URBAN SPATIAL ANALYTICS, MUSA

The for-profit sector has embraced data and analytics as a means to increase efficiency and grow the bottom line. The government and non-profit sectors are next in line. The Master of Urban Spatial Analytics is a one year graduate program that teaches students how to use spatial analysis and data science to address the most pressing public policy and city planning conundrums of our day. We are teaching the next generation of civic technologists. The one-year MUSA program combines coursework on GIS, spatial analysis, data science, statistics, R and python programming, data visualization and web-based mapping with world-class urban content coursework from across the University of Pennsylvania. The program is administered jointly by the Weitzman School of Design and the Penn Institute for Urban Research.

Students enrolling in the MUSA program are expected to have a basic familiarity with GIS (including ESRI's ArcGIS or ArcView programs) and descriptive/inferential statistics. For those who lack such background, MUSA and the Weitzman School of Design offer introductory GIS courses during the summer, two weeks prior to the start of the the fall term.

For more information: https://www.design.upenn.edu/musa/about (https://www.design.upenn.edu/musa/about/)

Curriculum

A total of 9 course units are required for graduation.

Code	Title	Course Units
Required Courses		
MUSA 5000	Statistical and Data Mining Methods for Urban Data Analysis	1
MUSA 5080	Public Policy Analytics	1
MUSA 8010	MUSA/Smart Cities Practicum	1
Data Science/Programming Requirements		
Choose one combination:		2
MUSA 5500	Geospatial Data Science in Python (Fall)	
MUSA 6500	Deep Learning with Python (Spring)	
or		
MUSA 6110	Java Script Programming for Planners and Designers (Fall)	
MUSA 5090	Geospatial Cloud Computing & Visualization (Spring)	
Urban Content Requirement [1]		
Urban Content Requirement 1		1
Urban Content Requirement 2		1
MUSA Elective		
Choose one of the following MUSA courses: [2]		1
MUSA 6310	Communications in Urban Spatial Analytics	
MUSA 6320	Modeling Geographic Space	
MUSA 6750	Land Use and Environmental Modeling	
MUSA 6950	Topics in Spatial Data & Analytics	
General Elective		
Elective (must be 5000-level or higher)		1
Total Course Units		**9**

[1] Urban Content courses must be 5000 level or above. Technical (data science, statistics, computer science) courses cannot be used for Urban Content courses. Automatically excluded courses are: CPLN 5910 and any courses in CIS, CIT, STAT and DATA subjects. Students work with their advisor to select an Urban Content focus and relevant classes. The urban content courses should help the student identify and understand the problems that need to be solved with the technical skills they learn in the MUSA program.

[2] The MUSA Elective can be any MUSA course that is not fulfilling a core requirement

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2025 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.