Harvard University
Graduate School of Design

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Master in Urban Planning
Urban Analytics Concentration
2020-2021

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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 course:
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	2314	Mapping: Geographic Representation and Speculation	Sayegh
GSD	6322	Mapping: Geographic Representation and Speculation **(Spring 2021)**	Huntley

FALL 2020

EDU	S504	Introduction to Qualitative Research	Duraisingh
FAS	APCOMP 209A	Data Science 1: Introduction	Protopapas
FAS	COMPSCI 50	Intro to Computer Science I	Malan
FAS	GOV 1008	Introduction to Geographic Information Systems	Kelly
FAS	GOV 1021	Spatial Models of Social Science	Kelly

HKS	API 201	Quantitative Analysis and Empirical Methods	Borck, Levy, Svoronos
HKS	API 205	Politics and Policies: What Can Statistics Tell Us?	Hughes Hallett
HKS	API 222	Machine Learning and Big Data Analytics	Saghafian
HKS	DPI 662	Digital Government: Technology, Policy, and Public Service Innovation	Eaves
HKS	DPI 678M	Product Management, Tech, and Society	Pham
HSPH	BST 260	Introduction to Data Science	Mattie
HSPH	SBS 245	Social and Behavioral Research Methods	Chen
HSPH	SBS 288	Qualitative Research Methods in Public Health	Goldman
MIT	6.0001	Introduction to Computer Science Programming in Python	Bell
MIT	6.0002	Introduction to Computational Thinking and Data Science	Bell
MIT	11.205	Introduction to Spatial Analysis	D'Ignazio
MIT	11.407	Tools and Techniques in Urban Economic Development Planning	Glasmeier
MIT	11.454	Big Data, Visualization, and Society	Williams
MIT	11.520	Workshop on GIS	D'Ignazio
MIT	11.544	Transportation Systems Analysis: Performance and Optimization	Wu

SPRING 2021

GSD	6322	Mapping: Geographic Representation and Speculation	Huntley
EDU	S030	Intermediate Statistics for Educational Research: Applied Linear Regression	Eidelman
EDU	S052	Intermediate and Advanced Statistical Methods for Applied Educational Research	Ho
FAS	1009	Advanced Geographical Information Systems Workshop	Kelly
FAS	COMPSCI 50	Intro to Computer Science I	Malan
FAS	GOV 2014	Research Design in Political Science: Qualitative and Mixed Methods	Cammett, Hagopian
HKS	MLD 620M	The Data Smart City: Driving Innovation with Technology	Goldsmith
HSPH	GHP 504	Introduction to Qualitative Research for Global Health	Yousafzai
HSPH	HPM 559	Introduction to Qualitative Research Methods for Public Health **(priority to HSPH students)**	Aveling
MIT	11.205	Introduction to Spatial Analysis	D'Ignazio
MIT	11.318	Senseable Cities	TBA
MIT	11.320	Digital City Design Workshop	Ratti
MIT	11.321	Data Science and Machine Learning for Real Estate	TBA
MIT	11.458	Crowdsourced City: Civic Technology Prototyping	D'Ignazio
MIT	11.520	Workshop on GIS	D'Ignazio
MIT	11.521	Spatial Database Management and Advanced GIS	TBA
MIT	11.523	Fundamentals of Spatial Database Management	TBA
MIT	11.524	Advanced Geographic Information System Project	TBA
MIT	11.545	Transportation Systems Analysis: Demand and Economics	TBA

Pre-approved, but not offered in 2020-2021:

GSD	3356	Field Methods and Living Collections	Elkin
GSD	5365	Towns and Settlements in Metropolitan Regions	Rowe
GSD	6349	Mapping II: Geosimulation	Pietrusko
GSD	6354	Applied Urban Analytics	Sevtsuk

EDU	S022	Social and Behavioral Research Methods	McIntyre
FAS	SOCIOL 313	Urban Data Lab	Sampson, Small
FAS	209B	Autonomous Vehicles and Local Government Lab	Protopapas
HKS	API 206	Digital Government	Matuszeski
HLS	2227	Autonomous Vehicles and Local Government Lab* (2-units)	Crawford
MIT	11.457	More than Data: Smart Cities, Big Data, Civic Technology and Policy	TBA
MIT	11.S941	Big Data, Visualization, and Society	Huntley
MIT	11.S944	Applied Urban Analytics*	Sevtsuk

**Requires permission of the instructor*