GEOGRAPHIC INFORMATION SYSTEMS, CERTIFICATE

The undergraduate certificate program in geographic information systems (GIS) at Saint Louis University focuses on current issues, including environmental quality, climate change, sustainability of natural and nonrenewable resources and the impact of human activities on the environment.

Program Highlights

Students in SLU's undergraduate certificate program in geographic information systems (GIS) benefit from:

- A focus on advanced remote sensing, GIS and geospatial methods
- Use of the latest image processing techniques
- Coverage of diverse applications in various disciplines
- Training with industry-leading hardware and software systems (ArcGIS, ENVI+IDL, SARscape) and open-source platforms (e.g., QGIS, Boundless Desktop)
- Late afternoon or evening classes that accommodate working professionals
- Instructors with advanced degrees who work and conduct research in the field
- State-of-the-art research labs equipped with modern computing, commercial and open-source software tools, various remote-sensing sensors and manned and unmanned aircraft.

Curriculum Overview

The GIS certificate is an 18-credit program that students can pursue on a full- or part-time basis, usually completing the certificate in less than two years.

Courses cover the latest image-processing techniques for optical, thermal, RADAR and LiDAR remote sensing. Students also explore geospatial methods and principles of spatial analysis, database design, cartographic representation, machine learning, computer vision, management and data mining with integration of GIS, remote sensing and GPS.

Theory and lectures are supplemented with hands-on projects involving risk assessment and mitigation, environmental modeling, resources exploration, sustainable development, natural resource management and transportation, subterranean mapping and forest fire management.

Careers

Graduates have a very good employment outlook. Employment in this field is growing at an annual rate of almost 35%, with the commercial subsection of the market expanding by 100% each year, according to the Geospatial Information and Technology Association.

Recent graduates from this program have been employed by various environmental, remote sensing and GIS companies, including Monsanto, the National Geospatial-Intelligence Agency and the U.S. Geological Survey (USGS).

Admission Requirements

Applicants should have a minimum GPA of 3.00.

Students already enrolled in any undergraduate program at Saint Louis University do not need to reapply and should submit an application for the major.

Other applicants must submit the following:

- GIS certificate enrollment application
- Résumé
- Professional goal statement (500 to 800 words)

Tuition

Tuition	Cost Per Credit
Undergraduate Tuition	$1,920

Additional charges may apply. Other resources are listed below:

Net Price Calculator (https://www.slu.edu/financial-aid/tuition-and-costs/calculator.php)

Information on Tuition and Fees (https://catalog.slu.edu/academic-policies/student-financial-services/tuition/)

Miscellaneous Fees (https://catalog.slu.edu/academic-policies/student-financial-services/fees/)

Information on Summer Tuition (https://catalog.slu.edu/academic-policies/student-financial-services/tuition-summer/)

Scholarships and Financial Aid

There are two principal ways to help finance a Saint Louis University education:

- **Scholarships:** Scholarships are awarded based on academic achievement, service, leadership and financial need.
- **Financial Aid:** Financial aid is provided through grants and loans, some of which require repayment.

Saint Louis University makes every effort to keep our education affordable. In fiscal year 2023, 99% of first-time freshmen and 92% of all students received financial aid (https://www.slu.edu/financial-aid/) and students received more than $459 million in aid University-wide.

For priority consideration for merit-based scholarships, apply for admission by December 1 and complete a Free Application for Federal Student Aid (FAFSA) by March 1.

For more information on scholarships and financial aid, visit the Office of Student Financial Services (https://www.slu.edu/financial-aid/).

Requirements

Code	Title	Credits
Required Courses		
GIS 4010	Introduction to Geographic Information Systems [1]	3
GIS 4040	Introduction to Remote Sensing	3
GIS 4030	Geospatial Data Management	3
Elective Courses		
Select three of the following:		9
GIS 4050	Digital Image Processing	
GIS 4090	Introduction to Programming for GIS and Remote Sensing	

	GIS 4091	Advanced Programming for GIS and Remote Sensing
	GIS 4092	Machine Learning for GIS and Remote Sensing
	GIS 4100	Microwave Remote Sensing: SAR Principles, Data Processing and Applications
	GIS 4120	Geospatial Analytics
	SOC 4670	Spatial Demography – Applied Spatial Statistics
	BIOL 4190	GIS in Biology
Total Credits		**18**

[1] Students with previous GIS experience or coursework may be allowed to take an advanced elective in place of the required Introduction to GIS course.

Continuation Standards

Students must have a minimum of a 2.00 GPA in all certificate courses.