

Bachelor of Arts in Neuroscience

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

Course worksheet for Neuroscience majors entering BU as freshmen in or after Fall 2018

GENERAL REQUIREMENTS

- ✓ 17 courses with 'C' or higher required for credit towards Neuroscience major. 'C-' or higher required for Chemistry sequence.
- ✓ 128 credits (excluding PDP, ROTC, FY, and SY) and successful completion of BU Hub units required to graduate from BU.
- ✓ 4th semester of foreign language proficiency required to graduate from CAS.

CORE NEUROSCIENCE (5 courses)

Fall Semester

NE 101[#] Intro to Neuroscience
 NE 203* Principles of Neuroscience or NE 218* ISE II

Spring Semester

NE 102* Intro to Cell & Molecular Biology or NE 116* ISE I
 NE 202 Intro to Cognitive Neuroscience
 NE 204 Intro to Comp. Models of Brain and Behavior

RESEARCH REQUIREMENT *Choose one of the following*

Completion of NE 102/116 **and** NE 203/218
One upper-level lab course **not** from Restricted List
Two consecutive semesters of research for credit totaling 8 credits during Junior or Senior year

<u>JR/SR Research in Neuroscience</u>	<u>Honors Research</u>
NE 391	NE 401
NE 392	NE 402
NE 393	
NE 491	
NE 492	
NE 493	

CHEMISTRY* (2 courses) *Choose one sequence*

CH 101	CH 109	CH 111
CH 102 <u>or</u> CH 116	CH 110	CH 112

PHYSICS* (2 courses) *Choose one sequence*

PY 105	PY 211	PY 241
PY 106	PY 212	PY 242

CALCULUS (2 courses) *Choose one sequence*

MA 121	MA 123	AP Calculus BC
MA 122	MA 124	

STATISTICS (1 course) *Choose one sequence*

NE 212	MA 115	MA 213
	MA 116	MA 214

ELECTIVE REQUIREMENTS

- ✓ Students must complete at least **5 electives total** from at least 2 groups (Neurobiology, Cognitive and Computational)
- ✓ A maximum of 2 of the 5 electives may come from the Restricted List.
- ✓ Two consecutive semesters of research for credit totaling 8 credits during Junior or Senior year counts as one elective.

GROUP 1: Neurobiology	GROUP 2: Cognitive	GROUP 3: Computational	Restricted Electives
NE 230 Behavioral Endocrinology	NE 234 ^{#+} Psych of Learning	NE 449* Neuroscience Design Lab	BI 203 ⁺ Cell Biology
NE 322* Exp. Psych: Physiology	NE 327* Exp. Psych: Perception	NE 530 Neural Models of Memory	BI 213 Intensive Cell Biology
NE 349 Neurotoxins	NE 328* Exp. Psych: Memory	NE 593 Topics in Computational Neuro	BI 315 ^{#+} Systems Physiology
NE 445* Neurophysiology	NE 329* Exp. Psych: Cog Neuro	MA 565 Math Models in Life Sci.	CH 203* Organic Chemistry I
NE 455 Developmental Neurobiology	NE 333 [#] Drugs & Behavior	MA 573 Qualitative Theory of Differential Equations	CH 218* ISE II
NE 481 Molecular Neurobiology	NE 337 Memory Systems	MA 578 Bayesian Statistics	CS 111 [#] Intro. to CS I
NE 520 Sensory Neurobiology	NE 338 Neuropsychology	CN 500* Techniques in Modeling	CS 112 [#] Intro. to CS II
NE 525 ^{#+} Neurodegenerative Diseases	NE 456 Neurobiology of Sex & Aggression	CN 510 Cognition & Neural Models I	MA 226 ⁺ Differential Equations
NE 535 Translational Research in Alzheimer's disease	NE 521 Animal Models in Behavioral Neurobiology	CN 530 Neural&Comp Models of Vision	MA 242 Linear Algebra
NE 542 Neuroethology	NE 528 Human Brain Mapping	CS 542* Machine Learning	MA 416 Analysis of Variance
NE 556 Drug Discovery in Neuro	NE 529 Neuroplasticity	CS 565* Data Mining	ENG EK 127 Intro to Eng. Computation
NE 561* Proteostasis in the Bio. of Neurodegen. Diseases	NE 531 Imaging & Manipulating Memories		
NE 589 Neural Impacts on Tumorigenesis	NE 532 Neurobiology of Motivation, Decision Making, & Learning		
NE 594 ⁺ Topics in Neurobiology	NE 544 Developmental Neuropsychology		
NE 598 Neural Circuits	NE 592 Topics in Cognitive Neuro		
BI 599 Physiology of the Synapse			

Not all electives are offered every semester or every year. Refer to the Student Link for the most up to date information on class scheduling. | Updated 08/20/22
 Key: *Lab Course, #Offered Summer Term, +Offered Either Semester bu.edu/neuro

BU HUB REQUIREMENTS

- ✓ Students must complete **1-2 units** in each Hub area as indicated below.
- ✓ One 4 credit course may satisfy between 0 and 4 Hub areas.
- ✓ Possible courses to satisfy each Hub area are listed below. For a full list, visit bu.edu/hub
- ✓ SO1, SI1, and QR1 can be fulfilled by taking two courses towards SO2, SI2, and QR2, respectively.

PHILOSOPHICAL, AESTHETIC, & HISTORICAL INTERPRETATION

- Philosophical Inquiry & Life’s Meanings (PLM, 1 unit)**
 CL 101 RN 100 CC 202
- Aesthetic Exploration (AEX, 1 unit)**
 AH 111 CC 101 RN 101
- Historical Consciousness (HCO, 1 unit)**
 NE 456 AR 100 CL 101

DIVERSITY, CIVIC ENGAGEMENT, & GLOBAL CITIZENSHIP

- The Individual in Community (IIC, 1 unit)**
 LX 110 PH 256 SO 100
- Global Citizenship & Intercultural Literacy (GCI, 2 units)**
 AN 101 CC 101 RN 106
- Ethical Reasoning (ETR, 1 unit)**
 NE 102^ PS 101 CC 202

SCIENTIFIC & SOCIAL INQUIRY

- Social Inquiry I (SO1, 1 unit)**
 PS 261 SO 100^ PS 101^
- Scientific Inquiry I (SI1, 1 unit)**
 CH 101^ NE 101^ PY 105^
- Scientific or Social Inquiry II (SO2, SI2, 1 unit)**
 NE 102^ PY 106^ CC 222

QUANTITATIVE REASONING

- Quantitative Reasoning I (QR1, 1 unit)**
 CH 101^ NE 212^ PY 105^
- Quantitative Reasoning II (QR2, 1 unit)**
 MA 121^ MA 115^ PY 106^

COMMUNICATION

- First-Year Writing Seminar (FYW, 1 unit)**
 EN 120 WR 120 CC 102
- Writing, Research, & Inquiry (WRI, 1 unit)**
 WR 151, 152, 153 CC 201
- Writing Intensive Course (WIN, 2 units)**
 NE 102^ NE 203^ CC 202
- Oral and/or Signed Communication (OSC, 1 unit)**
 WR 151 NE 525 NE 230
- Digital/Multimedia Expression (DME, 1 unit)**
 WR 152 CS 101 NE 556

INTELLECTUAL TOOLKIT

- Critical Thinking (CRT, 2 units)**
 PY 105^ PS 101^ NE 212
- Research & Information Literacy (RIL, 2 units)**
 WR 151, 152, 153 NE 203
- Teamwork/Collaboration (TWC, 2 units)**
 NE 102^ NE 203^ CC 111
- Creativity/Innovation (CRI, 2 units)**
 EN 170 NE 556 CS 111

PRE-MED REQUIREMENTS

- ✓ AP courses do not satisfy any pre-med requirements with the exception of AP Calculus AB/BC.
- ✓ Neuroscience majors are not required to take BI 107. The Pre-Health office recommends that Neuroscience majors take NE 102 or NE 116 and BI 203 or BI 213 (Cell Biology) and BI 315 (Systems Physiology) to complete the pre-med biology requirement.
- ✓ This check list is for guidance only and does not substitute an appointment with the Pre-Professional Advising Office

- One year of biology with lab (NE 102 or NE 116 & BI 315)^
- One semester in Cell Biology (BI 203 or BI 213)^
- One year of General Chemistry with lab^
- One year of Physics with lab^
- One year of Writing^

- One semester of Calculus^
- One semester of Statistics^
- One year of Organic Chemistry with lab
- One semester of Biochemistry (CH 373)
- One semester of Psychology (PS 101 or PS 261)
- One semester of Sociology (SO 100 or SO 215)

PROPOSED COURSE OF STUDY

YEAR ONE		YEAR TWO		YEAR THREE		YEAR FOUR		SUMMER COURSES	
Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring		
1.	1.	1.	1.	1.	1.	1.	1.	1.	5.
2.	2.	2.	2.	2.	2.	2.	2.	2.	6.
3.	3.	3.	3.	3.	3.	3.	3.	3.	7.
4.	4.	4.	4.	4.	4.	4.	4.	4.	8.

Key: ^Satisfied by Neuroscience major requirements, electives, or Pre-med requirements