

# Data Science and Psychology, BS (Boston)

The data science and psychology combined major offers an integrative curriculum in the study of mind, brain, and behavior and 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. The study of psychology draws upon empirical research with both humans and animals to investigate and seek explanations for the behavior and mental life of individuals and develop assessment tools and treatment options for addressing clinical problems. In this program, students have an opportunity to augment such knowledge with skills in big data analysis, data science, and data analytics.

## 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 Science Requirements

Code	Title	Hours
<b>Computer Science Overview</b>		
Must be taken in alignment with your home college:		
CS 1200 or INSC 1000	First Year Seminar Science at Northeastern	1
CS 1210 or EESC 2000	Professional Development for Khoury Co-op Professional Development for Co-op	1
<b>Computer Science Required Courses</b>		
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 with 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
<b>Programming Sequence Pathways</b>		
Choose one of two options:		9
<i>Computer Science Option</i>		
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	
<i>Data Science Option</i>		
DS 2500 and DS 2501	Intermediate Programming with Data and Lab for DS 2500	
DS 3500	Advanced Programming with Data	
<b>Data Science Foundations</b>		
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
DS 4420	Machine Learning and Data Mining 2	4
<b>Khoury Approved Electives</b>		

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

## Computer Science Writing Requirements

Code	Title	Hours
<b>College Writing</b>		
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 3307 Advanced Writing in the Sciences

ENGW 3315 Interdisciplinary Advanced Writing in the Disciplines

## Psychology Requirements

Code	Title	Hours
<b>Foundations of Psychology</b>		
PSYC 1101	Foundations of Psychology	4

### Statistics in Psychological Research

PSYC 2320	Statistics in Psychological Research	4
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### Mathematics Foundations

MATH 1341	Calculus 1 for Science and Engineering	4
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### Personality/Social Basis of Behavior

Complete two of the following: 8

PSYC 3400 Personality

PSYC 3402 Social Psychology

PSYC 3404 Developmental Psychology

PSYC 3406 Clinical Psychology and Mental Health

### Cognitive/Biological Basis of Behavior

Complete two of the following: 8

PSYC 3450 Learning and Motivation

or PSYC 3451 Learning Principles and Behavior Analysis

PSYC 3452 Sensation and Perception

PSYC 3458 Biological Psychology

PSYC 3464 Psychology of Language

PSYC 3466 Cognition

### Psychology Laboratory

Complete one of the following: 4

PSYC 4600 Laboratory in Research Design

PSYC 4604 Laboratory in Learning and Motivation

PSYC 4606 Laboratory in Biological Psychology

PSYC 4610 Laboratory in Psycholinguistics

PSYC 4612 Laboratory in Cognition

PSYC 4614 Laboratory in Social Psychology

PSYC 4616 Laboratory in Personality

PSYC 4622 Laboratory in Sensation and Perception

PSYC 4624 Laboratory in Affective Science

PSYC 4626 Laboratory in Life-Span Emotional Development

PSYC 4628 Laboratory in Developmental Psychology

**Psychology Seminar**

Complete one of the following:		4
PSYC 4656	Seminar in Biological Psychology	
PSYC 4658	Seminar in Psycholinguistics	
PSYC 4660	Seminar in Cognition	
PSYC 4662	Seminar in Personality	
PSYC 4664	Seminar in Social Psychology	
PSYC 4666	Seminar in Clinical Psychology	
PSYC 4668	Seminar in Sensation and Perception	
PSYC 4674	Seminar in Cognitive Neuroscience	
PSYC 4676	Seminar in Developmental Psychology	
PSYC 4682	Seminar in Learning and Motivation	

**Psychology Electives**

Complete two of the following:		8
PSYC 2370 to PSYC 5999		

**Integrative Requirement**

Code	Title	Hours
<b>Integrative Course</b>		
Complete one of the following:		4
CS 2484	Principles of Human-Computer Interaction	
PSYC 4540	Quantitative Topics in Psychology and Behavioral Neuroscience	

**Required General Electives**

Code	Title	Hours
Complete 28 semester hours of general electives.		28

**Khoury College GPA Requirement**

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

**Psychology GPA Requirement**

Minimum 2.000 GPA required in all PSYC 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 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**

130 total semester hours required

**Plan of Study****Sample Plans of Study****FOUR YEARS, TWO CO-OPS SUMMER SECOND HALF/FALL**

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 1200		1 DS 2500 and DS 2501		5 PYSC elective		4 General elective	4
CS 1800 and CS 1802		5 PSYC 2320		4 General elective		4 General elective	4

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CS 2000 and CS 2001	5	Personality/social basis of behavior 1	4				
ENGW 1111	4	General elective	4				
PSYC 1101	4						
	19		17		8		8
<b>Year 2</b>							
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>
CS 3200	4	CS 1210	1	PSYC elective	4	Co-op	0
DS 3000	4	DS 3500	4	General elective	4		
MATH 1341	4	DS 4200	4				
Cognitive/biological basis of behavior 1	4	Cognitive/biological basis of behavior 2	4				
		Personality/social basis of behavior 2	4				
	16		17		8		0
<b>Year 3</b>							
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>
Co-op	0	DS 4300	4	ENGW 3302, 3307, or 3315	4	Co-op	0
		DS 4400	4	General elective	4		
		PSYC laboratory	4				
		PSYC seminar	4				
	0		16		8		0
<b>Year 4</b>							
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>				
Co-op	0	DS 4420	4				
		Integrative requirement	4				
		Khoury elective	4				
		General elective	4				
	0		16				

Total Hours: 133

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

<b>Year 1</b>							
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>
CS 1200	1	DS 2500 and DS 2501	5	PSYC elective	4	General elective	4
CS 1800 and CS 1802	5	PSYC 2320	4	General elective	4	General elective	4
CS 2000 and CS 2001	5	Personality/social basis of behavior 1	4				
ENGW 1111	4	General elective	4				
PSYC 1101	4						
	19		17		8		8
<b>Year 2</b>							
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>	<b>Summer 1</b>	<b>Hours</b>	<b>Summer 2</b>	<b>Hours</b>
CS 1210	1	Co-op	0	Co-op	0	Elective	4
CS 3200	4					Elective	4
DS 3000	4						
MATH 1341	4						
Cognitive/biological basis of behavior 1	4						
	17		0		0		8

