Fall 2025 Neuroscience Course Directory

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

TABLE OF CONTENTS

RESEARCH FOR UNITS

If you are working or intend to work in a lab during the Fall 2025 semester, you are welcome to apply for a research-for-units class in order to receive academic units towards graduation. Guidelines and the application will be available here: https://www.bu.edu/upn/undergraduate-research/

REGISTRATION DATES

Class Year	Start Date	Start Time
Seniors	April 6th	9:00a
Juniors	April 13th	9:00a
Sophomores	April 27th	9:00a

WAITLISTS

You can find more information about waitlists here:
https://www.bu.edu/upn/advising/undergraduate-waitlists/

REGISTRATION NOTES

- You **must** schedule an advising appointment with your **assigned advisor** prior to registration at bu.joinhandshake.com
- Full time status is a minimum of **12 units** per semester.
- To apply for an overload fee waiver, add a major or minor, and more, visit the CAS Advising page: http://www.bu.edu/cas/current-students/undergraduate/casadvising/forms/
- PDP, ROTC, and CAS FY/SY courses **do not** count toward the **128 units needed to graduate**.
- Find more info about the Undergraduate **Neuroscience Program** at https://www.bu.edu/upn/
- Learn more about the **BU Hub** at bu.edu/hub
- Declare a second major, change your major, or add a minor here:
  Major: https://www.bu.edu/cas/cas-advising-major-declaration-form/ **Minor**: https://www.bu.edu/cas/academics/undergraduate-education/academic-advising/advising/minor-declaration-form/
- View Enrollment Dates/Times here: https://www.bu.edu/reg/calendars/registration/
- Course Planning & Preparing for Registration*
- **Registration Tips & Tricks:**
  https://www.bu.edu/cas/academics/undergraduate-education/academic-advising/advising/course-planning-registration/registration-tips-tricks/

Last Updated: 3/14/25
Check MyBU Student for the most up to date scheduling information.

Core Neuroscience Courses

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

NE 101: Introduction to Neuroscience

4 cr | Hub: SI1 | Prereq: None

An introduction to the biological basis of behavior and cognition. Includes theoretical and practical foundations rooted in psychology, biology, neuropharmacology, and clinical sciences (e.g., neurology and neuropsychiatry). Neuroethical dilemmas are highlighted and integrated when relevant to discussion topics. Note: You cannot receive credit for NE 101 and PS 231.

Lecture

A1	Howe	MWF	12:20p-1:10p
		M	6:30p-8:00p (exam)

Discussion

B1	TBA	M	1:25p-2:15p
B2	TBA	M	1:25p-2:15p
B3	TBA	M	2:30p-3:20p
B4	TBA	M	2:30p-3:20p
B5	TBA	M	3:35p-4:25p
B6	TBA	M	3:35p-4:25p
B7	TBA	M	4:40p-5:30p
B8	TBA	M	4:40p-5:30p

NE 203: Principles of Neuroscience

4 cr | Hub: RIL, TWC, WIN | Prereq: Sophomore standing & NE 101 & (BI 203 or NE 102) & First Year Writing Seminar (WR 120)

Fundamentals of the nervous system, emphasizing synaptic transmission; hierarchical organization; autonomic nervous system; mechanisms of sensory perception; reflexes and motor function; biorhythms; and neural mechanisms of feeding, mating, learning, and memory. Project labs focus on behavioral neurobiology through inquiry-based experiments. Effective Fall 2019, this course fulfills a single unit in each of the following BU Hub areas: Writing-Intensive Course, Research and Information Literacy, and Teamwork/Collaboration.

Lecture

A1	Tullai	TR	11:00a-12:15p

Lab

L2	Staff	T	8:00a-10:45a
L3	Staff	T	12:30p-3:15p
L4	Staff	T	6:30p-9:15p
L5	Staff	W	8:00a-10:45p
L6	Staff	W	2:30p-5:15p
L7	Staff	W	6:30p-9:15p
L8	Staff	R	8:00a-10:45a
L9	Staff	R	12:30p-3:15p
LA	Staff	R	6:30p-9:15p
LB	Staff	F	8:00a-10:45p

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Core Neuroscience Courses

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

NE 212: Intro to MATLAB Programming

4 cr | Hub: QR1, CRT | Prereq: (NE 101 or PS 101) & one semester of calculus

Teaches computer programming concepts, core statistical concepts, and related skills via MATLAB. Programming examples that cover four steps of neuroscience research (experiment control; random samples; data analysis; brain process simulation) promote "constructive" understanding of the quantitative reasoning behind decisions based on descriptive and inferential statistics (e.g., confidence intervals, linear regression models, model- specific anovas). Explains numerical integration programs in two settings: probability distributions, and simulations of neural dynamics. Does not count toward the principal courses required for the major or minor. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Quantitative Reasoning I, Critical Thinking.

Lecture

A1	Yazdanbakhsh	TR	3:30p-4:45p

Discussion

B1	Yazdanbakhsh	W	10:10a-11:00a
B2	Yazdanbakhsh	W	2:30p-3:20p
B3	Yazdanbakhsh	W	3:35p-4:25p
B4	Yazdanbakhsh	W	4:40p-5:30p

NE 218: Integrated Science Experience II

5 cr | Hub: TWC, WIN | Prereq: NE 116 & CH 116 | Coreq: CH 218

Integration of cell biology with organic chemistry and neuroscience, with emphasis on how each discipline interacts experimentally. Laboratory focuses on synthesizing compounds and testing in biological systems. 3 lecture hours (meets with CAS NE 203 lecture), 1 discussion hour, 4 hours lab, 2 hour lab discussion.

Lecture

A1	Tullai	TR	11:00a-12:15p

Lab

L1	Bushell	W	1:25p-5:25p

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Group 1: Neurobiology

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

NE 230: Behavioral Endocrinology

4 cr | Hub: OSC, SI1, TWC |Prereq: BI 108 or NE 102 and sophomore standing.

Hormonal control of reproductive behaviors and social affiliation, aggression, fluid homeostasis and feeding, biological rhythms including seasonal reproduction, stress, learning and memory, psychiatric illness, and steroid abuse. Three hours lecture, one hour discussion. Also offered as CAS NE 230. Effective Fall 2019, this course fulfills a single unit in each of the following BU Hub areas: Scientific Inquiry I, Oral and/or Signed Communication, Teamwork/Collaboration.

Lecture			
A1	Pain	TR	12:30p-1:45p
Discussion			
B1	Pain	F	12:20p-1:10p
B2	Pain	F	10:10a-11:00a

NE 445: Neurophysiology

4 cr | Prereq: BI 203 or BI 315 or BI 325 or NE 203, or consent of instructor.

Cellular and molecular basis of neural excitability and synaptic transmission. The molecular understanding of ion channels is extrapolated to higher brain functions such as learning, memory, and sleep. Three hours lecture, three hours lab, one hour pre-lab. Also offered as CAS BI 445.

Lecture			
A1	Lin	TR	2:00p-3:15p
Lab			
L1	Lin	M	2:30p-6:15p

NE 455: Developmental Neurobiology

4 cr | Prereq: BI 203 or BI 325 or NE 203, or consent of instructor.

Fundamental principles of developmental neurobiology, stressing molecular mechanisms that underlie early neural development, differentiation, process outgrowth, and behavior. Three hours lecture, one hour discussion. Also offered as CAS BI 455.

Lecture			
A1	Man	WF	10:10a-11:55a

NE 481: Molecular Biology of the Neuron

4 cr | Hub: OSC, SI2, RIL | Prereq: (NE 102 or BI 203) or equivalent

Topics include electrical properties of neurons, a survey of neurotransmitters, molecular structure and function of receptors, synaptic transmission, intracellular signaling, and the molecular biology of sensory transduction. Three hours lecture, one hour discussion. Also offered as CAS BI 481.

Independent			
A1	Ho	MW	2:30p-4:15p

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Group 1: Neurobiology

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

NE 503: Neuroimmunology

4 cr | Prereq: BI 203 or NE 102, or BI 213, and BI 325 or NE 203.

Neuroimmunology is a burgeoning field in neuroscience. This course examines current topics including the role of glia in brain development, health, and disease, glia-neuron crosstalk, impact of stress and environment on the neuroimmune system, and cell trafficking into the brain.

Independent

A1	Tay	TR	9:00a-10:45a

NE 520: Sensory Neurobiology

4 cr | Prereq: BI 325 or NE 203, or consent of instructor.

A broad survey of sensory system function in model organisms and humans, focusing on fundamental principles of neural processing. Topics include basic cellular transduction, neural coding, and links between neural activity and sensory perception. Also offered as CAS BI 520.

Lecture

A1	Younger	TR	1:30p-3:15p

NE 535: Translational Research in Alzheimer's Disease

4 cr | Hub: OSC, ETR, RIL |Prereq: (BI 203 or NE 102) & (BI 325 or NE 203)

An introduction to translational research focused on Alzheimer's disease, with particular emphasis on the search for new therapeutic targets, from observations of pathogenic phenotypes in patients to the development of appropriate animal and cellular models of the disease. Also offered as CAS BI 535.

Independent

A1	Pastorino	MWF	11:15a-12:05p
		W	12:20p-1:10p

NE 556: Drug Discovery in Neuroscience

4 cr | Hub: DME, SI2, CRI |Prereq: NE 102 (or BI 108) & CH 102; NE/PS 333 strongly recommended.

The process of drug discovery is complex especially when a drug is intended to treat a neurological disease. This discussion-heavy course examines the specific challenges of modern neuroscience drug discovery, including: target selection, pharmacodynamics, animal models, and clinical trials. Effective Fall 2021, this course fulfills a single unit in each of the following BU Hub areas: Digital/Multimedia Expression, Scientific Inquiry II, Creativity/Innovation.

Independent

A1	Bushell	MW	10:10a-11:55a

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Group 1: Neurobiology

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

NE 561: Proteostasis in the Biology of Neurodegenerative Diseases

4 cr | Hub: SI2, CRI, RIL |Prereq: (BI 108 or NE 102). BI 203 or BI 213 recommended. | Satisfies Neuro Research Requirement

A hands-on class focusing on the mechanisms that control protein homoestasis, and on the approaches that we can use to study how it may change in conditions associated with neurodegenerative diseases. The class mimics, as much as possible, a real research environment, as students carry out experiments throughout the semester, learn how to develop and test new hypotheses, and also share knowledge through weekly readings and presentation of research articles inherent to the topics of the class. Effective Fall 2021, this course fulfills a single unit in each of the following BU Hub areas: Scientific Inquiry II, Creativity/Innovation, Research and Information Literacy.

Independent

A1	Pastorino	MF	12:20p-4:15p

NE 589: Neural Impacts on Tumorigenesis

4 cr | Hub: OSC, SI2, RIL | Prereq: (NE 203 or BI 325)

Explores neuronal invasion and mechanisms of neurogenesis into solid tumors, cross-talk in tumor microenvironments, and nervous system influence on cancer modulators that enhance tumorigenesis. Enhancement of cancer from environmental stress at this interface is also examined. Effective Fall 2021, this course fulfills a single unit in each of the following BU Hub areas: Oral and/or Signed Communication, Scientific Inquiry II, Research and Information Literacy.

Independent

A1	Tullai	TR	12:30p-1:45p

Group 2: Cognitive

NE 234: Psychology of Learning

4 cr | Hub: SI1, SO1, CRT | Div Studies: SS | Prereq: PS 101

The aim of this course is to review the major traditional and current theories of learning and memory. Students will begin with an understanding of simple learning, including theories and basic principles of classical and operant conditioning. Students will then be introduced to the memory system, the three stages of memory, implicit and explicit memory processes.

Lecture			
A1	Dunne	MWF	2:30p-3:20p
Discussion			
A2	Dunne	F	9:05a-9:55a
A3	Dunne	F	10:10a-11:00a
A4	Dunne	F	11:15a-12:05p
A5	Dunne	F	12:20p-1:10p

NE 327: Experimental Psychology: Perception

4 cr | Prereq: PS 101 & (PS211 or NE 212 or (MA 115 & MA 116)) & PS 222 |Satisfies Neuro Research Requirement

Introduces psychophysical methods and their use in the study of perceptual processes: Students learn to think critically about the relation between theory and experiment, conduct perception experiments, and write experimental reports. Also offered as CAS PS 327.

Independent			
A1	Ling	MW	10:10a-11:55a

NE 333: Drugs & Behavior

4 cr | Prereq: PS 101 & (PS 231 or NE 101) & Junior/Senior Standing

Comprehensive survey of drug influences on behavior; introduces a neuroscience approach to behavior. Several classes of drugs are discussed, including abused and addictive substances and psychoactive and therapeutic agents. Also offered as CAS PS 333.

Lecture			
A1	Scott	TR	3:30p-4:45p
Discussion			
A2	Scott	W	9:05a-09:55a
A3	Scott	W	10:10a-11:00a
A4	Scott	W	12:20p-1:10p
Lecture			
B1	DiBenedictis	MWF	12:20p-1:10p
Discussion			
B2	DiBenedictis	F	9:05a-9:55a
B3	DiBenedictis	F	10:10a-11:00a
B4	DiBenedictis	F	11:15a-12:05p
B5	DiBenedictis	F	1:25p-2:15p

Group 2: Cognitive

NE 337: Memory Systems

4 cr | Prereq: PS 231 or CAS BI 425 or CAS NE 203; or consent of instructor

Survey of investigations into the brain systems and neurobiological mechanisms of memory. Includes experimental studies of amnesia in humans and experimental models of amnesia in animals. Focus on evidence for multiple forms of memory and distinct brain systems that mediate them. Also offered as CAS PS 337.

Lecture			
A1	TBA	TR	11:00a-12:15p
Discussion			
A2	TBA	W	12:20p-1:10p
A3	TBA	W	1:25p-2:15p
A4	TBA	W	3:35p-4:25p

NE 338: Neuropsychology

4 cr | Prereq: PS 231 or BI 325 or NE 203

Survey of theoretical aspects and major empirical findings in human neuropsychology, including memory, language, spatial function, attention, emotion, and abstract thought. Emphasis is on the relation between brain disorders (resulting from head injury, stroke, degenerative disease, etc.) and abnormal behavior. Also offered as CAS PS 338.

Lecture			
A1	Cronin-Golom	TR	11:00a-12:15p
Discussion			
A2	Cronin-Golom	W	9:05a-9:55a
A3	Cronin-Golom	W	10:10a-11:00a
A4	Cronin-Golom	W	11:15a-12:05p

NE 456: Neurobiology of Sex & Aggression

4 cr |Hub: OSC, HCO, SI2 | Prereq: PS 231 or NE 203 or BI 325 or permission of instructor

Examines neurobiological and genetic factors that influence sex and violence. Students review primary literature from the past century that highlights major scientific discoveries that have reconceptualized our understanding of the origins of sexual-determination, -attraction and -aggression.

Independent			
A1	Gobrogge	M	8:00a-10:45a

NE 528: Human Brain Mapping

4 cr | Prereq: CAS PS 336 or CAS PS 339/NE 202

Localization in the brain of human mental functions and the study of their neural mechanisms. Topics include methods (fMRI, PET, TMS, ERP), memory, perception, recognition, attention, and executive processes. Also offered as CAS PS 528.

Independent			
A1	McGuire	TR	9:30a-10:45a

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Group 3: Computational

MA 242: Linear Algebra

4 cr |Hub: QR2, CRT | Prereq: (CASMA122 OR CASMA124 OR CASMA127 OR CASMA129)

Cannot be taken for credit in addition to CAS MA 442 or ENG EK 103. Matrix algebra, solution of linear systems, determinants, Gaussian elimination, fundamental theory, row-echelon form. Vector spaces, bases, norms. Computer methods. Eigenvalues and eigenvectors, canonical decomposition. Applications. Effective Fall 2019, this course fulfills a single unit in the following BU Hub area: Quantitative Reasoning II.

Lecture

A1	Staff	TR	3:30p-4:45p
B1	Fried	MWF	9:00a-9:55a
C1	Divac	TR	5:00p-6:15p

Discussion

A2	Staff	R	11:15a-12:05p
B2	Fried	W	2:30p-3:20p
C2	Divac	M	8:00a-8:50a
C3	Divac	M	9:05a-9:55a
C4	Divac	M	10:10a-11:00a
C5	Divac	M	3:35p-4:25p
C6	Divac	M	4:40p-5:30p

MA 573: Qualitative Theory of Differential Equations

4 cr | Prereq: (MA 226 OR MA 231) & (MA 242 OR MA 442)

It's often said that "The only constant in life is change" (attributed to Heraclitus). Ordinary differential equations (ODEs) arise ubiquitously to describe the rates of change of all manner of quantities, including in biomedical engineering, mathematics, mechanical engineering, neurosciences, and physics. We will learn lots of fascinating and powerful mathematical tools for linear and nonlinear ODEs. Examples will be chosen based on student background and interest.

Independent

A1	Fried	MWF	10:10a-11:00a

MA 578: Bayesian Statistics

4 cr | Prereq: (MA 581 & MA 582)

The principles and methods of Bayesian statistics. Subjective probability, Bayes rule, posterior distributions, predictive distributions. Computationally based inference using Monte Carlo integration, Markov chain simulation. Hierarchical models, mixture models, model checking, and methods for Bayesian model selection.

Lecture

A1	Ghassami	TR	12:30p-1:45p

Discussion

B1	Ghassami	W	9:05a-9:55a

Group 3: Computational

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

CN 510: Principles and Methods of Cognitive and Neural Modeling I

4 cr | Prereq: CAS MA 226 or equivalent, CS 108 or CS 111, NE 101 or equivalent

Explores psychological, biological, mathematical, and computational foundations of behavioral and brain modeling. Topics include organizational principles, mechanisms, local circuits, network architectures, cooperative and competitive non-linear feedback systems, associative learning systems, and self-organizing code-compression systems. The adaptive resonance theory model unifies many course themes. CAS CN 510 and 520 may be taken concurrently.

Independent

A1	Yazdanbakhsh	TR	11:00a-12:15p

CS 542: Machine Learning

4 cr | Prereq: CASCS112, CASCS132 or equivalent, CASCS237 or equivalent; CASMA225 highly recommended. | Satisfies Neuro Research Requirement

Introduction to modern machine learning concepts, techniques, and algorithms. Topics include regression, kernels, support vector machines, feature selection, boosting, clustering, hidden Markov models, and Bayesian networks. Programming assignments emphasize taking theory into practice, through applications on real-world data sets.

Lecture

A1	Gong	MW	2:30p-3:45p

Lab

A2	Gong	W	4:40p-5:30p
A3	Gong	R	9:55a-10:45a
A4	Gong	R	3:35p-4:25p
A5	Gong	R	5:00p-5:50p

CS 565: Data Mining

4 cr | Prereq: CASCS112 & CS 330 & CS 365 | Satisfies Neuro Research Requirement

Introduction to data mining concepts and techniques. Topics include association and correlation discovery, classification and clustering of large datasets, outlier detection. Emphasis on the algorithmic aspects as well as the application of mining in real-world problems.

Lecture

A1	Terzi	TR	11:00a-12:15p

Lab

A2	Terzi	W	12:20p-1:10p
A3	Terzi	W	1:25p-2:15p

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Group 3: Computational

CDS DS 340: Introduction to Machine Learning and AI

4 cr | Hub: ETR, QR2, CRT | Prereq: CDS DS 320

This course instructs students in key algorithms for classic artificial intelligence (AI) and modern machine learning (ML). Along the way, we seek to explore what kinds of problems these techniques are good and bad at, and build intuition for what makes a good search or machine learning problem. The primary assessment tools will be programming problem sets in Python, using Jupyter notebooks.

Lecture

A1	Gold	TR	2:00p-3:15p

Discussion

A2	Gold	R	9:30a-10:45a
A3	Gold	R	11:15a-12:05p
A4	Gold	R	12:30p-1:45p

Lecture

B1	TBA	MW	12:20p-2:05p

Discussion

B2	TBA	F	10:10a-11:00a
B3	TBA	F	11:15a-12:05p
B4	TBA	F	12:20p-1:10p

Restricted Electives

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

BI 203: Cell Biology

4 cr | Hub: SI1, QR1, CRT | Prereq: (CASBI108 & CASCH102) or equivalent | Coreq: (CASCH203) or equivalent.

Principles of cellular organization and function: biological molecules, flow of genetic information, membranes and subcellular organelles, and cell regulation. Three hours lecture, one hour discussion. Students may receive credit for CAS BI 203 or 213, but not both courses. Effective Fall 2019, this course fulfills a single unit in each of the following BU Hub areas: Scientific Inquiry I, Quantitative Reasoning I, Critical Thinking.

Lecture

A1	Beffert	TR	9:30a-10:45a
A2	Beffert	TR	3:30p-4:45p

Discussion

See MyBU Student for full list of options.

BI 213: Intensive Cell Biology

4 cr | Hub: SI1, QR1, RIL | Prereq: (CASBI108 & CASCH102) or equivalent | Coreq: (CASCH203) or equivalent.

Recommended for students in BMB and the Specialization in Cell Biology, Molecular Biology & Genetics. Alternative to CAS BI 203 emphasizing experimental approaches and in-depth discussion. Molecular basis of cell biology, including genomics, subcellular organelles, cell signaling, stem cells, and cancer. Students may receive credit for CAS BI 213 or 203, but not both courses. Effective Fall 2019, this course fulfills a single unit in each of the following BU Hub areas: Scientific Inquiry I, Quantitative Reasoning I, Research and Information Literacy

Lecture

A1	Naya	TR	9:30a-10:45a

Discussion

B1	Naya	M	12:20p-1:10p
B2	Naya	M	1:25p-2:15p
B3	Naya	M	4:40p-5:30p
B4	Naya	W	12:20p-1:10p
B5	Naya	W	1:25p-2:15p

BI 315: Systems Physiology

4 cr | Hub: SI2, WRI, CRT, TWC | Prereq: (CASBI108 OR ENGBE209), and CASCH101 and CASCH102, or equivalent. First Year Writing Seminar (e.g., WR 100 or WR 120)

An introduction to physiological principles applied across all levels of organization (cell, tissue, organ system). Preparation for more advanced courses in physiology. Topics include homeostasis and neural, muscle, respiratory, cardiovascular, renal, endocrine, gastrointestinal, and metabolic physiology. Three hours lecture, three hours lab. Effective Fall 2019, this course fulfills a single unit in each of the following BU Hub areas: Scientific Inquiry II, Writing-Intensive Course, Critical Thinking, Teamwork/Collaboration.

Lecture

A1	Muscedere	MWF	11:15a-12:05p

Lab

See MyBU Student for full list of options.

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Restricted Electives

CH 203: Organic Chemistry I

4 cr | SI1, QR1 | Prereq: (CASCH102 OR CASCH110 OR CASCH112)

Fundamentals of contemporary organic chemistry, including skeletal and electronic structure, stereochemistry, and reactions of important functional groups. Applications of organic reactions to important synthetic targets in materials and drug discovery will be highlighted, as will reactions pertinent to biochemistry. Laboratory includes training in basic organic chemistry skills, such as extraction, reaction performance, spectroscopy interpretation and chromatography. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Scientific Inquiry I, Quantitative Reasoning I.

Lecture

A1	Courtney	TR	8:00a-9:15a
A2	Courtney	TR	11:00a-12:15p
A3	Panek	TR	5:00p-6:15p

Lab

See MyBU Student for full list of options.

Discussion

See MyBU Student for full list of options.

Pre-Lab

See MyBU Student for full list of options.

CH 218: Organic Chemistry 1 with Integrated Science Experience II Lab

4 cr | Hub: SI1, QR1, CRT, RIL | Prereq: CH 116/CH 102 and either BI 107/BI 116 or NE 102/116 | Coreq: NE 218 or BI 218

Integration of organic chemistry with cell biology and neuroscience, with emphasis on how each discipline interacts experimentally. Laboratory focuses on synthesizing compounds and testing in biological systems. 3 lecture hours (meets with CH 203 lecture), 1 discussion hour, 4 hours lab, 2 hour lab discussion. 4 Credits Effective Fall 2019, this course fulfills a single unit in each of the following BU Hub areas: Scientific Inquiry I, Quantitative Reasoning I, Critical Thinking, Research and Information Literacy. Click here to learn more about Integrated Science Experience and how to register.

Lecture

A1	Courtney	TR	8:00a-9:15a
A2	Courtney	TR	11:00a-12:15p
A3	Panek	TR	5:00p-6:15p

Lab

L1	Murphy	F	12:20p-4:20p

Pre-Lab

P1	Staff	M	2:30p-4:15p

Discussion

B1	Staff	W	12:20p-1:10p
B2	Staff	M	1:25p-2:15p
B3	Staff	T	12:30p-1:20p
B4	Staff	W	10:10a-11:00a

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Restricted Electives

CS 111: Introduction to Computer Science I

4 cr | Hub: QR2, CRI, CRT

The first course for computer science majors and anyone seeking a rigorous introduction. Develops computational problem-solving skills by programming in the Python language, and exposes students to a variety of other topics from computer science and its applications. Carries MCS divisional credit in CAS. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Quantitative Reasoning II, Creativity/Innovation, Critical Thinking.

Lecture

A1	Sullivan	MWF	12:20p-1:10p
A2	Sullivan	MWF	1:25p-2:15p
A3	Staff	MWF	2:30p-3:20p

Lab

**See MyBU Student for full list of options.*

CS 112: Introduction to Computer Science II

4 cr |Hub: QR2, CRI, CRT | Prereq: (CASCS111) or equivalent.

Covers advanced programming techniques and data structures. Topics include recursion, algorithm analysis, linked lists, stacks, queues, trees, graphs, tables, searching, and sorting. Carries MCS divisional credit in CAS. Effective Fall 2018, this course fulfills a single unit in the following BU Hub area: Quantitative Reasoning II, Creativity and Innovation, Critical Thinking.

Lecture

A1	Papadakis-Kanaris	TR	2:00p-3:15p
A2	Papadakis-Kanaris	TR	3:30p-4:45p

Lab

**See MyBU Student for full list of options.*

MA 226: Differential Equations

4 cr | Hub: CRT | Prereq: (CASMA225 OR CASMA230)

First-order linear and separable equations. Second-order equations and first-order systems. Linear equations and linearization. Numerical and qualitative analysis. Laplace transforms. Applications and modeling of real phenomena throughout. (Cannot be taken for credit in addition to CAS MA 231.)

Lecture

A1	Chang	TR	9:30a-10:45a
B1	Chung	MWF	9:05a-9:55a

Discussion

**See MyBU Student for full list of options.*

A2-A6	Chang
B2-B5	Chung

Restricted Electives

MA 416: Analysis of Variance

4 cr | Hub: CRT | Prereq: (MA116 or MA214) or equivalent

Fundamental concepts and analytical skills in analysis of variance, including crossed and nested designs, as well as fixed- and random- effect models. Trend analysis for repeated measures, expected mean squares, and non-parametric techniques. SAS is used throughout the course. Effective Fall 2020, this course fulfills a single unit in the following BU Hub area: Critical Thinking.

Lecture

A1	Moore	TR	3:30p-4:45p

Discussion

A2	Moore	W	1:25p-2:15p
A3	Moore	W	2:30p-3:20p
A4	Moore	W	3:35p-4:25p
A5	Moore	W	4:40p-5:30p
A6	Moore	R	8:00a-8:50a

CDS DS 110: Introduction to Data Science with Python

4 cr

CDS DS 110 is the first in a two-course sequence (leading to CDS DS 210) that builds students' competence in computing techniques central to data science. Students will use Python to explore fundamental CS concepts and processes used in data science with a focus on descriptive data analysis, including data structures, development of functions and more advanced recursion, object-oriented programming, data processing and data visualization. Numpy, pandas, and matplotlib will be used to analyze real-world data. Prior experience with Python is not required.

Lecture

A1	Ladenheim	MWF	12:20p-1:10p
B1	Gold	MWF	1:25p-2:15p

Discussion

Please see MyBU Student for Discussion times.

A2-A5	Ladenheim
B2-B5	Gold

CDS DS 210: Programming for Data Science

4 cr | Hub: QR2, DME, CRI |Prereq: DS 110 or equivalent

Second course in the CDS DS-110-210 sequence. The first half of DS 210 continues the Python programming experience begun in DS-110, with enhanced focus on machine learning applications. The second half of the course introduces students to compiled programming languages, such as Rust, Go and Java, suitable for building large projects. Basic data structures (stacks, queues, priority queues, binary search trees), techniques for representing graphs, and basic graph algorithms will be explored. Concepts are developed and reinforced through consideration of data-driven inquiries in real-world settings.

Lecture

A1	Gardos	TR	2:00p-3:15p
B1	TBA	MWF	12:20p-1:10p

Discussion

Please see MyBU Student for Discussion times.

A2-A5	Gardos
B2-B5	TBA

BU Hub

Boston University College of Arts and Sciences
Undergraduate Program in Neuroscience

Remaining on track to complete your Hub requirements requires thoughtful planning, including knowing what Hub requirements you will satisfy by courses needed for your major.

Students majoring in Neuroscience who complete the core neuroscience courses and foundational requirements in writing, chemistry, physics, calculus, and statistics generally have **8-11 Hub requirements** left to satisfy:

Philosophical Inquiry and Life's Meaning (PLM)	1 unit
Aesthetic Exploration (AEX)	1 unit
Historical Consciousness (HCO)*	1 unit
Social Inquiry (SO1)*	1 unit
Individual in Community (IIC)	1 unit
Global Citizenship and Intercultural Literacy (GCI)	2 units
Oral and/or Signed Communication (OSC)*	1 unit
Digital Multimedia Expression (DME)*	1 unit
Creativity/Innovation (CRI)*	2 units

You may satisfy some of the above requirements with your choice of neuroscience required courses and/or electives, 2nd language requirement, and additional academic tracks (minors, pre-health, KHC, etc.), but you will likely need to search outside your normal scheduling path to satisfy at least some Hub requirements.

It is encouraged to spread your Hub courses throughout your time at Boston University, so that you are not scrambling to take all your Hub courses or find seats in courses that meet a specific permutation of 3 Hub requirements your final year.

You can also filter by specific hub requirements when searching for courses in MyBU Student.

We've included a list of courses on the next few pages which are running in Fall 2025 that are helpful in satisfying some of your Hub Requirements that are not met by Neuroscience. **This list is by no means exhaustive and you should continue to do your own research, including looking at classes outside of CAS.**

Select Hub Courses

AH 111: Pyramids to Cathedrals: An Introduction to Ancient and Medieval Art
4 cr | Hub: AEX, HCO

A chronological examination of the fundamentals of art and architectural history, this course introduces students to major monuments and works of art from antiquity to the middle ages in their social, religious and historical contexts.

AH 114: Kongo to Cuba: Art, Exchange, and Self-Determination in Africa and Latin America
4 cr | Hub: AEX, GCI, CRT

This course introduces the arts of Africa and Latin America. It explores the rich diversity of each continent's artistic production and highlights the impact of their intertwining histories on visual expression in the wake of transcontinental exchange and globalization. Effective Fall 2022, this course fulfills a single unit in each of the following BU Hub areas: Global Citizenship and Intercultural Literacy, Aesthetic Exploration, Critical Thinking.

AH 201: Understanding Architecture
4 cr | Hub: AEX, HCO, RIL

Introduces a range of approaches to understanding architecture in an historical perspective. Learn how architects and others have interpreted meaning through rubrics of art, nature, and culture, focused upon European and American architecture from 1400 to the present.

AN 101: Introduction to Sociocultural Anthropology
4 cr | Hub: SOI, GCI, RIL

Introduction to the basic concepts, principles, and problems of sociocultural anthropology, emphasizing the study of traditional and complex societies. Special attention to the organization and meaning of religion, economic life, kinship and political order; and the problem of cultural variation in the contemporary world. Carries social science divisional credit in CAS.

AN 211: Humans Among Animals
4 cr | Hub: PLM, ETR, CRT

Examines how humans understand (other) animals and their thought, feeling, and communication and the ways we humans in varied cultures and societies use animals for interaction and self-understanding. Interdisciplinary approach that considers language, aesthetics, ideology, practice, and regulation. Effective Fall 2018, this course fulfills units in the following BU Hub areas: Philosophical Inquiry and Life's Meanings, Ethical Reasoning, and Critical Thinking.

AN 252: Ethnicity and Identity
4 cr | Hub: IIC, GCI

Explores anthropological approaches to community, belonging, and difference using case studies from the South Pacific, Europe, North America, and Africa. Special attention paid to how contemporary economic and political changes impact the ways people think about and belong to communities. Carries social science divisional credit in CAS. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: The Individual in Community, Global Citizenship and Intercultural Literacy.

Select Hub Courses

AN 290: Children and Culture
4 cr | Hub: SO1, GCI

Explores the way cultures shape the social development and caregiving of children. Topics include cultural concepts of childhood; the acquisition of culture; socialization and moral development; childhood cognition, emotion, and behavior; children's language and play; and the cultural shaping of gender and personality. Carries social science divisional credit in CAS. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Social Inquiry I, Global Citizenship and Intercultural Literacy.

AN 311: Culture and Biotech: Beyond the Nature/Culture Divide
4 cr | Hub: PLM, WIN, ETR | Pre-req: First Year Writing Seminar (WR 100 or WR 120)

Biotechnologies--e.g., organ transplants, gene editing, life support--challenge the boundaries between what is "natural" and what is "man made," what is "given" and what is "cultured." We explore some of these innovations, their associated ethical dilemmas, and how they help make "culture" and "nature" in different contexts. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Global Citizenship and Intercultural Literacy, Ethical Reasoning, Writing-Intensive Course. Effective Fall 2024, this course fulfills a single unit in each of the following BU HUB areas: Writing-Intensive Course, Ethical Reasoning, Philosophical Inquiry and Life's Meanings.

BI 310: Human Structure & Function: Anatomy, Histology, and Pathology
4 cr | Hub: SI1, DME, CRI | Pre-req BI 108 and 203 or equivalent

Examines the cells and tissues that make up our organs (histology), the structure and interactions of the organ systems (anatomy), and how disease reshapes our bodies (pathology). As a secondary focus, this course also studies and critiques educational media related to human anatomy, and builds introductory competency in health communication.

CI 200: Introduction to Film & Media Aesthetics
4 cr | Hub: AEX, DME, CRT

Introduction to fundamental concepts for the analysis/understanding of film and media. Key concepts of formal composition (e.g. editing, mise-en-scene, cinematography, sound and more) over a diverse set of media texts. Foundational skills in analysis appropriate to film, television and moving- image media.

CL 101: The World of Greece
4 cr | Hub: PLM, HCO, CRT

The literature, philosophy, art, and culture of ancient Greece and their impact on the Western tradition. Topics covered include the emergence of epic poetry; art and lyric in the Archaic Age; drama, architecture, philosophy, and political developments of classical Athens and Greece. All texts in translation. Carries humanities divisional credit in CAS. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Historical Consciousness, Philosophical Inquiry and Life's Meanings, Critical Thinking.

CL 213: Greek and Roman Mythology
4 cr | Hub: PLM, HCO

A general introduction to the myths of the ancient classical world, with particular regard to the patterns of experience, both religious and psychological, from which they evolved. All texts in translation.

Select Hub Courses

EN 121: Reading World Literature
4 cr | Hub: AEX, GCI, RIL

Study of literature in English or English translation -- poetry, drama, and prose narrative -- outside of British and American traditions. Attention to such topics as cultural self-construction, relationships of historical context to artistic expression, and development of literary forms.

EN 122: Medieval Worlds
4 cr | Hub: AEX, HCO, TWC

Why does the deep medieval past continue to haunt our dreams? In novels, games, and on TV? Medieval literature and its afterlives. Topics may include Arthurian romance, otherworld visions, monsters and heroes, women's lives and writing, modern medievalism. Carries humanities divisional credit in CAS. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Aesthetic Exploration, Historical Consciousness, Teamwork/Collaboration.

EN 163: Reading Shakespeare
4 cr | Hub: AEX, HCO, CRT

A critical introduction to Shakespeare through intensive analyses of six or seven plays. Possible attention to such topics as literary sources, early modern stagecraft, performance history, and contemporary film adaptation. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Aesthetic Exploration, Historical Consciousness, Critical Thinking.

EN 170: The Graphic Novel
4 cr | Hub: AEX, DME, CRI

Examination of the rise, nature, and status of the contemporary book-length graphic novel. Topics include graphic vs. traditional novel, word and image, style and space, representations of subjectivity, trauma, and history.

EN 176: Introduction to Film & Media Aesthetics
4 cr | Hub: DME, AEX, CRT

Introduction to fundamental concepts for the analysis/understanding of film and media. Key concepts of formal composition (e.g. editing, mise-en-scene, cinematography, sound and more) over a diverse set of media texts. Foundational skills in analysis appropriate to film, television and moving- image media. Effective Fall 2022, this course fulfills a single unit in each of the following BU Hub areas: Digital/Multimedia Expression, Aesthetic Exploration, and Critical Thinking.

HI 190: History of Boston: Community and Conflict
4 cr | Hub: HCO, IIC, TWC

Explores the history of Boston and the city's changes over time. Students work with archival objects, maps, and manuscripts. Topics include Native American history, colonial settlement, revolution, immigration, urban development, and race. Students visit nearby historical sites and museums.

Select Hub Courses

HI 192: What Is Europe?
4 cr | Hub: DME, GCI, TWC

Explores key moments in history when cultural contact prompted Europeans to reconsider how they defined themselves culturally and geographically. Lectures and discussions are combined with trips to local museums/archives to analyze the material remains of this process of self-definition. Effective Spring 2021, this course fulfills a single unit in each of the following BU Hub areas: Digital/Multimedia Expression, Global Citizenship and Intercultural Literacy, Teamwork/Collaboration.

HI 207: Game of Thrones: Power and Politics in Pre-Modern Europe
4 cr | Hub: ETR, HCO, CRI

This course employs medieval and early modern authors, as well as contemporary scholars, as vehicles for understanding the dynamics of power, gender, violence and politics in George Martin's novel, Game of Thrones. Effective Fall 2023 this course fulfills a single unit in each of the following BU Hub areas: Ethical Reasoning, Historical Consciousness, Creativity/Innovation.

IR 271: Introduction to International Relations
4 cr | Hub: SO1, GCI

Explores major issues in international relations, including conflict, cooperation, and governance. Addresses dominant international relations theories and their application. Investigates state system, international law and organization, transnational actors, state behavior, and globalization. Carries social science divisional credit in CAS. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Social Inquiry I, Global Citizenship and Intercultural Literacy.

PH 150: Introduction to Ethics
4 cr | Hub: PLM, ETR, CRT

Many of us want to lead meaningful lives. But what is it for a life to be meaningful? What makes some lives better or more meaningful than others? Can life as a whole have some significance or meaning? Carries humanities divisional credit in CAS. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Philosophical Inquiry and Life's Meanings, Ethical Reasoning, Critical Thinking.

PH 159: Philosophy and Film
4 cr | Hub: AEX, PLM, CRT | Div Studies: HU

This class provides an introduction to philosophical and aesthetic issues connected with film.

PH 251: Medical Ethics
4 cr | Hub: PLM, ETR, CRT

This course will survey ethical issues that arise in connection with medicine and emerging biotechnologies. It will examine topics such as the right to healthcare, research on human subjects, euthanasia, abortion, cloning, genetic selection, disabilities, and the biomedical enhancement of human capacities. Students can expect to gain not only training in the concepts and methods of moral philosophy and the logic of argumentation, but also the resources needed for assessing ethically difficult questions that healthcare professionals routinely face.

Select Hub Courses

RN 100: Introduction to Religion
4 cr | Hub: PLM, GCI, CRI

Religion matters. It makes meaning and provides structure to life, addressing fundamental questions about body, spirit, community, and time. But what is it? How does it work in our world? This course explores religion in ritual, philosophical, experiential, and ethical dimensions.

RN 101: The Bible
4 cr | Hub: AEX, HCO, CRI

Introduction to the great canonical anthologies of Jews and Christians. Students will learn to read for historical context and genre conventions; study classical and modern strategies of interpretation; and create a collaborative commentary or piece of "fan-fiction." Carries humanities divisional credit in CAS. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Aesthetic Exploration, Historical Consciousness, Creativity/Innovation.

RN 103: Religions of Asia
4 cr | Hub: GCI, AEX, TWC

Study of Hinduism, Buddhism, Daoism, Confucianism, and Shinto. Focus on the world view of each tradition and the historical development of that world view. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Global Citizenship and Intercultural Literacy, Historical Consciousness, Critical Thinking. Effective Fall 2023, this course fulfills a single unit in each of the following BU Hub areas: Global Citizenship and Intercultural Literacy, Aesthetic Exploration, Teamwork/Collaboration.

RN 106: Death and Immortality
4 cr | Hub: PLM, GCI, CRI

Examines death as religious traditions have attempted to accept, defeat, deny, or transcend it. Do we have souls? Do they reincarnate? What to do with a corpse? Other topics include mourning, burial, cremation, martyrdom, resurrection, near-death experiences.

RN 245: The Quest for God and the Good
4 cr | Hub: WIN, GCI, PLM

Undergraduate Prerequisites: First Year Writing Seminar (e.g., WR 100 or WR 120), - An interactive seminar, investigating the meaning and purpose of human life, the significance of God or an Absolute, the role of contemplation and action in the spiritual quest, relationships between philosophy and religious thought, East and West. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Philosophical Inquiry and Life's Meanings, Global Citizenship and Intercultural Literacy. Effective Fall 2023 this course fulfills a single unit in each of the following BU Hub areas: Writing-Intensive Course, Global Citizenship and Intercultural Literacy, Philosophical Inquiry and Life's Meanings.

WS 240: Sexuality and Social Life
4 cr | Hub: SO1, CRT, DME

Introduction to sociological perspectives on sexuality. Historical and comparative analysis of sexuality, with a focus on the social and cultural institutions that shape sexuality in the contemporary U.S. Effective Fall 2018, this course fulfills a single unit in each of the following BU Hub areas: Social Inquiry I, Critical Thinking. Effective Fall 2021, this course fulfills a single unit in each of the following BU Hub areas: Social Inquiry I, Critical Thinking, Digital/Multimedia Expression.