DATA ANALYTICS AND POLICY, MASTER OF SCIENCE

MS in Data Analytics and Policy (https://advanced.jhu.edu/academics/graduate/ms-data-analytics-policy/)

The Master of Science in Data Analytics and Policy prepares students to use analytics to tackle policy challenges in the public and private sectors. Students graduate with expertise in cutting-edge analytical methods relied upon by government agencies, research institutes, private companies, and nonprofit organizations. The program emphasizes the application of analytics to substantive issues to develop students into data-driven leaders.

The schedule for completing this 12-course degree program is flexible. Many students work full time while attending the program on a part-time basis and complete their degree in two years. Full-time students can complete the degree more quickly. The MS in Data Analytics and Policy is offered primarily online, although some courses may be offered onsite in Washington, D.C.

Students may choose to earn a concentration within one of the following specialized areas: political behavior and policy analysis, geospatial analysis, statistical analysis, or public management. The electives cover a wide range of analytical methods, including machine learning, predictive analysis, text analysis, database management systems, computational modeling, civic technology, economic analysis, survey methodology, risk analysis, and data privacy.

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 Data Analytics and Policy requires:

- **Current resume or academic CV**
- **Statement of purpose:** An approximately 500-word statement that explains your reasons for seeking admission and describes how earning the degree will advance your career in data analytics and/or public policy. Your statement should describe your ability or potential to perform quantitative analyses.
- **Writing sample:** A 1,250- to 1,750-word writing sample that demonstrates your ability to make and support an argument. Writing samples written within the last five years are preferred. Writing samples may not be co-authored. If you do not have an appropriate academic or professional sample on hand, you may respond to the following prompt: "Describe a current policy challenge and explain what should be done to address it."
- **Two letters of recommendation:** Please provide contact information for two recommenders. Recommenders should be previous academic instructors or professional colleagues who can evaluate your academic and professional accomplishments and suitability for

graduate study. When possible, recommenders should provide their letters on institutional or business letterhead. It is preferred that students who have earned their bachelor's degree within the last three years provide at least one reference from a faculty member from their undergraduate institution.

Program Requirements

- Five required core courses
- Seven elective courses

Core Courses

The five required core courses provide the foundations for conducting and presenting the results of quantitative data analysis.

Code	Title	Credits
Core Courses - Required		
AS.470.681	Probability and Statistics	3
AS.470.768	Programming and Data Management	3
AS.470.709	Quantitative Methods	3
AS.470.673	Data Visualization	3
AS.470.862	Capstone for Data Analytics and Policy	3

Electives and Concentrations

Students will complete seven elective courses for the MS in Data Analytics and Policy, in addition to required core courses.

There are four concentrations offered through the MS in Data Analytics and Policy. Pursuing a concentration is optional. To earn a concentration, four of the student's electives must be in the concentration area.

All courses from the concentrations on this page may count as one of the seven elective courses, unless specifically noted otherwise.

Concentration in Statistical Analysis

Code	Title	Credits
AS.470.624	Healthcare Analytics and Policy	3
AS.470.643	Text as Data	3
AS.470.667	Machine Learning Methods and Applications	3
AS.470.669	Math for Data Scientists	3
AS.470.694	Big Data Management Systems	3
AS.470.699	Applied Performance Analytics	3
AS.470.700	Cloud Computing in the Public Sector	3
AS.470.703	Urban Data Analytics	3
AS.470.708	Unleashing Open Data with Python	3
AS.470.743	Data Mining and Predictive Analytics	3
AS.470.758	Data-Driven Campaigns and Elections	3
AS.470.763	Database Management Systems	3
AS.470.764	Survey Methodology	3
AS.470.769	Data Science for Public Policy	3
AS.470.779	Computational Modeling for Policy and Security Analysis	3
AS.420.677	Spatial Statistics (Not available as a general elective outside of the concentration)	3

Concentration in Public Management

Code	Title	Credits
AS.470.605	Global Political Economy	3
AS.470.608	Public Policy Evaluation & the Policy Process	3
AS.470.627	Financial Management & Analysis in the Public Sector	3
AS.470.631	Economics for Public Decision-Making	3
AS.470.645	The Budgetary Process	3
AS.470.662	Expertise and Evidence in Policymaking	3
AS.470.671	Risk Management Analytics	3
AS.470.694	Big Data Management Systems	3
AS.470.731	Privacy in a Data-driven Society	3
AS.470.763	Database Management Systems	3
AS.470.798	Financial Management and Analysis in Nonprofits	3

Concentration in political Behavior and Policy Analysis

Code	Title	Credits
AS.470.608	Public Policy Evaluation & the Policy Process	3
AS.470.620	Race, Politics, and Policy	3
AS.470.624	Healthcare Analytics and Policy	3
AS.470.636	Cognitive and Behavioral Foundations for Artificial Intelligence	3
AS.470.641	Introduction to Advocacy and Lobbying	3
AS.470.662	Expertise and Evidence in Policymaking	3
AS.470.688	Political Institutions and the Policy Process	3
AS.470.699	Applied Performance Analytics	3
AS.470.703	Urban Data Analytics	3
AS.470.733	Origins and Influence of Public Opinion on American Democracy and Elections	3
AS.470.745	Terrorist Financing Analysis and Counterterrorist Finance Techniques	3
AS.470.758	Data-Driven Campaigns and Elections	3
AS.470.769	Data Science for Public Policy	3
AS.470.779	Computational Modeling for Policy and Security Analysis	3
AS.470.835	DC Lab: Politics, Policy, and Analytics	3
AS.473.602	Intelligence Analysis	3
AS.473.663	The Intelligence-Policy Nexus	3

Concentration in Geospatial Analysis

Code	Title	Credits
AS.472.611	Analyzing Social Media and Geospatial Information	3
AS.472.612	Geospatial Analysis: Communicating with Multiple Audiences	3
AS.430.600	Web GIS	4
AS.430.601	Geographic Information Systems (GIS)	4
AS.430.604	Spatial Analytics	4
AS.430.606	Programming in GIS	4
AS.430.602	Remote Sensing: Systems and Applications (Not available as a general elective outside of the concentration)	4
AS.430.605	Development and Management of GIS Projects (Not available as a general elective outside of the concentration)	4
AS.430.607	Spatial Databases and Data Interoperability (Not available as a general elective outside of the concentration)	4
AS.430.608	GIS and Spatial Decision Support Systems (Not available as a general elective outside of the concentration)	4
AS.430.609	Spatial Data Management: Quality and Control (Not available as a general elective outside of the concentration)	4
AS.430.610	GIS for Infrastructure Management (Not available as a general elective outside of the concentration)	4
AS.430.611	Geospatial Ontologies and Semantics (Not available as a general elective outside of the concentration)	4
AS.430.612	Cartographic Design and Visualization (Not available as a general elective outside of the concentration)	4
AS.430.613	Advanced Topics in Remote Sensing (Not available as a general elective outside of the concentration)	4
AS.430.615	Big Data Analytics: Tools and Techniques (Not available as a general elective outside of the concentration)	4
AS.430.617	Census Data Mining: Visualization and Analytics (Not available as a general elective outside of the concentration)	4
AS.430.618	Advanced Python Scripting for GIS (Not available as a general elective outside of the concentration)	4
AS.430.619	Web Application Development (Not available as a general elective outside of the concentration)	4
AS.430.621	GIS for Emergency Management (Not available as a general elective outside of the concentration)	4
AS.430.623	Geo Apps (Not available as a general elective outside of the concentration)	4
AS.430.625	System Architecture for Enterprise GIS (Not available as a general elective outside of the concentration)	4
AS.430.627	Artificial Intelligence and Machine Learning in Geospatial Technology (Not available as a general elective outside of the concentration)	4
AS.430.629	Drones in Geospatial Decision Making (Not available as a general elective outside of the concentration)	4
AS.430.631	Spatial Algorithms and Data Structures (Not available as a general elective outside of the concentration)	4
AS.430.633	Advanced Spatio-Temporal Statistics (Not available as a general elective outside of the concentration)	4
AS.430.635	Urban Analytics (Not available as a general elective outside of the concentration)	4