Geographic Information Systems, Master of Science

MS in Geographic Information Systems

gis.jhu.edu (https://advanced.jhu.edu/academics/graduate/ms-geographic-information-systems/)

Geographic Information Systems (GIS) is a dynamic and versatile technology that enables visualization, analytics, and data management capabilities for an increasingly wide spectrum of industries. It has come to play a key role in empowering decision-makers, helping them understand various processes and make well-informed decisions. It is used in diverse fields, such as environmental planning, law enforcement, defense and intelligence, business, utilities, telecommunications, economic development, transportation, public health, and many others. It is this dynamism that the Johns Hopkins University GIS programs encompass in their offerings, the Master of Science in GIS and the Certificate in GIS.

These two programs are fully online and provide a strong foundational education that delves into the principles and real-world applications of geospatial technology, allowing students to build their credentials and capitalize on a marketplace that continues to grow in its demand for skilled employees. The Master of Science in GIS is designed to prepare the next generation of geospatial professionals and data scientists, skilled in all facets of geospatial technology, including programming and application development, geospatial data science, spatial and predictive analytics, visualization, big data technologies, enterprise GIS administration, and project management.

Both programs are designed for students who have little or no knowledge of the GIS field, as well as students with prior experience. Students entering either program will be introduced to the most widely used commercial software, as well as open-source software, often utilizing cloud computing infrastructure. Hands-on experience is emphasized and students in the program can expect to work on real-world geospatial scenarios.

Students in the Master of Science program could choose to follow one of two focus areas or customize the degree to suit career goals. The focus areas are general recommendations of logical course groupings that could be pursued. The goal is to maintain flexibility for the GIS program and allow students to choose courses that best fulfill their own interests.

- Advanced Geospatial Technology
- GIS Programming and Application Development
- Geospatial Data Science and Predictive Analytics

Admissions Criteria for all Advanced Academic Programs (https://e-catalogue.jhu.edu/arts-sciences/advanced-academic-programs/enrollment-services/admission/)

Program Specific Requirements

In addition to the materials and credentials required for all programs, Post-Baccalaureate Certificate in Geographic Information Systems program requires:

- A semester of statistics, quantitative methods, or technology-oriented experience.

Students who do not have the necessary quantitative background may be offered provisional admission if their other credentials are strong.

PROGRAM REQUIREMENTS

1. One required core course
2. Three customizable core courses
3. Six electives

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>AS.430.800</td>
<td>Capstone for Geographic Information Systems</td>
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Core Courses - Customizable

Select three of the following:

- AS.430.600 Web GIS
- AS.430.601 Geographic Information Systems (GIS)
- AS.430.603 Geospatial Statistics
- AS.430.604 Spatial Analytics
- AS.430.606 Programming in GIS

Electives

Select six of the following:

- AS.430.602 Remote Sensing: Systems and Applications
- AS.430.605 Development and Management of GIS Projects
- AS.430.607 Spatial Databases and Data Interoperability
- AS.430.608 GIS and Spatial Decision Support Systems
- AS.430.609 Spatial Data Management: Quality and Control
- AS.430.611 Geospatial Ontologies and Semantics
- AS.430.612 Cartographic Design and Visualization
- AS.430.613 Advanced Topics in Remote Sensing
- AS.430.615 Big Data Analytics: Tools and Techniques
- AS.430.617 Census Data Mining: Visualization and Analytics
- AS.430.618 Advanced Python Scripting for GIS
- AS.430.619 Web Application Development
- AS.430.621 GIS for Emergency Management
- AS.430.623 Geo Apps
- AS.430.625 System Architecture for Enterprise GIS
- AS.430.627 Artificial Intelligence and Machine Learning in Geospatial Technology
- AS.430.631 Spatial Algorithms and Data Structures
- AS.430.633 Advanced Spatio-Temporal Statistics
- AS.430.635 Urban Analytics