

# Bachelor of Arts in Neuroscience

Course worksheet for Neuroscience majors transferring into BU in or after Fall 2024.

## CORE NEUROSCIENCE COURSES (5 COURSES)

NE 101<sup>#</sup> Intro to Neuroscience  
 NE 102<sup>\*</sup> Intro to Cell & Molecular Biology or NE 116<sup>\*</sup> ISE I  
 NE 202 Intro to Cognitive Neuroscience  
 NE 203<sup>\*</sup> Principles of Neuroscience or NE 218<sup>\*</sup> 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 109
CH 102 <u>or</u> CH 116	CH 110 <u>or</u> CH 112

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

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

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

List 1: Calculus | List 2: Calculus, Computer Science & Data Science

MA 121	MA 122	CS 111	DS 110
MA 123	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 213
	MA 116	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)

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

\*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 535 Translational Research in Alzheimer's disease
NE 349 Neurotoxins	NE 542 Neuroethology
NE 445 <sup>*</sup> Neurophysiology	NE 556 Drug Discovery in Neuro
NE 455 Developmental Neurobiology	NE 561 <sup>*</sup> Proteostasis in the Bio. of Neurodegen. Diseases
NE 481 Molecular Neurobiology	NE 589 Neural Impacts on Tumorigenesis
NE 503 Neuroimmunology	NE 594 <sup>+</sup> Topics in Neurobiology
NE 520 Sensory Neurobiology	NE 598 Neural Circuits
NE 525 <sup>#</sup> Neurodegenerative Diseases	BI 599 Physiology of the Synapse
	SAR HS 549 Mechanisms of Disruption in Brain Dis.

### GROUP 2: COGNITIVE

NE 234 <sup>#</sup> Psych of Learning	NE 521 Animal Models in Behavioral Neurobiology
NE 323 <sup>*</sup> Exp. Psych: Learning	NE 528 Human Brain Mapping
NE 327 <sup>*</sup> Exp. Psych: Perception	NE 529 Neuroplasticity
NE 328 <sup>*</sup> Exp. Psych: Memory	NE 531 Imaging & Manipulating Memories
NE 329 <sup>*</sup> Exp. Psych: Cog Neuro	NE 532 Neurobiology of Motivation, Decision Making, & Learning
NE 333 <sup>#</sup> Drugs & Behavior	NE 544 Developmental Neuropsychology
NE 337 Memory Systems	NE 592 Topics in Cognitive Neuroscience
NE 338 Neuropsychology	
NE 456 Neurobiology of Sex & Aggression	
NE 490 NeuroDiversity	

### GROUP 3: COMPUTATIONAL

NE 449 <sup>*</sup> Neuro. Design Lab	MA 578 Bayesian Statistics
NE 530 Neural Models of Memory	CN 510 Cognition & Neural Models I
NE 593 Topics in Computational Neuro.	CN 530 Neural & Comp Models of Vision
MA 242 Linear Algebra	CS 542 <sup>*</sup> Machine Learning <u>OR</u>
MA 565 Math Models in Life Sci.	CDS DS 340 Intro. to Machine Learning and AI
MA 573 Qualitative Theory of Differential Equations	CS 565 <sup>*</sup> Data Mining

### RESTRICTED ELECTIVES

BI 203 <sup>+</sup> Cell Biology <u>OR</u>	CS 112 <sup>#</sup> Intro. to CS II
BI 213 Intensive Cell Biology <u>OR</u>	MA 226 <sup>+</sup> Differential Equations
BI 218 <sup>*</sup> ISE II	MA 416 Analysis of Variance
BI 315 <sup>+</sup> Systems Physiology	CDS DS 210 Programming for Data Science
CH 203 <sup>*</sup> Organic Chemistry I <u>OR</u>	ENG EK 125 Intro to Programming for Eng.
CH 218 <sup>*</sup> ISE II	
CS 111 <sup>#</sup> Intro. to CS I <u>OR</u>	
CDS DS 110 <sup>+</sup> Intro. to DS w/ Python	

