

# Behavioral Neuroscience and Philosophy, BS

## Overview

The behavioral neuroscience and philosophy combined degree program engages students in the interdisciplinary study across the biology, psychology, and philosophy departments. The major provides rigorous training in both disciplines with a specific focus on understanding seminal questions concerning human nature and the mind. Courses in the basic sciences will lay a strong foundation in biology, chemistry, and data analytics that are relevant to neuroscience. In behavioral neuroscience core courses, students will examine the structure and function of the human nervous system in order to explore brain mechanisms that give rise to behavioral functions, including cognitive processes as well as pathological states. In philosophy courses, successful students will develop core analytics skills, including ethical reasoning; learn to recognize and question deep theoretical assumptions at the heart of scientific theories and practice; and explore the social and ethical dimensions of neuroscience and scientific practice more broadly. The fields of behavioral neuroscience and philosophy are further bridged with coursework that is designed to enable students to apply neuroscientific concepts to philosophical, moral, and ethical questions.

## 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/>).

## Behavioral Neuroscience Requirements

Code	Title	Hours
<b>Behavioral Neuroscience Overview</b>		
BNSC 1000	Behavioral Neuroscience at Northeastern <sup>1</sup>	1
EESC 2000	Professional Development for Co-op <sup>2</sup>	1
<b>COS Foundations</b>		
BIOL 1107 and BIOL 1108	Foundations of Biology and Lab for BIOL 1107	5
BIOL 2299	Inquiries in Biological Sciences	4
BIOL 2301 and BIOL 2302	Genetics and Molecular Biology and Lab for BIOL 2301	5
CHEM 1161 and CHEM 1162	General Chemistry for Science Majors and Lab for CHEM 1161	5
CHEM 2311 and CHEM 2312	Organic Chemistry 1 and Lab for CHEM 2311	5
PSYC 1101	Foundations of Psychology	4
<b>Mathematics Foundation</b>		
MATH 1341 or MATH 1241	Calculus 1 for Science and Engineering Calculus 1	4
<b>Statistics Foundation</b>		
Complete one of the following. Students who receive transfer credit for the Advanced Placement Statistics exam may complete the 1-semester-hour PSYC 2315 course (requires department permission):		4-5
ENVR 2500 and ENVR 2501	Biostatistics and Lab for ENVR 2500	

PSYC 2320	Statistics in Psychological Research	
<b>Behavioral Neuroscience Foundations</b>		
PSYC 3200	Clinical Neuroanatomy	4
PSYC 3458	Biological Psychology	4
<b>Psychology Elective</b>		
Complete one of the following:		4
PSYC 1214	The Moral Mind: The Science Underlying Ethical Decision-Making and Virtuous Character	
PSYC 3404	Developmental Psychology	
PSYC 3406	Clinical Psychology and Mental Health	
PSYC 3450	Learning and Motivation	
PSYC 3451	Learning Principles and Behavior Analysis	
PSYC 3452	Sensation and Perception	
PSYC 3464	Psychology of Language	
PSYC 3466	Cognition	
PSYC 4524	Cognitive Development	
<b>Behavioral Neuroscience Advanced Courses</b>		
Complete two of the following:		8
BIOL 3405	Neurobiology	
BIOL 3415	Current Topics in Behavioral Neuroscience	
BIOL 3601	Neural Systems and Behavior	
BIOL 3605	Developmental Neurobiology	
BIOL 4705	Neurobiology of Cognitive Decline	
BIOL 5595	Cell and Molecular Neuroscience	
BIOL 5601	Multidisciplinary Approaches in Motor Control	
PSYC 3506	Neuropsychology of Fear	
PSYC 3508	Behavioral Endocrinology	
PSYC 3510	Brain, Behavior, and Immunity	
PSYC 4510	Psychopharmacology	
PSYC 4512	Neuropsychology	
PSYC 4514	Clinical Neuroscience	
PSYC 4570	Behavioral Genetics	
<b>Behavioral Neuroscience Upper-Level Elective</b>		
Complete one course that is not already taken as long as prerequisites have been met:		4
BIOL 3403 or higher		
BNSC 4991 or higher		
PSYC 3404 or higher		

<sup>1</sup> Students entering through CSSH may take Philosophy at Northeastern (PHIL 1000).

<sup>2</sup> Students entering through CSSH may take Professional Development for Co-op (EESH 2000).

## Philosophy Requirements

Code	Title	Hours
<b>Philosophy Foundations</b>		
PHIL 1105 or PHIL 3050	Science and Pseudoscience Information and Uncertainty	4
PHIL 1115	Introduction to Logic	4
PHIL 1145	Technology and Human Values	4
PHIL 2325 or POLS 2325	Ancient Philosophy and Political Thought Ancient Philosophy and Political Thought	4
PHIL 2330	Modern Philosophy	4
<b>Philosophy Restricted Elective</b>		
Complete 4 semester hours from the following list, not taken to fulfill other requirements:		4
PHIL 3305	Philosophy of Emotions	

PHIL 3360	Scientific Approaches to Philosophy
PHIL 3435	Moral Philosophy
PHIL 4500	Theory of Knowledge
PHIL 4510	Philosophy of Science
PHIL 4535	Philosophy of Mind
PHIL 4555	Philosophy of Biology

**Additional Electives**

Complete two additional PHIL courses not taken to fulfill other requirements. 8

**Integrative Requirements**

Code	Title	Hours
BIOL 4709	Neurobiology of Learning and Memory	4
or BIOL 3419	Engaging with Genomics: Ethics Law and Policy	
or BIOL 5587	Comparative Neurobiology	
or PSYC 3545	Ethics in Animal Research	
PHIL 4535	Philosophy of Mind	4
or PHIL 4555	Philosophy of Biology	

**Writing Courses**

Code	Title	Hours
<b>College Writing</b>		
ENGW 1111	First-Year Writing	4
or ENGW 1102	First-Year Writing for Multilingual Writers	
<b>Advanced Writing in the Disciplines</b>		
ENGW 3307	Advanced Writing in the Sciences	4
or ENGW 3308	Advanced Writing in the Social Sciences	
or ENGW 3309	Advanced Writing in the Humanities	
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

**Required General Electives**

Code	Title	Hours
Complete general electives to meet total required program hours.		

**Behavioral Neuroscience GPA Requirement**

A minimum 2.000 GPA in all behavioral neuroscience courses is required.

**Major Credit-Hour Requirement**

92 total semester hours required in the major

**Program Requirement**

128 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
BIOL 1107 and BIOL 1108		5 BIOL 2299		4 PHIL 2325		4 Vacation	
BNSC 1000		1 ENGW 1111		4 PSYC elective		4	
CHEM 1161 and CHEM 1162 and CHEM 1163		5 PSYC 3458		4			
PHIL 1145		4 MATH 1341		4			
PSYC 1101		4					
	19		16		8		0

Year 2							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
BIOL 2301 and BIOL 2302		5 CHEM 2311 and CHEM 2312		5 PSYC 2320		4 Co-op	0
PHIL 1115	4	EESC 2000		1 General elective		4	
PHIL 1105	4	PHIL 2330		4			
PSYC 3200	4	PHIL restricted elective		4			
		BNS core course		4			
	17		18		8		0
Year 3							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	BNS core course		4 PHIL elective		4 Co-op	0
		PHIL elective		4 General elective		4 ENGW 3315	4
		General elective		4			
		General elective		4			
	0		16		8		4
Year 4							
Fall	Hours	Spring	Hours				
Co-op	0	BIOL 4709 or 5587	4				
		PHIL 4535 or 4555	4				
		BNS upper-level elective	4				
		General elective	4				
	0		16				

Total Hours: 130

**Sample Plan of Study: Five Years, Three Co-ops in Summer2/Fall**

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
BIOL 1107 and BIOL 1108	5	BIOL 2299		4 Vacation		General elective	4
BNSC 1000	1	ENGW 1111		4			
CHEM 1161 and CHEM 1162 and CHEM 1163	5	PSYC 3458		4			
PHIL 1145	4	MATH 1341		4			
PSYC 1101	4						
	19		16		0		4
Year 2							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
BIOL 2301 and BIOL 2302	5	CHEM 2311 and CHEM 2312		5 Vacation		Co-op	0
PHIL 1105	4	EESC 2000		1			
PHIL 1115	4	PHIL 2330		4			
PSYC 3200	4	PSYC 2320		4			
		PHIL restricted elective		4			
	17		18		0		0
Year 3							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	BNS core course		4 PHIL 2325		4 Co-op	0
		General elective		4 General elective		4	
		PSYC elective		4			
		General elective		4			
	0		16		8		0

Year 4							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	BIOL 4709 or 5587	4	Vacation	0	Co-op	0
		BNS core course	4				
		PHIL elective	4				
		ENGW 3315	4				
	<b>0</b>		<b>16</b>		<b>0</b>		<b>0</b>

Year 5			
Fall	Hours	Spring	Hours
Co-op	0	PHIL 4535 or 4555	4
		BNS upper-level elective	4
		PHIL elective	4
		General elective	4
	<b>0</b>		<b>16</b>

Total Hours: 130