GEOSPATIAL INTELLIGENCE, MASTER OF SCIENCE

MS in Geospatial Intelligence (https://advanced.jhu.edu/academics/graduate/ms-geospatial-intelligence/)

Geospatial intelligence informs and influences policy, military, diplomatic, environmental, and disaster relief and recovery decisions and operations by governments at every level. Increasingly, in non-governmental sectors, it is informing and influencing public health, business, infrastructure, energy, regulatory, and advocacy decisions.

The MS in Geospatial Intelligence program unites three fields of study: the history of geospatial intelligence; the science and mathematics of digital geography and its related databases; and the art of converting geospatial data into written, spoken, and visual intelligence. Students analyze historical intelligence examples to understand the development of the concepts and practices behind collection, analysis, reporting, and technology. They also focus on current challenges in the profession, among them the analytics and technology needed for the volume of current and future collection, the challenges of new sensors, and the development of new non-governmental geospatial communities.

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, the Master of Science in Geospatial Intelligence program also requires:

- **A resume or curriculum vitae**
- **A statement of purpose:** A 500-word statement of purpose in pursuing geospatial-intelligence studies.
- **Two recommendations:** Under "Recommendations," include the contact information for two recommenders. Professors or supervisors should verify academic and professional accomplishments. They will be automatically emailed information to access the system. They can then complete and upload their recommendation form.
- **A geospatial writing sample:** Complete and submit a two-to three-page geospatial writing sample that compares and contrasts this 1860 image (https://advanced.jhu.edu/wp-content/uploads/2020/07/Balloon-View-of-Boston.jpg) with a modern Google Earth image (https://www.google.com/maps/@42.3643074,-71.0545318,436a,35y,90h/data=!3m1!1e3/) of the same location. Both images show the north end of Boston, Massachusetts. A common reference point is the Old South Church, now called Old South Meeting House, which is near the left-hand side at the center of the 1860 balloon view of Boston. Examine the map and the Google Earth image to identify and analyze what visibly remains on the Google Earth image from the 1860 image. The writing sample should be double spaced, using either 11-point Calibri or Arial font. The writing sample should include:

- Discussion of the most significant changes and similarities between the two images and why you think they are important. Please indicate how you decided what was significant about the changes and the similarities you have noted. In the last paragraph, please indicate the next steps you would take if you wanted to learn more about these two images. Use evidence to back up your assertions, and cite your sources using academic conventions.
- Two measurements you have recorded, either as you are working or after you are done. Submit the two measurements with your analysis. The measurements will not be used for any individual performance measurement, only to illustrate an enduring challenge for all geospatial analysis that will be covered throughout the introductory course and the entire program. The measurements are:
  - How long did you spend examining the images (looking and thinking)?
  - How long did you spend writing up the results (writing and thinking)?

Program Requirements

Students complete 12 courses to earn their degree:

- Eight required core courses
- One customizable core course
- Three elective courses

Code	Title	Credits
Core Courses - Required:		
AS.472.600	Introduction to Geospatial Intelligence	3
AS.430.601	Geographic Information Systems (GIS)	4
AS.430.603		4
AS.430.604	Spatial Analytics	4
AS.473.600	The Art & Practice of Intelligence	3
AS.430.612	Cartographic Design and Visualization	4
AS.472.613	Geospatial Law and Ethics	3
AS.472.800	Capstone in Geospatial Intelligence	3
Core Courses - Customizable:		**3**
Select one of the following:		
AS.473.644	Technical Collection of Intelligence	
AS.430.602	Remote Sensing: Systems and Applications	
Electives		**9**
Select three of the following:		
AS.430.600	Web GIS	
AS.430.606	Programming in GIS	
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.430.613	Advanced Topics in Remote Sensing	
AS.430.615	Big Data Analytics: Tools and Techniques	
AS.430.618	Advanced Python Scripting for GIS	
AS.430.619	Web Application Development	
AS.430.627	Artificial Intelligence and Machine Learning in Geospatial Technology	
AS.430.629	Drones in Geospatial Decision Making	

AS.430.621	GIS for Emergency Management
AS.470.601	Climate Change and National Security
AS.470.667	Machine Learning Methods and Applications
AS.470.657	Energy, Security, and Defense
AS.472.610	Commercial Imagery and the Impact of Small Satellites
AS.472.611	Analyzing Social Media and Geospatial Information
AS.472.612	Geospatial Analysis: Communicating with Multiple Audiences
AS.473.604	Applied Critical Thinking and Analysis
AS.473.607	Intelligence Ethics
AS.473.602	Intelligence Analysis
Total Credits	**40**

Learning Outcomes

The MS in Geospatial Intelligence weaves the history, science, mathematics, and art of geospatial analysis into a program that will enable its graduates to lead and shape this rapidly-growing intelligence discipline. The program combines recognized faculty with extensive geospatial experience and publications, an interactive and online curriculum, and the research resources, tools, and opportunities for its students to:

- Understand the history and evolution of geospatial intelligence and its enduring challenges.
- Develop the habits of mind and the conceptual framework to thrive as analysts, researchers, program leaders, and managers in the geospatial communities.
- Employ the appropriate mathematical models and scientific sensor knowledge necessary to design advanced commercial geospatial collection management for big data and small data problems, and to design geospatial databases for complex issues.
- Develop analytic processes and products as well as demonstrate the ability to communicate geospatial information and analysis accurately and persuasively in writing and briefing.
- Produce original research on the history and methodologies of geospatial intelligence.