BU ID: Name:

## **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\* Intro to Cell & Molecular Biology or NE 116\* 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 or CH 116 CH 110 or CH 112

# PHYSICS REQUIREMENT (2 COURSES) Choose one

sequence.

PY 105 PY 211 PY 241 PY 212 PY 106 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 122 MA 121 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)

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

Boston University College of Arts and Sciences

Undergraduate Program in Neuroscience

- ✓ 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 535 Translational Research in NE 230 Behavioral Endocrinology NE 349 Neurotoxins NE 445<sup>\*</sup> Neurophysiology NE 455 Developmental Neurobiology NE 481 Molecular Neurobiology NE 503 Neuroimmunology NE 520 Sensory Neurobiology NE 525<sup>+#</sup> Neurodegenerative Diseases

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

#### **GROUP 3: COMPUTATIONAL**

NE 449\* Neuro. Design Lab NE 530 Neural Models of Memory NE 593 Topics in Computational Neuro. 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

Neuroscience

#### 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.
✓ 4<sup>th</sup> semester of foreign language proficiency required to graduate

 $\checkmark$  4<sup>th</sup> semester of foreign language proficiency required to graduate from CAS.

## CAS 2<sup>nd</sup> LANGUAGE REQUIREMENT: Can be completed by one of the

following.

Proficiency through the 4<sup>th</sup> semester: I II III IV

AP or IB Credit:

Bilingual Proficiency Evaluation:

#### **BU HUB REQUIREMENTS:**

PLM <u>or</u> AEX <u>or</u> HCO QR2 CRT

SI1 or SI2 IIC or GCI or ETR RIL

SO1 or SO2 WRI or WIN TWC

CRI

#### 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 <u>and BI 203</u> or BI 213 or NE 218 (Cell Biology) <u>and BI 315</u> (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

FALL SPRING

FALL SPRING

FALL SPRING

YEAR THREE

FALL SPRING

YEAR FOUR

SUMMER COURSES

NOTES: