

Fall 2025 BIOLOGY COURSE DIRECTORY

FOR ADVISING YOU WILL NEED:

- ✓ Degree Progress
- ✓ Course List
- ✓ Advising Worksheet
- ✓ Course Directory

TABLE OF CONTENTS:

Cell & Molecular Courses	Pg. 2-4
Ecology, Behavior & Evolution Courses	Pg. 5-6
Physiology & Neurobiology Courses	Pg. 7-9
Research & Reading Courses	Pg. 10-13
Index	Pg. 14

COURSE notes:

Courses fulfilling breadth requirements:

Cell & Molecular (CM)

CAS BI 203 Cell Biology
 CAS BI 206 Genetics
 CAS BI 213 Intensive Cell Bio
 CAS BI 218 Cell Biology with Integrated Science Experience II Lab

Ecology, Behavior & Evolution (EBE)

CAS BI 225 Behavioral Biology
 CAS BI 306 Biology of Global Change
 CAS BI 407 Animal Behavior

Physiology & Neurobiology (PN)

CAS BI 310 Human Structure & Function
 CAS BI 315 Systems Physiology
 CAS BI 325 Principles of Neuroscience

Upper Level Lab Courses Offered Fall 2025:

CAS BI 305	Plant Biology
CAS BI 306	Biology of Global Change
CAS BI 310	Human Structure and Function
CAS BI 311	General Microbiology
CAS BI 315	Systems Physiology
CAS BI 407	Animal Behavior
CAS BI 408	Insect Behavior
CAS BB 421	Biochemistry 1
CAS BI 445	Cell & Molecular Neurophysiology
CAS BI 513	Genetics Lab
CAS BI 561	Proteostasis Bio. Neuro. Disease

REGISTRATION notes:

- **Permission required courses:** Students may not register for these courses on their own, they may email the instructor for approval
- **Full time status is 12-18 credits per semester.** Seniors are automatically awarded a fee waiver so that they may take up to 20 credits per semester without additional fees. Non-seniors with a 3.3 GPA may submit the [CAS Course Overload Fee Waiver form](#).
- **PDP, ROTC, and CAS FY/SY courses** do not count toward the 128 credits needed to graduate with a BA.
- **The following courses do not count toward the Biology or BMB major or minor:**
 - CAS BI 105 Introductory Biology for Health Sciences
 - CAS BI 126 Human Genetics
 - CAS BI 211 Human Physiology
 - CAS BI 528 (unless both BB 527/528 are taken)
 - CAS BI Readings or Research Courses (2 credits)

CAS BI 105: INTRODUCTORY BIOLOGY FOR HEALTH SCIENCES

Prereq: *High school biology and chemistry are assumed*

Principles of biology; emphasis on cellular structure, genetics, microbiology, development, biochemistry, metabolism, and immunology. This course is appropriate for non-majors and students in the health and paramedical sciences (Sargent College). Students may not receive credit for BI 105 if BI 108 has already been passed. Carries natural science divisional credit (with lab) in CAS.

Notes: Not for Biology or BMB major or minor credit (BI 108 is recommended instead).

Hub Units: Scientific Inquiry I, Quantitative Reasoning I, Research and Information Literacy

CAS BI 126: HUMAN GENETICS

Prereq: None

Classical and molecular genetics, advances in genetic technologies, and social/ethical issues related to genetic testing. Designed for science and non-science majors, but cannot fulfill Biology/BMB major/minor or pre-medical requirements. Students cannot receive credit for both CAS BI 126 and BI 206/216.

Notes: Not for Biology or BMB major or minor credit.

Hub Units: Oral and/or Signed Communication, Scientific Inquiry I, Research and Information Literacy.

CAS BI 203: CELL BIOLOGY

Prereq: *(CAS BI 108 or CAS NE 102) and CAS CH 102 or equivalent*

Coreq: *CAS CH 203 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.

Notes: Class meets with BI 218. Students may receive credit for CAS BI 203 or 213, but not both courses.

Hub Units: Scientific Inquiry 1, Quantitative Reasoning 1, Critical Thinking

CAS BI 206: GENETICS

Prereq: *BI 108/116*

Coreq: *CH 203 or equivalent*

Principles of classical, molecular, and evolutionary genetics derived from analytical, molecular, and whole genome cytological evidence in animals, plants, and microorganisms. For CMG and BMB majors, BI 216 in the spring is highly recommended instead of BI 206. Three hours lecture, one hour discussion.

Hub Units: Historical Consciousness, Quantitative Reasoning II, Critical Thinking

CAS BI 213: INTENSIVE CELL BIOLOGY

Prereq: *CAS BI 108 and CAS CH 102 or equivalent*

Coreq: *CAS CH 203 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.

Notes: This course meets with CAS BI 218. Students may receive credit for CAS BI 213 or 203, but not both courses

Hub Units: Scientific Inquiry 1, Quantitative Reasoning 1, Research & Information Literacy

CAS BI 218: CELL BIOLOGY WITH INTEGRATED SCIENCE EXPERIENCE 2 LAB

Prereq: *CAS BI 116 and CAS CH 116 (or equivalent) or consent of instructor*

Coreq: *CAS CH 218*

[5 cr] 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.

Hub Units: Scientific Inquiry 2, Quantitative Reasoning 2, Teamwork/Collaboration, Writing-Intensive



CELL & MOLECULAR

CAS BI 410: DEVELOPMENTAL BIOLOGY

Prereq: CAS BI 203 or BI 213 or BI 218 or consent of the instructor

Contemporary aspects of embryonic development are covered, drawing from current literature. There is an emphasis on the use of experimental approaches to address topics such as polarity in the egg, body axis specification, embryonic patterning, and organogenesis.

Notes: Meets with GRS BI 610

CAS BI 411: MICROBIOME: OUR INTIMATE RELATIONSHIP WITH MICROORGANISMS

Prereq: BI 203 (or equivalent) and BI 206 (or equivalent)

There are more bacterial cells inhabiting our bodies than actual human cells. This abundant and diverse population of microbes – referred to as the “microbiome” – colonizes several tissues in our body and plays important roles in maintaining our health. Topics will include the evolutionary, ecological, cellular, molecular and medical aspects of the interactions between animals and the bacterial communities that have evolved with them. Three hours lecture; one hour discussion.

Notes: Meets with GRS BI 611.

CAS BB 421: BIOCHEMISTRY 1

Prereq: CAS CH 204 or CAS CH 212 or CAS CH 214 or equivalent

Introductory biochemistry. The following topics are covered: protein structure and folding enzyme mechanisms, kinetics, and allostery; nucleic acid structure; lipids and membrane structure; bioenergetics; vitamins and coenzymes.

Notes: This class meets with CAS BB 621, and MET BB 421.

Hub Units: Quantitative Reasoning 2, Critical Thinking, Teamwork/Collaboration

CAS BI 510: INSTITUTIONAL RACISM IN HEALTH AND SCIENCE

Prereq: CAS BI 126 or CAS 206/216 or ENG BE 209 and senior standing

Historically, pseudoscientific theories have provided the justification for establishing and maintaining racial hierarchies, which resulted in centuries of dehumanizing and unethical practices meted out to Blacks, Indigenous, and People of Color (BIPOC). Unfortunately, many of these pernicious ideas persist, such that they hinder BIPOC's opportunities in Science and exacerbate their health outcomes. This course traces the historical roots (e.g. mischaracterization of race as a biological construct) and physiological manifestations of racism in science, and examines harmful consequences on victims' health outcomes.

Notes: Meets with ENG BF 510

CAS BI 513: GENETICS LAB

Prereq: CAS BI 203 and CAS BI 206, senior standing, and consent of instructor

Genetic techniques such as mutant selection and screening, complementation, mapping, recombinant DNA, and targeted mutagenesis are taught using the genetic model systems *Escherichia coli*, *Saccharomyces cerevisiae*, and *Arabidopsis thaliana*. Short-term and long-term projects in which students formulate and test hypotheses.

CAS BI 551: BIOLOGY OF STEM CELLS

Prereq: CAS BI 203 or CAS BI 206 or consent of instructor

Views on stem cell research range from assumptions of a potential cure for most diseases to fears that it will depreciate the value of human life. This course equips students with the science that underlies this discussion, including the biological properties of stem cells and the experimental hurdles to its utilization in regenerative medicine.



CELL & MOLECULAR

CAS BI 552: MOLECULAR BIOLOGY 1

Prereq: (CAS BI 203 or CAS BI 213) and CAS BI 206 or CAS BI 216

How cells synthesize biologically important macromolecules (DNA, RNA and proteins), as well as their structure, function and regulation. Both prokaryotic and eukaryotic molecular biology are discussed. Topics include: DNA replication, DNA repair, recombination, prokaryotic transcription, translation, eukaryotic transcription/RNA processing, DNaseI hypersensitive sites, 5-methylcytosine, eukaryotic RNA polymerase structure/CTD modification, eukaryotic promoter structure, general transcription factors, enhancer-promoter loops, histone modification/Chromatin remodeling, biomolecular condensates and non-coding RNA. Discussion of important molecular biological techniques such as genetic & recombinant DNA techniques, including CRISPR/Cas9.

CAS BI 560: SYSTEMS BIOLOGY

Prereq: CAS BI 552 or consent of the instructor

Examines critical components of systems biology, including design principles of biological systems (e.g., feedback, synergy, cooperativity), and the generation and analysis of large-scale datasets (e.g., protein-protein interaction, mRNA expression).

CAS BI 566: DNA DYNAMICS IN DISEASE

Prereq: CAS BI 206 or 216, or approval from instructor

What goes wrong to cause disease? In this course we will examine diseases caused by problems in basic cellular processes including mitosis, meiosis, and DNA repair. We will focus on past and current research that has led to the understanding of the mechanisms contributing to disease. Content will be delivered through active, engaging lectures where you will analyze data from past and current research papers, and think critically to answer questions. Paper discussion days will include in-depth analysis of one primary literature article that is central to the field and addresses the content of that module. You will display the knowledge and skills learned through participation, problem sets, and exams.

CAS BI 572: ADVANCED GENETICS

Prereq: (CASBI206 & CASBI203) CAS BI 552 is recommended

An in-depth study of eukaryotic genetics, ranging from the history and basic principles to current topics and modern experimental approaches. Genetics of *Drosophila*, *C. elegans*, mice, and humans are explored in detail, including readings from primary literature. Three hours lecture, one hour discussion.

**A list of courses
accepted toward the
CMG & BMB specializa-
tion can be found in the
Bulletin at:**

www.bu.edu/biology/cm-g-bulletin
www.bu.edu/bmb/bulletin

ECOLOGY, BEHAVIOR & EVOLUTION

CAS BI 107: BIOLOGY 1

Prereq: *High school biology assumed*

The evolution and diversity of life; principles of ecology; behavioral biology. For students who plan to major in the natural sciences or environmental science, and for premedical students. Required for biology majors.

Hub Units: Scientific Inquiry I, Quantitative Reasoning I, Critical Thinking, Research and Information Literacy

CAS BI 225: BEHAVIORAL BIOLOGY

Prereq: *BI 107, BI 108 and sophomore standing. Seats reserved for Behavioral Biology majors; other students must receive consent of instructor. BI 225 and BI 407 cannot be taken concurrently, and BI 225 cannot be taken following completion of BI 407.*

Introduction to the evolution, ecology, physiology, neurobiology and genetics of behavior, from classic studies to current trends. Topics include behavioral adaptation, hormones and behavior, nerve cells, circuits, neuromodulators and behavior, behavioral genetics and genomics, the development of behavior, communication, reproductive behavior, social evolution and culture, cooperation and altruism, sociality and brain evolution. Emphasis on the integrative analysis of behavior.

Hub Units: Oral and/or Signed Communication, Writing-Intensive Course, Philosophical Inquiry and Life's Meanings.

CAS BI 305: PLANT BIOLOGY

Prereq: *(CAS BI107 and CAS BI108)*

An introduction to the plant sciences, including plant structure and diversity; reproduction, growth, and development; and economic and medicinal uses. Emphasis on new developments in the plant sciences. Three hours lecture, three hours lab.

CAS BI 306: BIOLOGY OF GLOBAL CHANGE

Prereq: *BI 107, Recommended: CH 101 or CH 171*

The ecological impacts of human activity on the Earth's climate and terrestrial and aquatic ecosystems. Climate change, productivity and land-atmosphere feedbacks.

Hub Units: Scientific Inquiry II, Ethical Reasoning, Research and Information Literacy

CAS BI 311: GENERAL MICROBIOLOGY

Prereq: *CAS BI 203 and CAS BI 206 or equivalent or consent of the instructor and WR 120 or equivalent*

Organisms discussed include bacteria, archaea, viruses, fungi, protists, and algae. Course will cover microbial diversity, the environmental and human micro biomes, and technologies used to study microbes today. Global issues of emerging infectious disease, agriculture and microbial responses to global change are discussed.

Hub Units: Scientific Inquiry 2, Writing-Intensive, Teamwork/ Collaboration

CAS BI 407: ANIMAL BEHAVIOR

Prereq: *CAS BI 107.*

The science of ethology on a hormonal, neural, and evolutionary level. Special emphasis will be on significance and adaptiveness of an expressed behavior. Individual lab projects as well as some prepared labs may require more than the scheduled time. BI 407 and BI 225 cannot be taken concurrently.

Notes: Meets with BI 607

Hub Units: Philosophical Inquiry & Life's Meanings, Ethical Reasoning, Research & Information Literacy

CAS BI 408: INSECT BIOLOGY

Prereq: *(CASBI107 & CASBI108) CAS BI 303 is recommended*

Course explores the biology of insects, focusing on insect diversity and complexity. Lectures will focus on various aspects of insect biology, including development, physiology, behavior, ecology and evolution. Lab will focus on insect diversity.

CAS BI 443: TERRESTRIAL BIOGEOCHEMISTRY

Prereq: *CAS BI 107 or CAS ES 105 and CH 101/102, or consent of instructor*

The patterns and processes controlling carbon and nutrient cycling in terrestrial ecosystems. Links between local and global scales are emphasized. Topics include net primary production, nutrient use efficiency, and biogeochemical transformation.

Notes: Meets with BI 643

ECOLOGY, BEHAVIOR & EVOLUTION

CAS BI 448: CONSERVATION BIOLOGY

Prereq: CASBI303 OR CASBI306 or consent of instructor

The study of biological diversity and modern methods to protect endangered plant and animal species. The environment, population, and genetic and human factors that affect the survival of species are examined for temperate and tropical communities, as well as terrestrial and aquatic habitats. Three hours lecture, one hour discussion. Effective Fall 2020, this course fulfills a single unit in each of the following

Notes: Meets with BI 643

Hub Units: Oral and/or Signed Communication, Ethical Reasoning

CAS BI 507: DIVERSITY OF SEX

Prereq: Senior or graduate standing, WR 120 or equivalent, and at least one of the following courses or equivalent: CAS BI 225, BI 309, BI 315, BI 407, or BI 410; or consent of instructor

Examines the integrative and comparative biology of sex and sexes based on readings drawn from recent primary literature, review papers, and book chapters.

Notes: Meets with CAS WS 507

Hub Units: Writing-Intensive Course, Oral and/or Signed Communication

CAS BI 594: MAMMOLOGY

Prereq: (CASBI325 & (CASBI445 OR CASBI476)) WHMS Core and CAS BI 325, BI 445, or BI 476; or consent of instructor and director

Mammalogy is the study of mammals. Therefore, in this course, you'll learn about a variety of biology subfields through the lens of mammals, including behavior and anatomy. Mammalian systematics and evolution will be key components of the course. You'll also work on your presentation and grant writing skills. The readings will mainly come from primary literature. This course includes multiple short assignments, 5 take-home Check-Up Assessments, 1 in-person Midterm and a final GRFP (grant proposal).

A list of courses accepted toward the SBB & ECB specialization can be found in the Bulletin at:

www.bu.edu/biology/ecb-bulletin
www.bu.edu/biology/sbb-bulletin

PHYSIOLOGY & NEUROBIOLOGY

CAS BI 211: HUMAN PHYSIOLOGY

Prereq: (CASBI105 OR CASBI108) & (CASBI106 OR CASBI210) equivalent. First Year Writing Seminar (e.g., WR 100 or WR 120)

Some knowledge of chemistry and anatomy assumed. Introduction to principles of systemic mammalian physiology with special reference to humans. Three hours lecture, three hours lab.

Notes: **Not for Biology or BMB major/minor credit** (BI 315 is recommended for major credit instead).

Hub Units: Scientific Inquiry 2, Writing-Intensive, Critical Thinking, Teamwork/Collaboration

CAS BI 230: BEHAVIORAL ENDOCRINOLOGY

Prereq: (BI 108 or NE 102) and sophomore standing

Hormonal control of reproductive and parental behaviors, social affiliation, aggression, fluid homeostasis, biological rhythms including seasonal reproduction, stress, learning and memory, affective disorders and steroid abuse.

Notes: Meets with NE 230

BU Hub areas: Scientific Inquiry I, Oral and/or Signed Communication, Teamwork/ Collaboration

CAS BI 310: HUMAN STRUCTURE & FUNCTION

Prereq: CAS BI 108 and CAS BI 203

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.

Hub Units: Scientific Inquiry I, Digital/Multimedia Expression, Creativity/Innovation

CAS BI 315: SYSTEMS PHYSIOLOGY

Prereq: (CAS BI 108 or ENG BE 209), WR 120 or equivalent, and CAS CH 101 and CAS CH 102, or equivalent.

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.

Hub Units: Scientific Inquiry 2, Writing-Intensive, Critical Thinking, Teamwork/Collaboration

CAS BI 325: PRINCIPLES OF NEUROSCIENCE

Prereq: CAS BI 203 or consent of instructor

This course will introduce fundamentals of the nervous system at descriptive scales ranging from individual cells to the entire brain. Topics will include biophysics of excitable membranes, synaptic transmission, sensory and motor systems, learning and memory, plasticity, neuromodulation, and the biological basis of complex behaviors.

Hub Units: Scientific Inquiry II, Critical Thinking

CAS BI 445: CELLULAR AND MOLECULAR NEUROPHYSIOLOGY

Prereq: CAS BI 203 or CAS BI 315 or BI 325 or CAS 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 NE 445.

Notes: Meets with NE 445 and BI 645

CAS BI 455: DEVELOPMENTAL NEUROBIOLOGY

Prereq: CAS BI 203 or CAS BI 325 or CAS NE 203 or consent of instructor

This course will introduce current theories regarding the formation of the nervous system. Emphasis will be placed on the cellular and molecular mechanisms underlying events including neuronal determination, neurogenesis, patterning, axonal growth and guidance, polarity, synaptogenesis, synaptic modification, and cell death.

Notes: Meets with CAS NE 455 and GRS BI 655

CAS NE 456: NEUROBIOLOGY OF SEX AND AGGRESSION

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.

Hub Units: Oral and/or Signed Communication, Historical Consciousness, Scientific Inquiry II.

PHYSIOLOGY & NEUROBIOLOGY

CAS BI 481: MOLECULAR BIOLOGY OF THE NEURON

Prereq: BI 203

Topics include electrical properties of neurons, a survey of neurotransmitters, molecular structure and function of receptors, synaptic transmission, intracellular signaling, and the molecular biology governing neurodevelopment and neurological disorders. Three hours lecture, one hour discussion.

Notes: Meets with CAS NE 481 and GRS BI 68

Hub Units: Oral and/or Signed Communication, Scientific Inquiry II, Research and Information Literacy

CAS BI 503: NEUROIMMUNOLOGY

Prereqs: CAS BI 203/NE 102 or BI 213 and BI 325/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.

CAS BI 520: SENSORY NEUROBIOLOGY

Prereq: (CASBI325 OR CASNE203) or consent of instructor.

A broad survey of sensory system function in both model and non-model organisms, focusing on fundamental principles of sensory transduction and processing. This class focuses mainly on the senses that are not covered heavily in introductory neuroscience classes, including taste, touch, olfaction, and specialized non-human senses such as echolocation. Vision is not a central focus. Students will learn to read and discuss primary literature. Also offered as CAS NE 520.

CAS BI 535: TRANSLATIONAL RESEARCH IN ALZHEIMER'S DISEASE

Prereq: (CAS BI 203 or CAS NE 102) and (CAS BI 325 or CAS 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.

Notes: Meets with NE 535

Hub Units: Ethical Reasoning, Oral/Signed Communication, Research & Information Literacy

CAS BI 556: DRUG DISCOVERY IN NEUROSCIENCE

Prereq: CASNE 102 (or BI 108), CH 102, and NE/PS 333

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, pharmacokinetics, pharmacodynamics, modeling of disease states within the context of the drivers and limitations of the Drug Discovery Industry.

BU Units: Digital/Multimedia Expression, Scientific Inquiry II, Creativity/Innovation.

CAS BI 561: PROTEOSTASIS IN THE BIOLOGY OF NEURODEGENERATIVE DISEASES

Prereq: (CASNE102 OR CASBI108) . CAS BI 203 or CAS BI 213 are recommended

A hands-on class focusing on the mechanisms that control protein homeostasis, 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.

Hub Units: Scientific Inquiry 2, Research and Information Literacy, Creativity/Innovation

CAS BI 589: NEURAL IMPACTS ON TUMORIGENESIS

Prereq: NE 203 or BI 325

It has been known for some time that cancer cells leverage the tissue around them in order to allow for the formation and growth of a tumor, and ultimately to aid in its invasion of adjacent tissue and metastasize. Recent studies have shown a novel symbiotic interaction between the peripheral nervous system and tumors using reciprocal cross-talk. Topics of discussion will include neuronal invasion and mechanisms of neurogenesis into solid tumors, cross-talk in tumor microenvironments, nervous system influence on cancer modulators such as stem cells, inflammation and immune surveillance and extracellular signaling events that enhance tumorigenesis with attention paid to potential therapeutic interventions. Finally, we will explore if this nervous system/cancer interface might be a mediator for the effects of stress-induced cancer.

Notes: Meets with NE 589

Hub Units: Scientific Inquiry 2, Oral/Signed Communication, Research and Information Literacy

PHYSIOLOGY & NEUROBIOLOGY

CAS BI 598: NEURAL CIRCUITS

Prereq: (CAS BI 325 or CAS NE 203) and PY 106

This course reviews modern techniques and toolsets that are capable of dissecting neural circuits, which are critical for understanding how coordinated patterns of neural activity lead to complex behavior. Recent literature on information processing, guided behavior and cognition is discussed.

Notes: Meets with NE 598

A list of courses accepted toward the NB specialization can be found in the Bulletin at:
www.bu.edu/biology/nb-bulletin

RESEARCH & READINGS

UNDERGRADUATE RESEARCH IN BIOLOGY

Undergraduate Research in Biology courses (CAS BI 140 - CAS BI 453) require an online application. For more information on research requirements and to apply, visit www.bu.edu/biology/ug-research. Time commitment is a minimum of 6 hours a week for 2-credit research and 12 hours a week for 4-credit research. 4-cr research courses can fulfill up to two Electives, one of which can count toward the three-Lab requirement for Biology and specialization majors. Consent of instructor (faculty research mentor/sponsor), and approved application required.

School	Subject	Catalog #	Course Name	Credits	Prereqs	Hub Units	Notes
CAS	BI	140	First Year Research in Biology 1	2	First year standing		Not for Biology major or minor credit.
CAS	BI	141	First Year Research in Biology 2	2	First year standing, (BI 140 or UROP semester or equivalent)		Not for Biology major or minor credit.
CAS	BI	240	Sophomore Research in Biology 1	2	Sophomore standing		Not for Biology major or minor credit.
CAS	BI	241	Sophomore Research in Biology 2	2	Sophomore standing, (BI 140 or BI 240 or UROP semester or equivalent)		Not for Biology major or minor credit.
CAS	BI	340	Junior Research in Biology 1	2	Junior standing	Research and Information Literacy	Not for Biology major or minor credit.
CAS	BI	341	Junior Research in Biology 2	2	Junior standing, BI 340 or BI 350 or 2 semesters of first year (BI 140/141) or sophomore research (BI 240/241) or UROP semester or equivalent	Oral/Signed Communication	Not for Biology major or minor credit.
CAS	BI	350	Junior Research in Biology 1	4	Junior standing, consent of instructor (faculty research mentor/sponsor), and approved application.	Research and Information Literacy; Oral/Signed Communication	
CAS	BI	351	Junior Research in Biology 2	4	Junior standing, [BI 340 or BI 350 or 2 semesters of first year (BI 140/141) or sophomore research (BI 240/241) or UROP semester or equivalent]	Research and Information Literacy; Creativity/Innovation	
CAS	BI	352	Junior Research in Biology 3	4	Junior standing, (BI 341 or BI 351 or equivalent)	Writing-Intensive and Creativity/Innovation	
CAS	BI	450	Senior Research in Biology 1	4	Senior standing	Research and Information Literacy; Oral/Signed Communication	
CAS	BI	451	Senior Research in Biology 2	4	Senior standing, [BI 340 or BI 350 or BI 450 or 2 semesters of first year (BI 140/141) or sophomore research (BI 240/241) or UROP semester or equivalent]	Research and Information Literacy and Creativity/Innovation	
CAS	BI	452	Senior Research in Biology 3	4	senior standing, [BI 340 or BI 350 or BI 450 or 2 semesters of first year (BI 140/141) or sophomore research (BI 240/241) or UROP semester or equivalent]	Writing-Intensive and Creativity/Innovation	
CAS	BI	453	Senior Research in Biology 4	4	Senior standing, (BI 352 or BI 452 or equivalent) Coreq: CAS BI 497 or BI 498		
CAS	BI	582	Seminar in Biology	2	Open to seniors and graduate students concentrating in biology.		

RESEARCH & READINGS

HONORS RESEARCH IN BIOLOGY

Honors Research in Biology offers students the ability to participate in two semesters of mentored 4-credit research (CAS BI 401 and 402) and a 2-credit research seminar (CAS BI 497 or 498). Students also write and defend an honors thesis on their research. For more information on research requirements and to apply, visit www.bu.edu/biology/research-credit. Time commitment is minimum 12 hours/week in Lab or fieldwork, meetings, data analysis, and writing.

School	Subject	Catalog #	Course Name	Credits	Prereqs	Hub Units	Notes
CAS	BI	401 & 402	Honors Research in Biology 1 & 2	8	Senior standing, cumulative GPA of at least 3.5, and approval of the Biology Research and Honors Committee. Coreq: CAS BB497 and CAS BB498	Research and Information Literacy; Oral/Signed Communication; Writing-Intensive; Creativity/Innovation	
CAS	BI	497	Honors Research in Biology Seminar	2	Consent of instructor. Open to seniors and graduate students concentrating in biology.	Digital/Multimedia Expression	

GRADUATE RESEARCH / READINGS IN BIOLOGY

Graduate Research / Readings in Biology is offered as part of the BA/MS program. This dual degree program is only open to Biology and specialization majors. Students will receive both Bachelor's of Arts and Master's of Science degrees upon graduation. For more information on the BA/MS program, visit <https://www.bu.edu/biology/undergrad/bams/>.

School	Subject	Catalog #	Course Name	Credits	Prereqs	Hub Units	Notes
CAS	BI	595	Master's Research in Biology		Admission into the MS or BA/MS combined program		
cas	BI	701	Graduate Readings in Biology	2	Consent of instructor, limited to BA/MS students and graduate students in the scholarly paper MS program		

READINGS IN BIOLOGY

Readings in Biology offers students the opportunity to do library research on a chosen topic in the biological sciences. Students must ask a Biology faculty member familiar with the topic to be their sponsor and submit the application found at www.bu.edu/biology/forms. These courses are often used as preparation for Undergraduate Research in Biology or Honors Research in Biology. **Consent of instructor (Biology faculty mentor), and approved application required.**

School	Subject	Catalog #	Course Name	Credits	Prereqs	Hub Units	Notes
CAS	BI	172	Readings in Biology 1	2	Freshman standing		Not for Biology major or minor credit.
CAS	BI	272	Readings in Biology 2	2	Sophomore standing		Not for Biology major or minor credit.
CAS	BI	372	Readings in Biology 3	2	Junior standing		Not for Biology major or minor credit.
CAS	BI	472	Readings in Biology 4	2	Junior or senior standing, cumulative GPA in biology of at least 3.0		Not for Biology major or minor credit.

RESEARCH & READINGS

UNDERGRADUATE RESEARCH IN BMB

Undergraduate Research in Biochemistry and Molecular Biology courses (CAS BB 140 - CAS BB 453) require an application. For more information on research requirements and to apply, visit www.bu.edu/bmb/research. Time commitment is a minimum of 6 hours a week for 2-credit research and 12 hours a week for 4-credit research, not including preparation and evaluation. 4-cr research courses can fulfill an elective for BMB majors. Two semesters of senior-level research can fulfill the Advanced Lab Elective for BMB majors. **GPA in biochemistry and molecular biology (BMB) courses of at least 3.0, consent of instructor (faculty research mentor/sponsor), and approved application required.**

School	Subject	Catalog #	Course Name	Credits	Prereqs	Hub Units	Notes
CAS	BB	140	First Year Research in BMB 1	2	First year standing		Not for BMB major credit.
CAS	BB	141	First Year Research in BMB 1	2	First year standing, BB 140 or UROP semester or equivalent		Not for BMB major credit.
CAS	BB	240	Sophomore Research in BMB 1	2	Sophomore standing		Not for BMB major credit.
CAS	BB	241	Sophomore Research in BMB 2	2	Sophomore standing, BB 140 or BB 141 or BB 240 or UROP semester or equivalent		Not for BMB major credit.
CAS	BB	340	Junior Research in BMB 1	2	Junior standing	Research and Information Literacy	Not for BMB major credit.
CAS	BB	341	Junior Research in BMB 2	2	Junior standing, and either BB 340, BB 350, full-time summer UROP, or any 4 credits of BB 140, BB 141, BB 240, and BB 241	Oral and/or Signed Communication	Not for BMB major credit.
CAS	BB	350	Junior Research in BMB 1	4	Junior standing.	Oral and/or Signed Communication; Research and Information Literacy	
CAS	BB	351	Junior Research in BMB 2	4	Junior standing, and either BB 340, BB 350, full-time summer UROP, or any 4 credits of BB 140, BB 141, BB 240, and BB 241.	Creativity/ Innovation; Research and Information Literacy	
CAS	BB	352	Junior Research in BMB 3	4	Junior standing, and either BB 340, BB 350, full-time summer UROP, or any 4 credits of BB 140, BB 141, BB 240, and BB 241.	Writing- Intensive Course, Creativity/ Innovation	
CAS	BB	450	Senior Research in BMB 1	4	Senior standing	Research and Information Literacy and Oral/Signed Communication	
CAS	BB	451	Senior Research in BMB 2	4	Senior standing, and either BB 340, BB 350, full-time summer UROP, or any 4 credits of BB 140, BB 141, BB 240, and BB 241.	Creativity/ Innovation; Research and Information Literacy	
CAS	BB	452	Senior Research in BMB 3	4	Senior standing, (BB 341 or BB 351 or BB 451 or equivalent)	Creativity/ Innovation; Research and Information Literacy	
CAS	BB	453	Senior Research in BMB 4	4	Senior standing, (BB 352 or BB 452 or equivalent) Coreq: CAS BB 497 or BB 498	Creativity/ Innovation; Research and Information Literacy	

RESEARCH & READINGS

HONORS RESEARCH IN BMB

Honors Research in BMB offers students the ability to participate in two semesters of mentored 4-credit research (CAS BB 401 and 402) and 1-credit research seminars (CAS BB 497 and 498). Students also write and defend an honors thesis on their research. For more information on research requirements and to apply, visit www.bu.edu/bmb/research. Time commitment is a minimum of 12 hours a week, not including preparation and evaluation. Must have a GPA in biochemistry and molecular biology (BMB) courses of at least 3.5, consent of instructor (faculty research mentor/sponsor), and approval of application by the BMB Research and Honors Committee. A minimum grade of B+ in BB 497/498 and in BB 401/402 is required to graduate with Honors in BMB.

School	Subject	Catalog #	Course Name	Credits	Prereqs	Hub Units	Notes
CAS	BB	401 & 402	Honors Research in BMB 1 & 2	8	Senior standing, first Year Writing Seminar (e.g., WR 100 or WR 120) Coreq: CAS BB 497 & CAS BB 498	Research and Information Literacy; Writing-Intensive; Creativity/Innovation	
CAS	BB	497	Honors Research in BMB Seminar	2		Digital/Multimedia Expression	Co-requisite for students taking CAS BB 401 & 402.

GRADUATE RESEARCH IN BMB

Graduate Research in BMB is offered as part of the BA/MA program. This dual-degree program is only open to BMB majors and earns students a Bachelor's degree in BMB and a Master's degree in Biotechnology. For more information on the BA/MA program, visit www.bu.edu/bmb/bama-bulletin.

School	Subject	Catalog #	Course Name	Credits	Prereqs	Hub Units	Notes
CAS	BB	592	Graduate Research in Biochemistry and Molecular Biology	4	Admission to the combined BA/MA Biotechnology Program	Digital/Multimedia Expression; Creativity/Innovation	

A list of courses accepted toward the BMB major can be found in the Bulletin at:
www.bu.edu/bmb/bulletin

CAS

BB	140-453	Undergraduate Research in BMB	Pg. 12
BB	401,402	Honors Research in BMB 1 & 2	Pg. 13
BB	421	Biochemistry 1	Pg. 3
BB	497	Honors Research in BMB Seminar	Pg. 13
BB	591	Graduate Research in BMB	Pg. 13
BI	105	Introductory Biology for Health Sciences	Pg. 2
BI	107	Biology 1	Pg. 5
BI	126	Human Genetics	Pg. 2
BI	140-453	Undergraduate Research in Biology	Pg. 10
BI	172-472	Readings in Biology	Pg. 11
BI	203	Cell Biology	Pg. 2
BI	206	Genetics	Pg. 2
BI	211	Human Physiology	Pg. 7
BI	213	Intensive Cell Biology	Pg. 2
BI	218	Cell Biology with ISE 2 Lab	Pg. 2
BI	225	Behavioral Biology	Pg. 5
BI	230	Behavioral Endocrinology	Pg. 7
BI	305	Plant Biology	Pg. 5
BI	306	Biology of Global Change	Pg. 5
BI	310	Human Structure & Function	Pg. 7
BI	311	General Microbiology	Pg. 5
BI	315	Systems Physiology	Pg. 7
BI	325	Principles of Neuroscience	Pg. 7
BI	401,402	Honors Research in Biology 1 & 2	Pg. 11
BI	407	Animal Behavior	Pg. 5
BI	408	Insect Biology	Pg. 5
BI	410	Developmental Biology	Pg. 3
BI	411	Microbiome	Pg. 3
BI	443	Terrestrial Biogeochemistry	Pg. 5
BI	445	Developmental Neurobiology	Pg. 7
BI	448	Conservation Biology	Pg. 6
BI	455	Developmental Neurobiology	Pg. 7
NE	456	Neurobio of Sex & Aggression	Pg. 7
BI	481	Molecular Biology of the Neuron	Pg. 8
BI	497	Honors Research in Biology Seminar 2	Pg. 11
BI	503	Neuroimmunology	Pg. 8
BI	507	Diversity of Sex	Pg. 6
BI	510	Institutional Racism in Health and Sci.	Pg. 3
BI	513	Genetics Lab	Pg. 3
BI	520	Sensory Neurobiology	Pg. 8
BI	535	Translat. Research in Alzheimer's Disease	Pg. 8
BI	551	Biology of Stem Cells	Pg. 3
BI	552	Molecular Biology 1	Pg. 4
BI	556	Drug Discovery in Neuroscience	Pg. 8

CAS continued

BI	560	Systems Biology	Pg. 4
BI	561	Proteostasis in the Biology of Neurodegenerative Diseases	Pg. 8
BI	566	DNA Dynamics in Disease	Pg. 4
BI	572	Advanced Genetics	Pg. 4
BI	582	Seminar in Biology	Pg. 10
BI	589	Neural Impacts on Tumorigenesis	Pg. 8
BI	594	Topics in Biology: Mammology	Pg. 6
BI	598	Neural Circuits	Pg. 9

GRS

BI	595	Graduate Research in Biology	Pg. 11
BI	701	Graduate Readings in Biology	Pg. 11