GEOPHYSICAL INFORMATION SCIENCE, POST-BACCALAUREATE CERTIFICATE

The post-baccalaureate certificate program in Geographic Information Science (GIS) focuses on current issues, including environmental quality, climate change, sustainability of natural and nonrenewable resources, and the impact of human activities on the environment.

- 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 aircrafts.

Curriculum Overview

The GIS certificate is an 15-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, LiDAR remote sensing. Students will 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.

Geospatial Intelligence (GEOINT) Certificate Program

Saint Louis University is currently seeking accreditation with the United States Geospatial Intelligence Foundation (USGIF) to allow students to apply for a Geospatial Intelligence Certificate from the USGIF. The USGIF program focuses on preparing students as GEOINT practitioners to meet the increasing needs of the geospatial industry and federal intelligence agencies.

The USGIF GEOINT Certificate requirements develop the following competencies:

- GIS & Analysis Tools,
- Remote Sensing & Imagery Analysis,
- Geospatial Data Management,
- Data Visualization,
- Cross-Functional Competencies (critical thinking, synthesis, and reporting),
- Emerging Competencies (AI/ML, computer vision, AR/VR, and UAVs).

Although some of the relevant coursework overlaps with our GIS certificates, the USGIF certificate-related courses include an emphasis on elective courses on analysis and interpretation of geospatial data, programming, database management and generation of intelligence-style products in addition to foundational geographic skills. The GEOINT certificate electives and capstone also provide instruction on geospatial intelligence based on analysis of geospatial data, using modules from the USGIF “Intro to GEOINT” course. The coursework that can be used to apply for the USGIF GEOINT certificate is structured for students seeking careers as analysts of complex geospatial data.

Careers

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

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

Admission Requirements

Minimum GPA: 3.00

Applicants with GPA below the minimum GPA will be considered on a case-by-case basis. To request an exception of the minimum GMAT, LSAT or GRE scores, submit a petition to the program director.

Students already enrolled in any graduate program at Saint Louis University do not need to reapply and should submit a Petition for Post-Baccalaureate Certificate Admission (Form No. 15). Other applicants must submit the following:

- Official transcripts
- One letter of recommendation
- Résumé
- Professional goal statement (500 to 800 words)

Requirements for International Students

- TOEFL score (minimum: 80) or IELTS score (minimum: 6.5)
- Applicants may be asked to schedule an online interview before final acceptance.

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

- Demonstrate English Language Proficiency (http://catalog.slu.edu/academic-policies/office-admission/undergraduate/english-language-proficiency)
- Proof of financial support must include:
  - A letter of financial support from the person(s) or sponsoring agency funding the time at Saint Louis University
  - A letter from the sponsor’s bank verifying that the funds are available and will be so for the duration of study at the University
• Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include the courses taken and/or lectures attended, practical laboratory work, the maximum and minimum grades attainable, the grades earned or the results of all end-of-term examinations, and any honors or degrees received. WES and ECE transcripts are accepted.

Application Deadlines
The final deadline for fall admittance is May 1 for international students and July 1 for domestic students.

Requirements

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GIS 5010</td>
<td>Introduction to Geographic Information Systems</td>
<td>3</td>
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<td>GIS 5020</td>
<td>Intermediate Geographic Information Systems</td>
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</tr>
<tr>
<td>GIS 5040</td>
<td>Introduction to Remote Sensing</td>
<td>3</td>
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<tr>
<td>GIS 5060</td>
<td>Geospatial Methods in Environmental Studies</td>
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Elective Courses
Select one of the following:

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<tbody>
<tr>
<td>GIS 5070</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>GIS 5080</td>
<td>Digital Cartography and Geovisualization</td>
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<td>GIS 5090</td>
<td>Introduction to Programming for GIS and Remote Sensing</td>
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<td>GIS 5100</td>
<td>Microwave Remote Sensing: SAR Principles, Data Processing and Applications</td>
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<tr>
<td>GIS 5110</td>
<td>Interferometric Synthetic Aperture Radar</td>
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<td>GIS 5120</td>
<td>Geographic Information Science, Society and Sustainability</td>
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<tr>
<td>BIOL 5190</td>
<td>Geographic Information Systems in Biology</td>
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Total Credits 15

Geospatial Intelligence (GEOINT) Certificate Program

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<tr>
<td>or SOC 5670</td>
<td>Spatial Demography: Applied Statistics for Spatial Data</td>
<td></td>
</tr>
<tr>
<td>GIS 5970</td>
<td>Research Topics</td>
<td>3</td>
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Total Credits 15

Non-Course Requirements for the Geospatial Intelligence (GEOINT) Certificate Program

• Additionally, students have to take GEOINT certificate exam administered by USGIF.
• Students must have a cumulative GPA of 3.0 in certificate-related courses and must earn a C or better in each certificate-related course.
• Students applying to receive the certificate will need to maintain an online portfolio showcasing their learning in certificate-related courses, including the capstone.

Continuation Standards
Students must maintain a cumulative grade point average (GPA) of 3.00 in all graduate/professional courses.