

Specialization in Cell Biology, Molecular Biology & Genetics

Boston University College of Arts & Sciences

Department of Biology

REQUIREMENTS

- ✓ 128 credits including 11 biology courses; 8 related chemistry, math/computer science, and physics courses; second language proficiency; and 26 Hub units.
- ✓ C or higher is required for credit in all biology, math/computer science, and physics courses; C- or higher is necessary for credit in all required chemistry courses.
- ✓ Excluding Introductory Biology courses: a) at least three biology courses must have a laboratory component; b) at least three biology courses must be at the 300+ level; and c) at least five biology courses must be taken in the BU Biology Department.

INTRODUCTORY BIOLOGY

☐ BI 107

☐ BI 108 or BI 116

FOUNDATION COURSES

☐ BI 213* or BI 203 or (BI 218 ♦)

☐ BI 216* or BI 206

☐ BI 552

* Recommended course

BREADTH REQUIREMENTS

Choose one course from each area of biology. Courses fulfilling breadth requirements may not also fulfill elective requirements.

Physiology & Neurobiology (PN)

☐ BI 310 ♦

☐ BI 315 ♦

☐ BI 325

♦ Course will count toward the three-lab requirement.

Ecology, Behavior & Evolution (EBE)

☐ BI 225

☐ BI 303 ♦

☐ BI 309

☐ BI 260

☐ BI 306 ♦

☐ BI 407 ♦

CMG ELECTIVES

See **Courses by Semester**, **Non-Departmental Courses**, and **Optional Programs** on SIDE II.

1

2

3

4

CHEMISTRY COURSES

See **Chemistry Requirements** on SIDE II.

1

2

3

4

MATH & COMPUTER SCIENCE COURSES

See **Math & Computer Science Requirements** on SIDE II.

1

2

PHYSICS COURSES

See **Physics Requirements** on SIDE II.

1

2

GENERAL EDUCATION REQUIREMENTS

For more details visit the **CAS Degree Overview** page.

CAS 2nd Language Requirement: _____

Proficiency through the fourth semester: ☐ I ☐ II ☐ III ☐ IV

BU Hub Units:

☐ PLM

☐ SI1

☐ QR1

☐ IIC

☐ FYW

☐ CRT

☐ AEX

☐ SO1

☐ QR2

☐ GCI

☐ WRI

☐ RIL

☐ HCO

☐ SI2/SO2

☐ ETR

☐ WIN

☐ TWC

☐ OSC

☐ CRI

☐ DME

	FALL	SPRING
FIRST YEAR	1	1
	2	2
	3	3
	4	4
	SUM1	SUM2
SOPHOMORE YEAR	FALL	SPRING
	1	1
	2	2
	3	3
	4	4
	SUM1	SUM2
JUNIOR YEAR	FALL	SPRING
	1	1
	2	2
	3	3
	4	4
	SUM1	SUM2
SENIOR YEAR	FALL	SPRING
	1	1
	2	2
	3	3
	4	4
	SUM1	SUM2

Biology courses above with a lab component (excluding BI 107/108/116):

1

2

3

Biology courses above that are 300+:

1

2

3

Advisor Name: _____

Advisor Signature & Date: _____

Notes/Comments:

BIOLOGY COURSES BY SEMESTER

Note: Semester offerings may change. See the [Course Directory](#) and [StudentLink](#) for updated info. Courses cross-listed with those below are accepted.

Fall Semester Courses

Introductory Courses

BI 107 Biology 1

Foundation Courses

BI 203 Cell Biology
BI 213 Intensive Cell Biology
BI 218 Cell Biology with ISE Lab ♦
BI 552 Molecular Biology 1

Breadth Courses

BI 225 Behavioral Biology
BI 306 Bio. of Global Change ♦
BI 309 Evolution
BI 310 Human Structure & Function ♦
BI 315 Systems Physiology ♦
BI 325 Princ. of Neurosci.
BI 407 Animal Behavior ♦

CMG Electives

BI 309 Evolution
BI 311 General Microbiology ♦
BI 315 Systems Physiology ♦
BI 325/(NE 203 ♦) Princ. of Neurosci.
BI 333 Human Population Genetics ❖
BI 410 Developmental Biology
BI 421 Biochemistry 1 ♦
BI 445 Cell. & Mol. Neurophysiology ♦
BI 455 Developmental Neurobiology
BI 510 Inst. Racism in Health&Science
BI 513 Genetics Lab ♦
BI 525 Bio. Neurodegen. Diseases
BI 535 Trans. Research in Alzheimer's
BI 551 Stem Cells
BI 556 Drug Discovery in Neuroscience
BI 560 Systems Biology
BI 561 Proteostasis Bio. Neuro. Disease ♦
BI 572 Advanced Genetics ❖
BI 589 Neural Impacts on Tumorigenesis

Spring Semester Courses

Introductory Courses

BI 108 Biology 2
BI 116 Biology 2 with ISE Lab

Foundation Courses

BI 203 Cell Biology
BI 206 Genetics
BI 216 Intensive Genetics

Breadth Courses

BI 225 Behavioral Biology
BI 260 Marine Biology
BI 303 Ecology ♦
BI 306 Bio. of Global Change ♦
BI 315 Systems Physiology ♦
BI 325 Principles of Neuroscience

CMG Electives

BI 315 Systems Physiology ♦
BI 325 Principles of Neuroscience
BI 385 Immunology
BI 411 Microbiome
BI 413 Microbial Ecology (IRR)
BI 422 Biochemistry 2 ♦
BI 481 Molecular Bio. of the Neuron
BI 504 Advanced Evol. Analysis
BI 510 Inst. Racism in Health&Science
BI 515 Population Genetics ❖
BB 522 Molecular Biology Lab ♦
BI 525 Bio. Neurodegen. Diseases
BI 550 Marine Genomics ♦
BI 553 Molecular Biology 2
BI 565 Functional Genomics
BI 576 Carcinogenesis
BI 577 Quant. Approaches in Mol. Bio.
BI 586 Ecological Genomics ♦❖

- ♦ Course will count toward the three-lab requirement.
- ❖ Course typically offered every other year.
- (MS) Course offered in Marine Semester (application required).
- (IRR) Course offered irregularly.

CHEMISTRY REQUIREMENTS

Choose one sequence from each category.

General Chemistry

Sequence I	Sequence II	Sequence III
☐ CH 101	☐ CH 109	☐ CH 111
☐ CH 102/116	☐ CH 110	☐ CH 112

Organic Chemistry

Sequence I	Sequence II	Sequence III
☐ CH 203/218	☐ CH 203/218	☐ CH 211
☐ CH 204	☐ CH 214	☐ CH 212

Note: Pre-health students may need additional courses for medical or other professional school admission such as biochemistry BI/CH 421 or CH 373.

MATH & COMPUTER SCIENCE REQUIREMENTS

Choose two courses from the lists below. At least one course must be calculus or statistics.

Calculus	Statistics	Computer Science
☐ MA 121 or 123	☐ MA 115 or 213	☐ CS 105
☐ MA 122 or 124	☐ MA 116 or 214	☐ CS 108
☐ MA 127 or 129	☐ CDS DS 100	☐ CS 111
☐ MA 196		☐ CDS DS 110

PHYSICS REQUIREMENTS

Choose one sequence.

- | | |
|--|--|
| ☐ PY 105 and PY 106 | ☐ PY 211 and PY 212 |
| ☐ PY 211 and PY 106 | ☐ PY 241 and PY 242 |

NON-DEPARTMENTAL COURSES

A maximum of two of the following courses can be used as electives for major credit:

CAS CH 373 Principles of Biochemistry
CAS CH 525 Physical Biochemistry
ENG BF 571 Dynamics and Evolution of Biological Networks
GMS BI 751 Biochemistry & Cell Biology
GMS BT 432 Basic Pathology: Mechanisms of Disease

OPTIONAL PROGRAMS (Application Required)

Undergraduate Research

BI 140/141 Undergraduate Research in Biology 1 (2 cr)
BI 240/241 Undergraduate Research in Biology 2 (2 cr)
BI 340/341 Undergraduate Research in Biology 3 (2 cr)
BI 350-352 Undergraduate Research in Biology 3 (4 cr ♦)
BI 450-453 Undergraduate Research in Biology 4 (4 cr ♦)

BI 401/402 Honors Research in Biology (4 cr ♦)

BI 497/498 Honors Research in Biology Seminar (2 cr)

- Up to two of the above 4-credit research courses can count as electives; one of those can apply towards the three-lab requirement.
- For more info, visit www.bu.edu/biology/undergrad/research/

Science Abroad - Madrid, Spain

- Offered in the fall semester; courses taught in English.
- Targeted to sophomores in science majors/pre-med students.
- For more information, visit: www.bu.edu/abroad