

Course worksheet for Neuroscience majors entering BU as freshmen in or after Fall 2024.

CORE NEUROSCIENCE COURSES (5 COURSES)

NE 101^{##} Intro to Neuroscience
NE 102^{*} Intro to Cell & Molecular Biology or NE 116^{*} ISE I
NE 202 Intro to Cognitive Neuroscience
NE 203^{*} Principles of Neuroscience or NE 218^{*} ISE II
NE 204 Intro to Comp. Models of Brain and Behavior

*NE 203 is only offered in the Fall semester. NE 102, NE 202, and NE 204 are only offered in the Spring semester.

REQUIRED BASIC SCIENCE COURSES

CHEMISTRY REQUIREMENT (2 COURSES) *Choose one sequence.*

CH 101
CH 102 or CH 116

CH 109
CH 110 or CH 112

PHYSICS REQUIREMENT (2 COURSES) *Choose one sequence.*

PY 105
PY 106

PY 211
PY 212

PY 241
PY 242

CALCULUS, COMPUTER SCIENCE & DATA SCIENCE REQUIREMENT (2 COURSES) *Choose one from each list.*

List 1: Calculus
MA 121
MA 123

List 2: Calculus, Computer Science & Data Science
MA 122 CS 111 DS 110
MA 124 DS 100

*If using CS 111 or DS 110 towards this requirement, the course cannot be used as a Restricted Elective.

STATISTICS REQUIREMENT (1 COURSE or 2 COURSES) *Choose one option.*

NE 212

MA 115
MA 116

MA 213
MA 214

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
One semester of research for units totaling 4 units during Junior or Senior year

*A maximum of one faculty-mentored independent research course (4 units) taken Junior or Senior year can be used toward the elective requirement for the major.
*Students may complete a maximum of 12 units in research for units while at CAS.

RESEARCH FOR UNITS COURSES (OPTIONAL)

JR/SR Research in Neuroscience
NE 391
NE 392
NE 393

NE 491
NE 492
NE 493

Honors Research
NE 401
NE 402

*Note that electives may not be offered every semester or every year. Please refer to MyBU Student for the most up to date information on class scheduling for the current/upcoming semesters. | Updated 12/6/2024
Key: *Lab Course, #Offered Summer Term, *Offered Either Semester

NEUROSCIENCE ELECTIVE REQUIREMENT

✓ 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.
✓ One faculty-mentored independent research course (4 units) taken Junior or Senior year counts as one elective.

GROUP 1: NEUROBIOLOGY

NE 230 Behavioral Endocrinology
NE 349 Neurotoxins
NE 445^{*} Neurophysiology
NE 455 Developmental Neurobiology
NE 481 Molecular Neurobiology
NE 503 Neuroimmunology
NE 520 Sensory Neurobiology
NE 525^{##} Neurodegenerative Diseases

NE 535 Translational Research in Alzheimer's disease
NE 542 Neuroethology
NE 556 Drug Discovery in Neuro
NE 561^{*} Proteostasis in the Bio.of Neurodegen. Diseases
NE 589 Neural Impacts on Tumorigenesis
NE 594⁺ Topics in Neurobiology
NE 598 Neural Circuits
BI 599 Physiology of the Synapse
SAR HS 549 Mechanisms of Disruption in Brain Dis.

GROUP 2: COGNITIVE

NE 234^{##} Psych of Learning
NE 323^{*} Exp. Psych: Learning
NE 327^{*} Exp. Psych: Perception
NE 328^{*} Exp. Psych: Memory
NE 329^{*} Exp. Psych: Cog Neuro
NE 333^{##} Drugs & Behavior
NE 337 Memory Systems
NE 338 Neuropsychology
NE 456 Neurobiology of Sex & Aggression
NE 490 NeuroDiversity

NE 521 Animal Models in Behavioral Neurobiology
NE 528 Human Brain Mapping
NE 529 Neuroplasticity
NE 531 Imaging & Manipulating Memories
NE 532 Neurobiology of Motivation, Decision Making, & Learning
NE 544 Developmental Neuropsychology
NE 592 Topics in Cognitive Neuroscience

GROUP 3: COMPUTATIONAL

NE 449^{*} Neuro. Design Lab
NE 530 Neural Models of Memory
NE 593 Topics in Computational Neuroscience
MA 242 Linear Algebra
MA 565 Math Models in Life Sci.
MA 573 Qualitative Theory of Differential Equations

MA 578 Bayesian Statistics
CN 510 Cognition & Neural Models I
CN 530 Neural & Comp Models of Vision
CS 542^{*} Machine Learning OR
CDS DS 340 Intro. to Machine Learning and AI
CS 565^{*} Data Mining

RESTRICTED ELECTIVES

BI 203⁺ Cell Biology OR
BI 213 Intensive Cell Biology OR
BI 218^{*} ISE II
BI 315^{##} Systems Physiology
CH 203^{*} Organic Chemistry I OR
CH 218^{*} ISE II
CS 111^{##} Intro. to CS I OR
CDS DS 110⁺ Intro. to DS w/ Python

CS 112^{##} Intro. to CS II
MA 226⁺ Differential Equations
MA 416 Analysis of Variance
CDS DS 210 Programming for Data Science
ENG EK 125 Intro to Programming for Eng.

Bachelor of Arts in Neuroscience

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

GENERAL EDUCATION REQUIREMENTS For more details visit the [CAS Degree Overview page](#).

- ✓ 'C' or higher required for all Neuroscience major courses. 'C-' or higher required for general chemistry sequence.
- ✓ 128 units (excluding PDP, ROTC, FY, and SY) and successful completion of BU Hub requirements required to graduate from BU.
- ✓ 4th semester of foreign language proficiency required to graduate from CAS.

CAS 2nd LANGUAGE REQUIREMENT: Can be completed by one of the following.

Proficiency through the 4th semester: I II III IV

AP or IB Credit:

Bilingual Proficiency Evaluation:

BU HUB REQUIREMENTS:

PLM	SI1	QR1	IIC	FYW	CRT
AEX	SO1	QR2	GCI	WRI	RIL
HCO	SI2/ SO2		ETR	WIN	TWC
				OSC	CRI
				DME	

PRE-HEALTH REQUIREMENTS

- ✓ AP courses do not satisfy any pre-health 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 or NE 218(Cell Biology) and BI 315 (Systems Physiology) to complete the pre-health 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 of 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 ([CH 203](#) and [CH 204](#))
- One semester of Biochemistry ([CH 373](#))
- One semester of Psychology ([PS 101](#) or [PS 261](#))
- One semester of Sociology ([SO 100](#) or [SO 215](#))

*Any courses in [red](#) are not met through Neuroscience major requirements.
*Any courses in [blue](#) are Restricted Electives for the Neuroscience major. A maximum of 2 of these courses can be used toward the elective requirement for the major.

PROPOSED COURSE OF STUDY

	FALL	SPRING
YEAR ONE		
YEAR TWO	FALL	SPRING
YEAR THREE	FALL	SPRING
YEAR FOUR	FALL	SPRING
	SUMMER COURSES	

NOTES: