

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)

*BIOL4350, 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.

<i>Fall 2022</i>	<i>Spring 2023</i>
³ Introduction to Physiology (BIOL3030) ² Cell Biology (BIOL3040) ⁴ Genetics (BIOL3050) – 4 cr ³ Experimental Methods in Organismal Biology (BIOL3140)* ¹ Virology (BIOL4090) ^{2,3} Inflammation and Disease (BIOL4120) ^{1,2} Microbiology (BIOL4140) ⁴ Introduction to Bioinformatics (BIOL4200) ³ Human Anatomy with Lab (BIOL4260) – 4 cr ² Developmental Biology (BIOL4320) ¹ Vaccination and Immunity (BIOL4440) ¹ Principles of Immunology (BIOL4570)	² Cell Biology (BIOL3040) ⁴ Genetics (BIOL3050) – 4 cr ^{1,2} Foundations of Microbiology (BIOL3090) ⁴ Introduction to Genomics (BIOL3150) – 4 cr ³ Deep Sea Biology (BIOL4030) ⁴ Population Genetics (BIOL4250)* ^{2,3} Medical Biochemistry and Metabolism (BIOL4290) ³ Human Physiology with Lab (BIOL4340) – 4 cr ^{1,2,3} Biological Chemistry (BIOL4350) ^{2,4} Molecular Biology (BIOL4400) ³ Behavioral Ecology (BIOL4450) ² Investigations in Biological Research (BIOL 4500) ² Cancer Biology (BIOL4510) ^{2,3} Neuroscience (BIOL4540)

BIOLOGY ELECTIVES OFFERED IN OTHER DEPARTMENTS

<i>Fall 2022</i>	<i>Spring 2023</i>
Biochemistry I (CHEM4461) Synthetic Biology (CHEM5513)	Biochemistry II (CHEM4462) Drug Discovery and Medicinal Chemistry (CHEM5510)

ADVANCED EXPERIENCE COURSES

<i>Fall 2022</i>	<i>Spring 2023</i>
Seminars (3 credits) ² Nobel Winning Res in Medicine or Physio (BIOL5010) – 2 cr ¹ Microbial Community Ecology (BIOL5071) – 2 cr ³ Emerging Therapeutics (BIOL5075) – 2 cr ² Topics in Advanced Cell Biology (BIOL5095) ² Environmental Disruptors of Development (BIOL5130) ¹ Immunity and Infectious Disease (BIOL5230) ^{2,3} Cancer as a Metabolic Disease (BIOL5420) ⁴ Biology of the Nucleus (BIOL5700)	Seminars (3 credits) ² Nobel Winning Res in Medicine or Physio (BIOL5010) – 2cr ^{1,4} Recombinant DNA Technology (BIOL5060) ³ Emerging Therapeutics (BIOL5075) – 2 cr ¹ Microbiome and Human Disease (BIOL5100) – 2 cr ¹ Vaccine Development & Public Health (BIOL5150) ³ Topics in Biomechanics (BIOL5380) ^{2,3} Cancer as a Metabolic Disease (BIOL5420) ⁴ Genomics and Personalized Medicine (BIOL5430)
Advanced Labs (3 credits) ⁴ Research in Phylogenetics (BIOL4075) ^{1,4} Research in Molecular Biology Lab (BIOL4830) ² Investigations in Cellular Re-Programming (BIOL4890) ² Advanced Lab in Cell Imaging (BIOL5450) – 2 cr	Advanced Labs (3 credits) ^{1,4} Research in Molecular Biology Lab (BIOL4830) ^{1,4} Research in Molecular Genetics Lab (BIOL4870) ² 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>