BS in Data Science with a Urban Planning and Policy Administration Concentration

Degree Requirements

To earn a Bachelor of Science in Data Science with a Urban Planning and Policy Administration Concentration from UIC, students need to complete university, college, and department degree requirements. The Department of Computer Science degree requirements are outlined below. Students should consult the College of Engineering section for additional degree requirements and college academic policies.

Code	Title	Hours
Summary of Requirements		
General and Basic Education Requirements		37
Core Courses		57
Urban Planning and Policy Administration Concentration Requirements		18
Free Electives		8
Total Hours		**120**

General and Basic Education Requirements

Code	Title	Hours
ENGL 160	Academic Writing I: Writing in Academic and Public Contexts	3
ENGL 161	Academic Writing II: Writing for Inquiry and Research	3
Foreign Language		8
Understanding the Individual and Society course [a]		3
Understanding U.S. Society course [a]		3
Exploring World Cultures course [a]		3
Understanding the Creative Arts course [a]		3
Understanding the Past course [a]		3
Two Analyzing the Natural World courses (with lab) [a,b]		8
Total Hours		**37**

a *Students should consult the* General Education *section of the catalog for a list of approved courses.*

b *Students planning to pursue the Bioinformatics Concentration will take BIOS 110 and BIOS 120 to fulfill the Analyzing the Natural World requirement.*

Core Courses

Code	Title	Hours
Required Courses		
ENGR 100	Engineering Orientation (no graduation credit)	1
MATH 180	Calculus I	4
MATH 181	Calculus II	4
MATH 210	Calculus III	3
MATH 310	Applied Linear Algebra	3
CS 111	Program Design I	3
CS 141	Program Design II	3
CS 151	Mathematical Foundations of Computing	3
or MCS 361	Discrete Mathematics	
CS 211	Programming Practicum	2
CS 251	Data Structures	4
CS 377	Communication and Ethical Issues in Computing	3
Select one of the following:		3
STAT 381	Applied Statistical Methods I	
IE 342	Probability and Statistics for Engineers [a]	
ECE 341	Probability and Random Processes for Engineers [b]	
STAT 382	Statistical Methods and Computing	3
or IDS 462	Statistical Software for Business Applications	
STAT 385	Elementary Statistical Techniques for Machine Learning and Big Data	3
STAT 481	Applied Statistical Methods II	3
IDS 312	Business Project Management	3
IDS 435	Optimization for Analytics	3
CS 418	Introduction to Data Science [c]	3
or IDS 472	Business Data Mining	
CS 480	Database Systems [c]	3
or IDS 410	Business Database Technology	
Total Hours		**57**

a *IE 342 must be taken for the Concentration in Industrial Engineering.*

b *ECE 341 must be taken for the Concentration in Data Processing, Science, and Engineering.*

c *CS 418 and CS 480 must be taken for the Concentration in Computer Science.*

Urban Planning and Policy Administration Concentration Requirements

Code	Title	Hours
Understanding Public Problems		
Select two of the following:		6
PPOL 100	Individual Action and Democratic Citizenship	
PPOL 210	Introduction to Public Policy	
PPOL 230	Nonprofit Organizations and Civil Society	
US 101	Introduction to Urban Studies	
US 202	Social Justice and the City	
US 301	Political Economy of Urban Development [a]	
Skills and Tools to Address Public Problems		
Select four of the following:		12
Data Visualization and Geospatial Analysis Courses		
PA 446	Coding for Civic Data Applications	
UPP 458	Introduction to Geospatial Analysis and Visualization I	
UPP 459	Introduction to Geospatial Analysis and Visualization II	

UPP 461	Geographic Information Systems for Planning and Policy
UPP 462	Intermediate GIS for Planning and Policy
UPP 463	Complexity-based Models for Planning and Policy
US 261	Mapping, Data, and Geographic Information Systems
US 304	Visualizing the City: Methods and Tools for Representing the City
US 361	Introduction to Geographic Information Systems I
Public Problems and Policy Analysis Courses	
PA 401	Foundations of Public Service
PA 412	Addressing Public Problems with Data
PA 431	Civic Technology
PA 446	Coding for Civic Data Applications
PA 470	AI & Machine Learning
PPOL 307	Policy Analysis III: Identifying and Developing Alternatives
PPOL 405	Evaluating Public Policies and Programs
UPP 403	Planning Practices for Great Cities
UPP 465	Topics in Geospatial Analysis and Visualization (Spatial Statistics section)
US 250	Analyzing the City
US 306	Urban Policy Analysis Methods [a]

Free Electives

Code	Title	Hours
Electives		
Select 8 hours of Free Electives.		8
Total Hours		**8**

a *Course has a prerequisite that can be taken as a free elective in order to register for this course.*

Sample Course Schedule

Course	Title	Hours
First Year		
First Semester		
CS 111	Program Design I	3
ENGL 160	Academic Writing I: Writing in Academic and Public Contexts	3
MATH 180	Calculus I	4
Analyzing the Natural World (with Lab) General Education course		4
ENGR 100	Engineering Orientation	1
	Hours	**15**
Second Semester		
CS 141	Program Design II	3
ENGL 161	Academic Writing II: Writing for Inquiry and Research	3
MATH 181	Calculus II	4
General Education Core course		3
Foreign Language		4
	Hours	**17**
Second Year		
First Semester		
CS 151 or MCS 361	Mathematical Foundations of Computing or Discrete Mathematics	3
CS 211	Programming Practicum	2
STAT 381 or IE 342 or ECE 341	Applied Statistical Methods I or Probability and Statistics for Engineers or Probability and Random Processes for Engineers	3
Analyzing the Natural World (with lab) General Education course		4
Foreign Language		4
	Hours	**16**
Second Semester		
CS 251	Data Structures	4
STAT 382 or IDS 462	Statistical Methods and Computing or Statistical Software for Business Applications	3
IDS 312	Business Project Management	3
MATH 210	Calculus III	3
General Education Core course		3
	Hours	**16**
Third Year		
First Semester		
CS 377	Communication and Ethical Issues in Computing	3
CS 480 or IDS 410	Database Systems or Business Database Technology	3
STAT 385	Elementary Statistical Techniques for Machine Learning and Big Data	3
MATH 310	Applied Linear Algebra	3
General Education Core course		3
	Hours	**15**
Second Semester		
CS 418 or IDS 472	Introduction to Data Science or Business Data Mining	3
STAT 481	Applied Statistical Methods II	3
IDS 435	Optimization for Analytics	3
Concentration Requirement		3
Concentration Requirement		3
	Hours	**15**
Fourth Year		
First Semester		
Concentration Requirement		3
Concentration Requirement		3
General Education Core course		3
Free Elective		4
	Hours	**13**
Second Semester		
Concentration Requirement		3
Concentration Requirement		3
General Education Core course		3

Free Elective		4
	Hours	**13**
	Total Hours	**120**