIS 670 Special Topics in GIS (3 credits)
This course examines selected advanced graduate topics and techniques in GIS. Examples include remote sensing, location analysis, web-mapping, cartographical design, GIS programming, and the use of applications for specific majors or fields. Course content reflects needs and interests of graduate students, as well as recent trends in GIS and the job market.
Restrictions: Enrollment is limited to Graduate level students.