Biology BS Curriculum Checklist
Fall 2022 – Spring 2023 (updated 11/02/2022)

Completed

Required Courses
☐ BIOL2000 Molecules & Cells (fall/spring)
☐ BIOL2010 Ecology & Evolution (fall/spring)
☐ BIOL2040 Investigations in Molecular Cell Biology Lab (fall/spring)  
   NOTE: Taken after BIOL2000

Category A: Genetics & Genomics
   One from the following:
   ● BIOL3050 Genetics (fall/spring) – 4 cr
   ● BIOL3060 Introduction to Genetics (summer only)
   ● BIOL3150 Introduction to Genomics (spring) – 4 cr

☐ Category B: Physiology & Organismal Biology
   One from the following:
   ● BIOL3030 Introduction to Physiology (fall)
   ● BIOL4110 Ornithology (not offered in 2022-2023)
   ● BIOL4320 Developmental Biology (fall)
   ● BIOL4330 Human Physiology with Lab (spring) – 4 cr
   ● BIOL4450 Behavioral Ecology (spring)
   ● BIOL4540 Neuroscience (spring)

☐ One Advanced Experience Course (see the listing on reverse side)
   NOTE: Undergraduate Research can be used to satisfy the Advanced Experience requirement only if the student completes two semesters in the same laboratory.

☐ Additional Biology Electives (numbered 3000 and above)

☐ Total of 30 credits for all biology courses

See the reverse page for a listing of biology electives. For those who wish to focus their studies in a specific area, courses are categorized by concentration (see superscript). Concentrations, while providing more in-depth coverage around a single topic, are not officially recognized on a transcript and are not required for the Biology Major. More information on how selected electives form the basis of a concentration is available on the Biology Department website.

CO-REQUISITES

Chemistry
   _____ General Chemistry 1 & 2 with Labs (CHEM1109-1110; 1111-1112)
   _____ Organic Chemistry 1 with Lab (CHEM2231-2232)
   _____ Organic Chemistry 2 with Lab (CHEM2233-2234) OR Biological Chemistry (BIOL4350)* /Biochem I (CHEM4461)*

Mathematics
   _____ Calculus 1 (MATH1100) or equivalent

Additional Quantitative courses
   _____ Choose three from the following list
      Calculus 2 (MATH1101)
      MATH courses 2000 level or higher
      Statistics (BIOL2300, ECON1151, MATH4427)**
      Intro Physics 1 (calculus-based) with Lab (PHYS2100)
      Intro Physics 2 (calculus-based) with Lab (PHYS2101)
      Experimental Methods in Organismal Biology (BIOL3140)*
      Population Genetics (BIOL 4250)*
      Computer Science 1 and/or 2 (CSCI1101, CSCI1102)
      Database Systems and Applications (CSCI2257)
      Data Science (CSCI2291)

*Biology4350, CHEM4461, BIOL3140, and BIOL4250 can apply as EITHER an elective OR a co-requisite, not both
## 2022-2023 BIOLOGY ELECTIVES
Biology Electives are 3 credits each unless otherwise noted.

### Fall 2022
- **Introduction to Physiology (BIOL3030)**
- **Cell Biology (BIOL3040)**
- **Genetics (BIOL3050)**
- **Experimental Methods in Organismal Biology (BIOL3140)**
- **Virolology (BIOL4090)**
- **Inflammation and Disease (BIOL4120)**
- **Microbiology (BIOL4140)**
- **Introduction to Bioinformatics (BIOL4200)**
- **Foundations of Microbiology (BIOL3090)**
- **Developmental Biology (BIOL4320)**
- **Virology (BIOL4090)**
- **Deep Sea Biology (BIOL4030)**
- **Population Genetics (BIOL4250)**
- **Medical Biochemistry and Metabolism (BIOL4290)**
- **Human Physiology with Lab (BIOL4340)**
- **Biological Chemistry (BIOL4350)**
- **Molecular Biology (BIOL4400)**
- **Behavioral Ecology (BIOL4450)**
- **Investigations in Biological Research (BIOL4500)**
- **Cancer Biology (BIOL4510)**
- **Neuroscience (BIOL4540)**

### Spring 2023
- **Cell Biology (BIOL3040)**
- **Genetics (BIOL3050)**
- **Foundations of Microbiology (BIOL3090)**
- **Introduction to Genomics (BIOL4340)**
- **Deep Sea Biology (BIOL4030)**
- **Population Genetics (BIOL4250)**
- **Medical Biochemistry and Metabolism (BIOL4290)**
- **Human Physiology with Lab (BIOL4340)**
- **Biological Chemistry (BIOL4350)**
- **Molecular Biology (BIOL4400)**
- **Behavioral Ecology (BIOL4450)**
- **Investigations in Biological Research (BIOL4500)**
- **Cancer Biology (BIOL4510)**
- **Neuroscience (BIOL4540)**

## BIOLOGY ELECTIVES OFFERED IN OTHER DEPARTMENTS

### Fall 2022
- Biochemistry I (CHEM4461)
- Synthetic Biology (CHEM5513)

### Spring 2023
- Biochemistry II (CHEM4462)
- Drug Discovery and Medicinal Chemistry (CHEM5510)

## ADVANCED EXPERIENCE COURSES

### Fall 2022
- **Seminars (3 credits)**
  - Nobel Winning Res in Medicine or Physio (BIOL5010) — 2 cr
  - Microbial Community Ecology (BIOL5071) — 2 cr
  - Emerging Therapeutics (BIOL5075) — 2 cr
  - Topics in Advanced Cell Biology (BIOL5095)
  - Environmental Disruptors of Development (BIOL5130)
  - Immunity and Infectious Disease (BIOL5230)
  - Cancer as a Metabolic Disease (BIOL5420)
  - Biology of the Nucleus (BIOL5700)

- **Advanced Labs (3 credits)**
  - Research in Phylogenetics (BIOL4075)
  - Research in Molecular Biology Lab (BIOL4830)
  - Investigations in Cellular Re-Programming (BIOL4890)
  - Advanced Lab in Cell Imaging (BIOL5450) — 2 cr

### Spring 2023
- **Seminars (3 credits)**
  - Nobel Winning Res in Medicine or Physio (BIOL5010) — 2 cr
  - Recombinant DNA Technology (BIOL5060)
  - Emerging Therapeutics (BIOL5075) — 2 cr
  - Microbiome and Human Disease (BIOL5100) — 2 cr
  - Vaccine Development & Public Health (BIOL5150)
  - Topics in Biomechanics (BIOL5380)
  - Cancer as a Metabolic Disease (BIOL5420)
  - Genomics and Personalized Medicine (BIOL5430)

- **Advanced Labs (3 credits)**
  - Research in Molecular Biology Lab (BIOL4830)
  - Research in Molecular Genetics Lab (BIOL4870)
  - Advanced Lab in Cell Imaging (BIOL5450) — 2 cr

## NOTES

1. Microbiology concentration course
2. Cell Biology and Development concentration course
3. Physiology and Organismal Biology concentration course
4. Genetics and Genomics concentration course

For a list of CORE courses offered Spring 2023:
https://www.bc.edu/content/bc-web/schools/mcas/undergraduate/core-curriculum/core-requirements.html