

GEOINFORMATICS AND GEOSPATIAL ANALYTICS, B.S.

Saint Louis University's Bachelor of Science in Geoinformatics and Geospatial Analytics prepares graduates for geospatial careers around the globe. It combines theory and practice to train the geospatial professionals of tomorrow.

SLU's B.S. in geoinformatics and geospatial analytics from the Geospatial Institute and the Department of Earth, Environmental and Geospatial Science is offered in cooperation with the mathematics and statistics, and computer science departments. This program trains students to be leading experts in the field of geospatial science. The program combines mathematical and geospatial theory with practical experience in computer science, geographic information systems, remote sensing and global position systems.

The program prepares students for the current and future challenges of the growing geospatial industry and to meet increasing demands for experts in geospatial intelligence, geospatial analytics, spatial modeling and statistics, photogrammetry, machine learning, artificial intelligence and more. As an applied science, SLU's B.S. in geoinformatics and geospatial analytics program focuses on modern, global issues such as the environment, society and economy.

Students develop a foundation in mathematical and geospatial theory and computer programming while applying GIS, GPS, remote sensing, geovisualization, spatial analyses and statistics, database management and programming skills within the natural, social science and physical sciences using innovative technologies and software programs (e.g., ArcGIS, QGIS, ENVI+IDL, SARscape, Python, GeoDA, Google Earth Engine, R).

Curriculum Overview

Students completing the Bachelor of Science curriculum in geoinformatics and geospatial analytics obtain a technically rigorous and applicative degree, modeled from curricula of 70+ other programs around the United States. The B.S. degree requires credits in GIS, math and computer science in addition to University Undergraduate Core courses.

Fieldwork and Research Opportunities

Department of Earth, Environmental, and Geospatial Science faculty members work and conduct research in the field. They have been awarded grants from various institutions, including the National Aeronautics and Space Administration, U.S. Centers for Disease Control and Prevention, U.S. Environmental Protection Agency, Geological Society of America, National Geospatial-Intelligence Agency, National Institutes of Health, National Park Service, National Science Foundation, U.S. Army Corps of Engineers, Electric Power Research Institute, Missouri Department of Natural Resources, Ameren and others.

Careers

Graduates from programs in the Geospatial Institute, or GeoSLU, are employed in careers in environmental science, remote sensing, GIS and geospatial intelligence fields. Recent graduates work for organizations such as ESRI, the National Geospatial-Intelligence Agency, or NGA and the U.S. Geological Survey,

Globally, the geospatial industry has a growth rate of approximately 50% a year. The St. Louis region is emerging as a global center for innovative research and technology, particularly for geospatial technology. This is driven by a vibrant entrepreneurial community, excellent research universities, a robust network of established industry thought leaders and the presence of the NGA.

According to a recent report from St. Louis-based entrepreneurial support organization ITEN, technology positions in the region are expected to grow 60% in the next three to five years. The Missouri Department of Economic Development has estimated that the geospatial industry is growing quickly and is projected to earn \$100 billion in revenue by 2030. The geospatial industry accounts for 500,000 jobs nationally, and Missouri will have 5,000 new jobs in the next few years, contributing roughly \$600 million to the state's economy.

Admission Requirements

Begin Your Application (<https://www.slu.edu/apply.php>)

Saint Louis University also accepts the Common Application and the Coalition Application.

Freshman

All applications are thoroughly reviewed with the highest degree of individual care and consideration to all credentials that are submitted. Solid academic performance in college preparatory coursework is a primary concern in reviewing a freshman applicant's file.

To be considered for admission to any Saint Louis University undergraduate program, applicants must be graduating from an accredited high school, have an acceptable HiSET exam score or take the General Education Development (GED) test.

Transfer

Applicants must be a graduate of an accredited high school or have an acceptable score on the GED or HiSET.

Students who have attempted fewer than 24 semester credits (or 30 quarter credits) of college credit must follow the above freshman admission requirements. Students who have completed 24 or more semester credits (or 30 quarter credits) of college credit must submit transcripts from all previously attended college(s).

In reviewing a transfer applicant's file, the Office of Admission holistically examines the student's academic performance in college-level coursework as an indicator of the student's ability to meet the academic rigors of Saint Louis University. Where applicable, transfer students will be evaluated on any courses outlined in the continuation standards of their preferred major.

International Applicants

All admission policies and requirements for domestic students apply to international students along with the following:

- Demonstrate English Language Proficiency (<https://catalog.slu.edu/academic-policies/office-admission/undergraduate/english-language-proficiency/>)
- All academic records must include an English translation. An official course-by-course transcript evaluation may be required and accepted.

Tuition

Tuition/Fee	Cost Per Year
Undergraduate Tuition	\$58,960
University Fees	\$1,000

Additional charges may apply. Other resources are listed below:

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

Cost of Attendance (<https://www.slu.edu/financial-aid/tuition-and-costs/cost-of-attendance.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-current/tuition-summer-current.pdf>)

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 2025, 99.6% of first-time freshmen and 92% of all students received financial aid (<https://www.slu.edu/financial-aid/>) and students received more than \$517 million in aid University-wide.

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

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

Learning Outcomes

1. Students will demonstrate the ability to use geographic information systems to analyze patterns in large, complex datasets.
2. Students will develop skills in communicating information regarding data, analyses and graphics.
3. Students will show proficiency in remote sensing, including the ability to acquire, process and analyze remotely sensed data.
4. Students will become proficient in programming languages relevant to geographic information systems, remote sensing and computer science.

Requirements

Code	Title	Credits
	University Undergraduate Core (https://catalog.slu.edu/academic-policies/academic-policies-procedures/university-core/)	32-35

Major Requirements

Required GIS Courses

GIS 2010	Introduction to Location Science	3
GIS 2030	Spatial Analysis	3
GIS 2050	Introduction to Global Positioning Systems: Theory and Applications	3
GIS 4010	Introduction to Geographic Information Systems	3
GIS 4030	Geospatial Data Management	3
GIS 4040	Introduction to Remote Sensing	3
GIS 4050	Digital Image Processing	3

Math and Statistics Courses

MATH 1510	Calculus I	4
MATH 1520	Calculus II	4
MATH 1660	Discrete Mathematics	3
STAT 3850	Foundation of Statistics	3

Computer Science Courses

CSCI 1060	Introduction to Computer Science: Scientific Programming	3
or CSCI 1070	Introduction to Computer Science: Taming Big Data	
CSCI 1300	Introduction to Object-Oriented Programming	4
CSCI 2100	Data Structures	4

Major Electives

Select 18 credits from courses with "Geospatial Electives" attribute

General Electives	21-24
Total Credits	120

Non-Course Requirements

All School of Science and Engineering B.A. and B.S. students must complete an exit interview/survey near the end of their bachelor's program.

Continuation Standards

Students must have a minimum of a 2.00 GPA in their geoinformatics and geospatial analytics major courses and required related credits (GIS, mathematics, statistics and computer sciences) by the conclusion of their freshman year. Students who fall below a 2.00 GPA after their freshman year will be placed on probation. Students placed on probation have a maximum of one year to raise their GPA to at least a 2.0. After their freshman year, students must maintain a GPA of 2.0 to remain in good standing in the program. Students may not graduate while they are on probation. Students who do not fulfill probationary requirements will be dropped from the program.

Roadmap

This roadmap is just one example of a semester-by-semester plan of study for this program. There are other plans students can and do take. The plan of study for each particular student is established in consultation with each student's academic advisor; *this roadmap does not replace academic advising appointments.*

Roadmap notes:

- This Roadmap assumes full-time enrollment unless otherwise noted.
- Courses/Milestones marked with an “!” are critical and must be completed in the semester listed in the Roadmap to ensure a timely graduation.
- Course availability and sequencing are subject to change.

Course	Title	Credits
Year One		
Fall		
GIS 2010	Introduction to Location Science	3
MATH 1510	Calculus I	4
University Core and/or General Electives		9
Credits		16
Spring		
GIS 2030	Spatial Analysis	3
MATH 1520	Calculus II	4
CSCI 1060 or CSCI 1070	Introduction to Computer Science: Scientific Programming or Introduction to Computer Science: Taming Big Data	3
University Core and/or General Electives		6
Credits		16
Year Two		
Fall		
Science I (w/ Lab)		4
MATH 1660	Discrete Mathematics	3
University Core and/or General Electives		9
Credits		16
Spring		
Science II (w/ Lab) - same discipline as Science I		4
University Core and/or General Electives		3
STAT 3850	Foundation of Statistics	3
GIS 2050	Introduction to Global Positioning Systems: Theory and Applications	3
ART 2150	Color Theory	3
Credits		16
Year Three		
Fall		
CSCI 1300	Introduction to Object-Oriented Programming	4
GIS 4010	Introduction to Geographic Information Systems	3
Geospatial	Elective	3
Geospatial	Elective	3
University Core and/or General Electives		3
Credits		16
Spring		
CSCI 2100	Data Structures	4
GIS 4030	Geospatial Data Management	3
Geospatial	Elective	3
Geospatial	Elective	3
University Core and/or General Electives		3
Credits		16

Year Four

Fall

GIS 4040	Introduction to Remote Sensing	3
Geospatial	Elective	3
Geospatial	Elective	3
University Core and/or General Electives		3
Credits		12

Spring

GIS 4050	Digital Image Processing	3
GIS 4960	GIS Capstone	3
University Core and/or General Electives		6
Credits		12
Total Credits		120

2+SLU

2+SLU programs provide a guided pathway for students transferring from a partner institution.

- Geoinformatics and Geospatial Analytics, B.S. (STLCC 2+SLU) (<https://catalog.slu.edu/academic-policies/office-admission/undergraduate/2plusstu/stlcc/geoinformatics/>)

Contact Us

For more information about this or other undergraduate programs within the Department of Earth, Environmental, and Geospatial Science, please email eegsugdirector@slu.edu.