Urban Analytics Concentration

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The Urban Analytics concentration introduces students to describing, analyzing and prescribing solutions to urban planning problems using spatial data and analysis methods. An increasing share of urban planning work today addresses spatial interactions between numerous geographically bound actors and processes that are too complex to visualize and analyze without computational tools. Geographic Information Systems, spatial statistics and algorithmic approaches to spatial data analysis are used in public and private planning practices at the local, regional and international scales to describe urban challenges, to evaluate the impacts of alternative solutions and to visualize complex information.

A range of urban and spatial analytics courses are available at the GSD and other Harvard schools, especially the Engineering School, FAS, the School of Public Health, Kennedy School and the Graduate School of Education. Students can also enlist in courses at MIT. The Harvard Center for Geographic Analysis offers data and software support as well as focused seminars and conferences relevant to the concentration topic.

Please note that course offerings often change, and new courses may be offered while these recommended courses may not be offered each year. This memo is subject to change depending on the availability of courses. Other courses may be approved with the permission of the Concentration Advisor.

Recommended basic courses:

The following courses are recommended to those interested in the concentration. They are introductory level courses that give a good overview of the topics and subject matter covered in more depth by other courses in the concentration:

GSD 6322: Mapping: Geographic Representation and Speculation Pietrusko
GSD 6354: Applied Urban Analytics Sevtsuk

Approved courses include:

Fall
At the Graduate School of Design:
GSD 3356: Field Methods and Living Collections Elkin
GSD 6322: Mapping: Geographic Representation and Speculation Pietrusko
GSD 6354: Applied Urban Analytics Sevtsuk

At the Kennedy School of Government:
HKS DPI 662: Digital Government Eaves

Updated: January 2019
HKS API 222: Machine Learning and Big Data Analytics
HKS DPI 678M: Product Management, Tech, and Society

At the Faculty of Arts and Science:
FAS APCOMP 209A: Data Science 1: Introduction
FAS GOV 1008: Intro to GIS
FAS COMPSCI 50: Intro to Computer Science I

At the Chan School of Public Health:
SPH SBS 245: Social and Behavioral Research Methods
SPH SBS 288: Qualitative Research Methods in Public Health
SPH BST 260: Introduction to Data Science

At Harvard Law School:
HLS 2227: Autonomous Vehicles and Local Government Lab

At MIT (Massachusetts Institute of Technology):
MIT 11.205: Introduction to Spatial Analysis
MIT 11.520: Workshop on GIS
MIT 11.544: Transportation Systems Analysis: Performance and Optimization

Spring
At the Graduate School of Design:
GSD 2314: Responsive Environments

At the Kennedy School of Government:
HKS API 206: Fundamentals of Program and Policy Evaluation
HKS MLD 620M: Urban Innovation
HKS MLD 621: Innovation Field Lab: Public Problem Solving in Massachusetts Cities
HKS DPI 676: Designing Government
HKS DPI 663: Tech and Innovation in Government*

*Requires Permission of Instructor

At the Graduate School of Education:
EDU S022: Introduction to Statistical Computing and Data Science in Education
EDU S030: Intermediate Statistics
EDU S052: Applied Data Analysis

At the Faculty of Arts and Science:
FAS APCOMP 209B: Data Science 2: Advanced Topics in Data Science
FAS GOV 1009: Advanced Geographical Information Systems

Updated: January 2019
At the Chan School of Public Health:
SPH GHP 534: Introduction to Spatial Methods for Public Health  Castro
SPH BST 261: Data Science II  Mattie

At MIT (Massachusetts Institute of Technology):
MIT 11.205: Introduction to Spatial Analysis  Ferreira
MIT 11.521: Spatial Database Management and Advanced GIS  Ferreira
MIT 11.320: Digital City Design Workshop  Riatti
MIT 11.5941: Big Data, Visualization, and Society  Huntley

Not Currently Offered
GSD 3353: Advanced Seminar in City Form  Sevtsuk
GSD 5365: Towns and Settlements in Metropolitan Regions  Rowe
GSD 6322: Mapping: Geographic Representation and Speculation  Pietrusko
GSD 6349: Mapping II: Geosimulation  Pietrusko
FAS SOCIOL 313: Urban Data Lab  Sampson, Small
MIT 11.407: Economic Development Tools and Techniques  Glasmeier

Updated: January 2019