

BA/MA in Biotechnology

Boston University College of Arts & Sciences

Program in Biochemistry & Molecular Biology

REQUIREMENTS

- ✓ All the requirements for the BA in BMB + an additional 6 MA courses for a total of 152 credits needed to graduate.
- ✓ 8 BA/MA courses must be at the 500+ level (a B- or higher and a GPA of 3.0+ is required in these courses).
- ✓ See SIDE II for more BA/MA program information.

FOUNDATION COURSES

Biology	Chemistry
BI 108	CH 109*
BI 213*	CH 110*
BI 216*	CH 203*
	CH 214*

*Or alternative course(s). See **Foundation Requirements** on SIDE II for alternative course sequences.

CORE COURSES

BB 421	BI 552
BB 422	CH 525

BMB ELECTIVES

See **Courses by Semester** and **Undergraduate Research** on SIDE II.
 Cannot include courses under the MA Requirements section below.
 At least one elective should be at the 500+ level.

1

2

3

MA REQUIREMENTS

BI 311	BB 522	BB 591
BI 513	BI 553	BB 592

MATH & COMPUTER SCIENCE COURSES

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

1

2

PHYSICS COURSES

See **Physics Requirements** on SIDE II.

1

2

CAS REQUIREMENTS

For more details visit the **CAS Bulletin** page.

2nd Language: _____

Proficiency through the 4th semester: I II III IV

Writing: WR 100/120 WR 150

Humanities: 1 2

Social Sciences: 1 2

	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	
FIFTH YEAR	FALL	SPRING
	1	1
	2	2
	3	3
	4	4
SUM1	SUM2	

Advisor Name:

Advisor Signature:

Date:

COURSES BY SEMESTER

Note: Course offerings are accurate as of 3/9/2022 and are subject to change. Please check the [Student Link](#) for the most updated semester information. Courses cross-listed with those below are accepted.

Fall Semester Courses

Foundation Courses

BI 203 Cell Biology
BI 213 Intensive Cell Biology
BI 218 Cell Biology with ISE Lab ♦
CH 101 General Chemistry 1 ♦
CH 102 General Chemistry 2 ♦

CH 109 Gen. & Quant. Chem. ♦
CH 111 Int. Gen. & Quant. Chem. ♦
CH 203 Organic Chemistry ♦
CH 211 Int. Organic Chemistry ♦

Core Courses

BB 421 Biochemistry 1 ♦
BI 552 Molecular Biology 1

- ♦ Lab course
- ❖ Course typically offered every other year
- (IRR) Course offered irregularly.

Electives

BI 311 General Microbiology ♦
BI 315 Systems Physiology ♦
BI 410 Developmental Biology
BI 445 Cell & Mol. Neurophysiology ♦
BI 455 Developmental Neurobiology
BI 481 Molecular Bio. of the Neuron
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 560 Systems Biology
BI 561 Proteostasis Bio. Neuro. Disease ♦
BI 565 Functional Genomics
BI 572 Advanced Genetics ❖
BI 589 Neural Impacts on Tumorigenesis
GMS BI 751 Biochem. and Cell Bio.
BI 753 Advanced Molecular Bio.
CH 626 Epigenetics
CH 634 Metallobiochemistry
CH 721 Special Topics in Biochem.

Spring Semester Courses

Foundation Courses

BI 108 Biology 2 ♦
BI 203 Cell Biology
BI 206 Genetics
BI 216 Intensive Genetics
CH 101 General Chemistry 1 ♦
CH 102 General Chemistry 2 ♦
CH 110 Gen. & Quant. Chem. ♦
CH 112 Int. Gen. & Quant. Chem. ♦
CH 201 Quant. Analytic. Ch. Lab ♦
CH 204 Organic Chemistry 2 ♦
CH 212 Int. Organic Chemistry ♦
CH 214 Org. Chem. w/ Qual. ♦
CH 220 Org. Chem. Lab w/ Qual. ♦

Core Courses

BB 422 Biochemistry 2 ♦
CH 525 Physical Biochemistry

Electives

BI 315 Systems Physiology ♦
BI 385 Immunology
BI 411 Microbiome
BI 413 Microbial Ecology (IRR)
BI 510 Inst. Racism in Health&Science
BB 522 Molecular Biology Lab ♦
BI 525 Bio. Neurodegen. Diseases
BI 550 Marine Genomics
BI 553 Molecular Biology 2
BI 556 Drug Discovery in Neuroscience
BI 565 Functional Genomics
BI 576 Carcinogenesis
BI 577 Quant. Approaches in Mol. Bio.
BI 589 Neural Impacts of Tumor.
ENG BF 571 Dyn.&Evol. of Bio. Networks
GMS BT 432 Basic Pathology
BI 735 Advanced Cell Biology
CH 524 Chemical Biology Lab ♦
CH 625 Enzymology
CH 634 Metallobiochemistry
CH 648 Contemp. Drug Disc.
CH 721 Spec. Topics in Biochem.

FOUNDATION REQUIREMENTS

Biology

BI 108
BI 213 (recommended) or BI 203 or BI 218
BI 216 (recommended) or BI 206

Chemistry

Choose one sequence from each category.

General Chemistry

CH 109 and CH 110 (recommended)
CH 111 and CH 112
CH 101 and CH 102 and CH 201

Organic Chemistry

CH 203^ and CH 214 (recommended)
CH 211 and CH 212
CH 203^ and CH 204 and CH 220

^ Or CH 218

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

BA/MA PROGRAM INFORMATION

- ✓ The MA in Biotechnology is only available to students majoring in Biochemistry and Molecular Biology.
- ✓ In order to apply, students must be in good academic standing and have a GPA of 3.0 or higher.
- ✓ Students should plan to apply in spring semester of junior year.
- ✓ After being admitted, it is permissible to leave the BA/MA program at any point and return to only receiving a BA degree.
- ✓ Courses in the MA Requirements section on SIDE I do not count toward the BA, but may be taken before a student's final year.
- ✓ The BA and MA degrees are awarded simultaneously after the completion of both.

GRADUATE RESEARCH

BB 591/592 Graduate Research in BMB (4 cr)

- A 3.0 BMB GPA is required for Graduate Research in BMB.
- A minimum of 15 hours per week is required for each semester of Graduate Research.

UNDERGRADUATE RESEARCH

(Optional, Application Required)

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

BB 401 & 402 Honors Research in BMB (4 cr/semester)

BB 497 & 498 Honors Research in BMB Seminar (1 cr/semester)

- A 3.0 BMB GPA is required for Undergraduate Research and a 3.5 overall and BMB GPA is required for Honors Research.
- BA/MA students can use up to one semester of four-credit Undergraduate Research in BMB to fulfill a BMB elective.
- A min. of 6 hrs/wk is required for 2-credit research and a min. of 12 hrs/wk is required for 4-credit research in fall/spring.