Data Science and Criminal Justice, BS (Boston)

Overview

This combined major offers students the opportunity to gain cutting-edge data science skills and expertise in important and urgent social issues: crime, the law, and the criminal justice system. Data science classes allow students to develop skills in the collection, manipulation, storage, retrieval, and computational analysis of data in its various forms, including numeric, textual, image, and video data from small to large volumes. Criminology and criminal justice courses provide a foundation for understanding crime, the law, and our criminal justice system. Together, the combined major is designed to prepare students to apply data science skills to crime and justice topics.

Program Requirements

Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

Universitywide Requirements

All undergraduate students are required to complete the Universitywide Requirements (https://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/).

NUpath Requirements

All undergraduate students are required to complete the NUpath Requirements (https://catalog.northeastern.edu/undergraduate/university-academics/nupath/).

Data Computer Science Courses

Code	Title	Hours
Computer Science Overview		
CS 1200	First Year Seminar	1
or CRIM 1000	Criminal Justice at Northeastern	
CS 1210	Professional Development for Khoury Co-op	1
or EESH 2000	Professional Development for Co-op	
Computer Science Required Courses		
All students can take a self-assessment to attempt to place out of CS 2000 and CS 2001. Students who place out of CS 2000 and CS 2001 will instead substitute 4-5 semester hours of CS, CY, or DS coursework at the 3000 level or higher not otherwise required in the degree.		
CS 1800 and CS 1802	Discrete Structures and Seminar for CS 1800	5
CS 2000 and CS 2001	Introduction to Program Design and Implementation and Lab for CS 2000	5
CS 3200	Introduction to Databases	4
Programming Sequence Pathways		
Complete one of the following options:		9
Computer Science Option		
CS 2100 and CS 2101	Program Design and Implementation 1 and Lab for CS 2100	
CS 3100 and CS 3101	Program Design and Implementation 2 and Lab for CS 3100	
Data Science Option		
DS 2500 and DS 2501	Intermediate Programming with Data and Lab for DS 2500	
DS 3500	Advanced Programming with Data	
Data Science Foundations		
DS 3000	Foundations of Data Science	4
DS 4200	Information Presentation and Visualization	4
DS 4300	Large-Scale Information Storage and Retrieval	4
DS 4400	Machine Learning and Data Mining 1	4
Khoury Approved Electives		
With advisor approval, directed study, research, project study, and appropriate graduate-level courses may also be taken as upper-division electives.		

Complete 4 semester hours from within the following options:		4
CS 2500 or higher, except CS 5010		
CY 2000 or higher, except CY 4930		
DS 2500 or higher, except DS 4900		
MKTG 4606	Digital, Analytics, Technology, and Automation Research Practicum	

Criminal Justice Courses

Code	Title	Hours
Introduction to Crime, Law, and the Justice System		
What do we know about crime and justice? In these three courses, students have an opportunity to develop a foundational understanding of three related phenomena: why crime exists, how our criminal justice system responds to crime, and the constitutional and legal oversight of this process.		
CRIM 1100	Introduction to Criminal Justice	4
CRIM 1110	Criminal Due Process	4
CRIM 1120	Criminology	4
Current Crime and Justice Issues		
These courses introduce students to topical issues related to crime and justice.		
Complete one of the following:		4
CRIM 1300	The Death Penalty	
CRIM 1400	Human Trafficking	
CRIM 1500	Corruption, Integrity, and Accountability	
CRIM 1700	Crime, Media, and Politics	
Crime Problems and Criminal Justice Institutions		
The 2000-level courses in this list ask how does justice work and for whom? These courses introduce students to the systems and institutions tasked with providing justice. Each includes experiential learning components in cooperation with local criminal justice institutions. The 3000-level courses in this list provide students with a deeper look at a range of crime problems.		
Complete one of the following:		4
AFCS 3210	Black Abolition Studies: Carcerality, Liberation, and Resistance	
CRIM 2310	Courts: The Third Branch of Government	
CRIM 2320	Youth Crime and Justice	
CRIM 2330	Punishment in the Age of Mass Incarceration	
CRIM 2340	Corporate Security: Securing the Private Sector	
CRIM 2350	Policing a Democratic Society	
CRIM 2370	Restorative Justice: Transforming the System	
CRIM 2380	Black Families and Incarceration	
CRIM 3010	Criminal Violence	
CRIM 3030	Global Criminology	
CRIM 3040	Psychology of Crime	
CRIM 3070	Corporate and White-Collar Crime	
CRIM 3050	Organized Crime	
CRIM 3060	Political Crime and Terrorism	
CRIM 3100	Criminal Law	
CRIM 3540	Substance Use and Social Justice	
Systemic Issues		
These courses consider systemic issues facing the criminal justice system.		
Complete one of the following:		4
CRIM 3110	Gender, Crime, and Justice	
CRIM 3120	Race, Crime, and Justice	
Creating Knowledge About Crime and Justice		
How do we know what we know about crime and justice—and how do we develop new knowledge? This course covers how to harness data to learn about issues, identify solutions, and advocate for change.		
CRIM 3600	Criminal Justice Research Methods	4
Criminal Justice Capstone		
CRIM 4949	Senior Capstone Seminar	4

Criminal Justice Elective	
These courses round out our knowledge of crime and justice.	
Complete two additional criminal justice electives from the 3000, 4000, or 5000 level.	8

Integrative Course Requirement

Code	Title	Hours
Complete one of the following:		4
CRIM 3700	Analyzing and Using Data on Crime and Justice	
CRIM 4040	Crime Prevention	

Supporting Courses

Code	Title	Hours
Mathematics Requirement		
MATH 1341	Calculus 1 for Science and Engineering	4
Statistics Foundation		
ECON 2350	Statistics for Economists	4
Computing and Social Issues		
Complete one of the following:		4
AFCS 2600	Issues in Race, Science, and Technology	
CY 4170	The Law, Ethics, and Policy of Data and Digital Technologies	
CY 5240	Cyberlaw: Privacy, Ethics, and Digital Rights	
DS 1300	Knowledge in a Digital World	
or PHIL 1300	Knowledge in a Digital World	
HIST 2220	History of Technology	
INSH 2102	Bostonography: The City through Data, Texts, Maps, and Networks	
JRNL 3700	Data Storytelling	
PHIL 1145	Technology and Human Values	
SOCL 1280	The Twenty-First-Century Workplace	
SOCL 2485	Environment, Technology, and Society	
SOCL 4528	Technology and Society	

English Requirement

Code	Title	Hours
College Writing		
ENGW 1111	First-Year Writing	4
or ENGW 1102	First-Year Writing for Multilingual Writers	
Advanced Writing in the Disciplines		
Complete one of the following:		4
ENGW 3302	Advanced Writing in the Technical Professions	
ENGW 3308	Advanced Writing in the Social Sciences	
ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

Required General Electives

Code	Title	Hours
Complete 24 semester hours of general electives.		24

Khoury College GPA Requirement

Minimum cumulative 2.000 GPA required in all CS, CY, DS, and IS courses

NUpath Requirements Satisfied

- Advanced Writing in the Disciplines
- Analyzing and Using Data
- Conducting Formal and Quantitative Reasoning
- Demonstrating Thought and Action in a Capstone
- Engaging Difference and Diversity

- Engaging with the Natural and Designed World
- Understanding Societies and Institutions
- Writing in the First Year
- Writing-Intensive in the Major

Integrating Knowledge and Skills Through Experience is satisfied through co-op.

Program Requirement

132 total semester hours required

Plan of Study

Sample Plans of Study

FOUR YEARS, TWO CO-OPS IN SUMMER SECOND HALF/FALL

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CRIM 1100	4	CRIM 1110	4	CS 3200	4	General Elective	4
CS 1200	1	CRIM 1120	4	General Elective	4	General Elective	4
CS 1800 and CS 1802	5	DS 2500 and DS 2501	5				
CS 2000 and CS 2001	5	MATH 1341	4				
ENGW 1111	4						
	19		**17**		**8**		**8**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CRIM 3600	4	CS 1210	1	CJ elective	4	Co-op	0
DS 3000	4	DS 4200	4	General Elective	4		
DS 3500	4	ECON 2350	4				
CJ current issues elective	4	General Elective	4				
		Khoury Elective 1	4				
	16		**17**		**8**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	DS 4300	4	ENGW 3302	4	Co-op	0
		Computing and social issues	4	General Elective	4		
		CJ problems and institutions elective	4				
		CJ systemic elective	4				
	0		**16**		**8**		**0**

Year 4

Fall	Hours	Spring	Hours
Co-op	0	CRIM 4949	4
		DS 4400	4
		CJ integrative course	4
		CJ Elective	4
	0		**16**

Total Hours: 133

FOUR YEARS, TWO CO-OPS IN SUMMER FIRST HALF/SPRING

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CRIM 1100	4	CRIM 1110	4	CS 3200	4	General Elective	4
CS 1200	1	CRIM 1120	4	General Elective	4	General Elective	4

CS 1800 and CS 1802	5	DS 2500 and DS 2501	5				
CS 2000 and CS 2001	5	MATH 1341	4				
ENGW 1111	4						
	19		**17**		**8**		**8**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 1210	1	Co-op	0	Co-op	0	General Elective	4
CRIM 3600	4					CJ elective	4
DS 3000	4						
DS 3500	4						
CJ current issues elective	4						
	17		**0**		**0**		**8**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
DS 4200	4	Co-op	0	Co-op	0	ENGW 3302	4
ECON 2350	4					General Elective	4
General Elective	4						
Khoury Elective 1	4						
	16		**0**		**0**		**8**

Year 4

Fall	Hours	Spring	Hours
DS 4300	4	CRIM 4949	4
Computing and social issues	4	DS 4400	4
CJ problems and institutions elective	4	CJ integrative course	4
CJ systemic elective	4	CJ Elective	4
	16		**16**

Total Hours: 133