Specialization in Cell Biology, Molecular Biology & Genetics

Biology Requirements

- A grade of “C” or higher is required for all biology and non-biology elective courses contributing to the major.
- At least three courses must be at the 300-500 level.
- A course may fulfill more than one requirement. Example: BI 303 simultaneously fulfills a lab/field requirement, a 300-500 level course & the EBE requirement. However, the course may only count as four credits.
- A course cannot fulfill a breadth requirement & CMG elective simultaneously

Introductory Biology
Both courses are required
- CAS BI 107 Biology I
- CAS BI 108 Biology II

Foundation Courses
All three courses are required
- CAS BI 213 Intensive Cell Biology
- or CAS BI 203 Cell Biology
- CAS BI 216 Intensive Genetics
- or CAS BI 206 Genetics
- CAS BI 552 Molecular Biology

Breadth Requirements
Choose one class from each disciplinary area
- Cell & Molecular Biology (CM)
  Satisfied by foundation requirements
- Physiology or Neurobiology (PN)
- CAS BI 315 Systems Physiology ♦
- CAS BI 325 Principles Of Neuroscience
- or CAS NE 203 Principles Of Neuroscience With Lab ♦
- Ecology/Behavior/Evolution Biology (EBE)
- CAS BI 225 Introduction to Behavioral Biology
- CAS BI 260 Marine Biology
- CAS BI 303 Evolutionary Ecology ♦
- CAS BI 305 Animal Ecology
- CAS BI 407 Animal Behavior ♦

Lab courses

Three Lab Courses
- In addition to BI 107/108
- Courses fulfilling the lab requirement must be BI or NE 203

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CMG Electives
Choose four

- CAS BB 522 Molecular Biology Laboratory◆
- CAS BI 309 Evolution
- CAS BI 311 General Microbiology◆
- CAS BI 315 Systems of Physiology◆
- CAS BI 325 Principles of Neuroscience
- CAS BI 385 Immunology
- CAS BI 410 Developmental Biology
- CAS BI 411 Microbiome: Our Intimate Relationship with Microorganisms
- CAS BI 421 Biochemistry I◆
- CAS BI 422 Biochemistry II◆
- CAS BI 445 Cellular & Molecular Neurophysiology◆
- CAS BI 455 Developmental Neurophysiology
- CAS BI 481 Molecular Biology of the Neuron
- CAS BI 502 Topics in the Mathematical Structure of Biological Systems
- CAS BI 504 Advanced Evolutionary Analysis
- CAS BI 513 Genetics Laboratory◆
- CAS BI 515 Population Genetics
- CAS BI 525 Biology of Neuropegenerative Diseases
- CAS BI 535 Transitional Research in Alzheimer’s Disease
- CAS BI 550 Marine Genomics
- CAS BI 551 Biology of Stem Cells
- CAS BI 553 Molecular Biology II
- CAS BI 554 Neuroendocrinology
- CAS BI 560 Systems Biology
- CAS BI 572 Advanced Genetics
- CAS BI 576 Carcinogenesis
- CAS BI 594 Topics in Neurobiology
- CAS CH 525 Physical Biochemistry
- CAS NE 203 Principles of Neuroscience◆
- ENG BF 527 Bioinformatics Applications
- ENG BF 571 Dynamics of Evolution and Biological Networks
- GMS BT 432 Basic Pathology: Mechanisms of Disease

◆ Course will also count toward the three-lab requirement. M◆ Marine Semester◆ Students who want to participate in the MS must apply.

Optional Programs
Advance application is required

Independent Research
- A maximum of 8 credits (2 courses) from this list may be counted as advanced electives.
- A maximum of 4 credits (1 course) can apply towards the lab requirement.

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For more information about the CMG specialization, please see the undergraduate bulletin.
http://www.bu.edu/academics/cas/programs/biology/ba-cell-molecular-genetics/
**Related Requirements**

**Math & Computer Science Requirements**
- 2 semesters | A grade of “C” or higher is required for all math and computer science courses
- Choose an option

**Option A**
Choose ANY two math courses (calculus and/or statistics)
- Calculus | MA 121/122, MA 123/124, MA 123/122
- Statistics | MA 115/116, MA 213/214, MA 213/115
- Other | MA 196, MA 127,* or MA 129*

**Option B**
One semester of calculus or statistics and one semester of computer science
- Computer Science | CS 105, CS 108, CS 111

Fill in your choices
- I
- II

**Chemistry Requirements**
4 semesters | A grade of “C” or higher is required for all chemistry courses

Choose one 100-level General Chemistry sequence
- **Sequence I**
  - CAS CH 101
  - CAS CH 102

- **Sequence II**
  - CAS CH 109
  - CAS CH 110

- **Sequence III**
  - CAS CH 111
  - CAS CH 112

**OPTIONAL | Pre-Med**
Choose one option
- Option I
  - BI/CH 421

- Option II
  - BI/CH 421
  - BI/CH 422

- Option III
  - CH 273

Choose one 200-level Organic Chemistry sequence
- **Sequence I**
  - CAS CH 203
  - CAS CH 204

- **Sequence II**
  - CAS CH 211
  - CAS CH 212

- **or CAS CH 214**

**Physics Requirements**
2 semesters | A grade of “C” or higher is required for all physics courses

Choose a sequence
- **Sequence I**
  - PY 105
  - PY 106

- **Sequence II**
  - PY 211
  - PY 212*

- **Sequence III**
  - PY 241
  - PY 242

*(or PY 106)*

**CAS Requirements**

**Four semesters of the same language:**
- **Language:**
  - I
  - II
  - III
  - IV

**Writing:**
- WR 100
- WR 150

**Humanities:**
- I
- II

**Social Science:**
- I
- II

**Proposed Course of Study**

**Freshmen Year**

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**Sophomore Year**

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**Junior Year**

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**Senior Year**

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