Completed | Required Courses
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☐ | BIOL 2000 Molecules & Cells (fall/spring)
☐ | BIOL 2010 Ecology & Evolution (fall/spring)
☐ | BIOL 2040 Investigations in Molecular Cell Biology Lab (fall/spring)  
| NOTE: Taken after BIOL 2000
☐ | Category A: Genetics & Genomics  
| One from the following:  
| • BIOL 3050 Genetics (fall/spring) – 4 cr
| • BIOL 3060 Introduction to Genetics (summer only)
| • BIOL 3150 Introduction to Genomics (anticipated spring) – 4 cr
☐ | Category B: Physiology & Organismal Biology  
| One from the following:  
| • BIOL 3030 Introduction to Physiology (fall)
| • BIOL 4110 Ornithology (not offered in 2022-2023)
| • BIOL 4320 Developmental Biology (fall)
| • BIOL 4330 Human Physiology with Lab (spring) – 4 cr
| • BIOL 4450 Behavioral Ecology (spring)
| • BIOL 4540 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.
☐ | 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 topic (see superscript). More information on these concentrations is available on the biology website.

CO-REQUISITES

Chemistry
- General Chemistry 1 & 2 with Labs (CHEM 1109-1110; 1111-1112)
- Organic Chemistry 1 with Lab (CHEM 2231-2232)
- Organic Chemistry 2 with Lab (CHEM 2233-2234) OR Biological Chemistry (BIOL 4350)* /Bioch (CHEM 4461)*

Mathematics
- Calculus 1 (MATH 1100) or equivalent

Additional Quantitative courses
- Choose three from the following list
  - Calculus 2 (MATH 1101)
  - MATH courses 2000 level or higher
  - Statistics (BIOL 2300, ECON 1151, MATH 4427)**
  - Intro Physics 1 (calculus-based) with Lab (PHYS 2100)
  - Intro Physics 2 (calculus-based) with Lab (PHYS 2101)
  - Experimental Methods in Organismal Biology (BIOL3140)*
  - Population Genetics (BIOL 4250)*
  - Computer Science 1 and/or 2 (CSCI 1101, CS1102)
  - Database Systems and Applications (CSCI 2257)
  - Data Science (CSCI 2290)
# 2022-2023 BIOLOGY ELECTIVES

**Biology Electives are 3 credits each unless otherwise noted.**

## Fall 2022
- Introduction to Physiology (BIOL 3030)
- Cell Biology (BIOL 3040)
- Genetics (BIOL 3050) – 4 cr
- Experimental Methods in Organismal Biology (BIOL3140)*
- Virology (BIOL 4090)
- Inflammation and Disease (BIOL 4120)
- Microbiology (BIOL 4140)
- Introduction to Bioinformatics (BIOL 4200)
- Human Anatomy with Lab (BIOL 4260) – 4 cr
- Developmental Biology (BIOL 4320)
- Virology (BIOL 4490)
- Animal Behavior (BIOL 4500)

## Spring 2023
- Cell Biology (BIOL 3040)
- Genetics (BIOL 3050) – 4 cr
- Foundations of Microbiology (BIOL 3090)
- Introduction to Genomics (BIOL 3150) – 4 cr
- Deep Sea Biology (BIOL 4030)
- Population Genetics (BIOL 4250)*
- Medical Biochemistry and Metabolism (BIOL 4290)
- Human Physiology with Lab (BIOL 4340) – 4 cr
- Biological Chemistry (BIOL 4350)
- Molecular Biology (BIOL 4400)
- Behavioral Ecology (BIOL 4450)
- Investigations in Biological Research (BIOL 4500)
- Biotechnology (BIOL 4510)
- Neuroscience (BIOL 4540)

## ADVANCED EXPERIENCE COURSES

### Fall 2022
- **Seminars (3 credits)**
  - Nobel Winning Res in Medicine or Physio (BIOL 5010) – 2 cr
  - Microbial Community Ecology (BIOL 5071) – 2 cr
  - Emerging Therapeutics (BIOL 5075) – 2 cr
  - Topics in Advanced Cell Biology (BIOL 5095)
  - Environmental Disruptors of Development (BIOL 5130)
  - Immunity and Infectious Disease (BIOL 5230)
  - Cancer as a Metabolic Disease (BIOL 5420)
  - Biology of the Nucleus (BIOL 5700)

- **Advanced Labs (3 credits)**
  - Research in Phylogenetics (BIOL 4075)
  - Research in Molecular Biology Lab (BIOL 4830)
  - Investigations in Cellular Re-Programming (BIOL 4890)
  - Advanced Lab in Cell Imaging (BIOL 5450) – 2 cr

### Spring 2023
- **Seminars (3 credits)**
  - Nobel Winning Res in Medicine or Physio (BIOL 5010) – 2 cr
  - Topics in Developmental Biology (BIOL 5040) – 2 cr
  - Recombinant DNA Technology (BIOL 5060)
  - Emerging Therapeutics (BIOL 5075) – 2 cr
  - Microbiome and Human Disease (BIOL 5100) – 2 cr
  - Vaccine Development & Public Health (BIOL 5150)
  - Topics in Biomechanics (BIOL 5380)
  - Cancer as a Metabolic Disease (BIOL 5420)
  - Genomics and Personalized Medicine (BIOL5430)

- **Advanced Labs (3 credits)**
  - Research in Molecular Biology Lab (BIOL 4830)
  - Research in Molecular Genetics Lab (BIOL 4870)
  - Advanced Lab in Cell Imaging (BIOL 5450) – 2 cr

## FALL 2022 BIOLOGY ELECTIVES OFFERED IN OTHER DEPARTMENTS

- Biochemistry 1 (CHEM 4461)*

## 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

* Can be applied to either Biology electives credits or to a corequisite requirement (not both)
** Statistics is applied to the quantitative requirement and to the Genes and Genomes concentration but is not applied to the Biology elective credits