

Data Science and Criminal Justice, BS

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

- Concentrations and course offerings may vary by campus and/or by program modality. Please consult with your advisor or admissions coach for the course availability each term at your campus or within your program modality.
- Certain options within the program may be *required* at certain campuses or for certain program modalities. Please consult with your advisor or admissions coach for requirements at your campus or for your program modality.

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 or CRIM 1000	First Year Seminar Criminal Justice at Northeastern	1
CS 1210 or EESH 2000	Professional Development for Khoury Co-op Professional Development for Co-op	1
Programming Sequence Pathways		
Complete one of the following options:		12
<i>Computer Science Option</i>		
CS 2500 and CS 2501	Fundamentals of Computer Science 1 and Lab for CS 2500	
CS 2510 and CS 2511	Fundamentals of Computer Science 2 and Lab for CS 2510	
CS 3500 and CS 3501	Object-Oriented Design and Lab for CS 3500	
<i>Data Science Option</i>		
DS 2000 and DS 2001	Programming with Data and Data Science Programming Practicum	
DS 2500 and DS 2501	Intermediate Programming with Data and Lab for DS 2500	
DS 3500	Advanced Programming with Data	
Computer Science Required Courses		
CS 1800 and CS 1802	Discrete Structures and Seminar for CS 1800	5
CS 3200	Introduction to Databases	4
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 Elective Courses

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 of upper-division CS, CY, DS, or IS courses that are not already required. Choose courses within the following ranges: 4

CS 2500 or higher, except CS 5010

CY 2000 or higher, except CY 4930

DS 2500 or higher, except DS 4900

IS 2000 or higher, except IS 4900

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

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 3100 Criminal Law

CRIM 3540 Addiction and Recovery

CRIM 3060 Political Crime and Terrorism

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 4040	Crime Prevention	
CRIM 4800	Crime Mapping	

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	
HIST 2220	History of Technology	
INSH 2102	Bostonography: The City through Data, Texts, Maps, and Networks	
IS 1300	Knowledge in a Digital World	
or PHIL 1300	Knowledge in a Digital World	
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

- Engaging with the Natural and Designed World
- Conducting Formal and Quantitative Reasoning
- Analyzing and Using Data
- Understanding Societies and Institutions
- Writing in the First Year
- Advanced Writing in the Disciplines
- Writing-Intensive in the Major
- Demonstrating Thought and Action in a Capstone

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

Program Requirement

131 total semester hours required

Plan of Study

Sample Plan of Study: Four Years, Two Co-ops in Summer 2/Fall

Year 1								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
CRIM 1100		4 CRIM 1110		4 CS 3200		4 Elective		4
CS 1200		1 CRIM 1120		4 Elective		4 Elective		4
CS 1800 and CS 1802		5 DS 2500 and DS 2501		5				
DS 2000 and DS 2001		4 MATH 1341		4				
ENGW 1111		4						
		18		17		8		8
Year 2								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
CRIM 3600		4 CS 1210		1 CJ elective		4 Co-op		
DS 3000		4 DS 4200		4 Elective		4		
DS 3500		4 ECON 2350		4				
CJ current issues elective		4 CJ survey elective		4				
		Khoury elective 1		4				
		16		17		8		0
Year 3								
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours	Hours
Co-op		DS 4300		4 Elective		4 Co-op		
		Computing and social issues		4 Elective		4		
		CJ problems and institutions elective		4				
		CJ systemic elective		4				
		0		16		8		0
Year 4								
Fall	Hours	Spring	Hours					
Co-op		CRIM 4949		4				
ENGW 3302		4 DS 4400		4				
		CJ integrative course		4				
		CJ General Elective		4				
		4		16				
Total Hours: 136								