

# 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.

- Geospatial Technology
- 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 courses
2. Four customizable core courses
3. Five electives

Code	Title	Credits
<b>Core Courses - Required:</b>		<b>4</b>
AS.430.800	Capstone for Geographic Information Systems	
<b>Core Courses - Customizable</b>		<b>16</b>
Select four 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	
<b>Electives</b>		<b>20</b>
Select five 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	
<b>Total Credits</b>		<b>40</b>