Biochemistry is an interdisciplinary major that is administered jointly by the Biology and Chemistry Departments. Students interested in the biochemistry major may consult Prof. Eric Folker (578 Higgins) or Prof. Rebecca Dunn (411 Higgins).

Required Courses

**BIOLOGY**

- [ ] BIOL 2000 Molecules & Cells (*fall/spring*)
- [ ] BIOL 2010 Ecology & Evolution (*fall/spring*) OR BIOL 3030 Introduction to Physiology (*fall*)
- [ ] BIOL 2040 Investigations in Molecular Cell Biology (*fall/spring*)
- One course in **cell biology** from the following list
  - BIOL 3040 Cell Biology (*fall/spring*)
  - BIOL 3090 Foundations of Microbiology (*spring*)
  - BIOL 4140 Microbiology (*fall*)
- One course in **genetics or genomics** from the following list
  - BIOL 3050 Genetics (*fall/spring*)
  - BIOL 3060 Introduction to Genetics (*summer only*)
  - BIOL 3150 Introduction to Genomics (*spring*)

*Biochemistry Majors who have a five on the AP Biology exam in their senior year may elect to bypass the 2000 lecture series (BIOL 2000 & BIOL 2010). These students will begin the major with BIOL 3040 Cell Biology and then take six credits of additional biology courses, level 3000 or above.*

**CHEMISTRY COURSES**

- [ ] CHEM1109/1111 General Chemistry I with Lab (or CHEM1117/1119) (*fall*)
- [ ] CHEM1110/1112 General Chemistry II with Lab (or CHEM1118/1120) (*spring*)
- [ ] CHEM2231/2233 Organic Chemistry I with Lab (or CHEM2241) (*fall*)
- [ ] CHEM2232/2234 Organic Chemistry II with Lab (or CHEM2242) (*spring*)
- [ ] CHEM 3351/3353 Analytical Chemistry/Lab (*fall*)
- [ ] CHEM 4473 Physical Chem/Biochem Majors (*spring*)

**BIOCHEMISTRY COURSES**

**Option 1 (Biology) – may be taken in any order:**
- [ ] BIOL4350 Biological Chemistry (*spring*)
  - or CHEM 4461 Biochemistry 1 (*fall*)
- [ ] BIOL4400 Molecular Biology (*spring only*)

**Option 2 (Chemistry) – to be taken in sequence:**
- [ ] CHEM4461 Biochemistry 1 (*fall*)
- [ ] CHEM4462 Biochemistry 2 (*spring*)

**MATHEMATICS COURSES**

- [ ] Calculus II: MATH 1101 or MATH 1105 (*if credit through AP Calc BC, take another advanced math course*)

**PHYSICS COURSES**

- [ ] PHYS 2100 Intro to Physics I with Lab (calc-based)
- [ ] PHYS 2101 Intro to Physics II with Lab (calc-based)
## ADVANCED ELECTIVES (2 courses, minimum of 5 credits total)

Students planning to pursue a science career are urged to become involved in Undergraduate Research or take an Advanced Laboratory course.

### Fall 2022

**Lecture/Seminar Options:**
- Virology (BIOL 4090)
- Introduction to Bioinformatics (BIOL 4200)
- Developmental Biology (BIOL 4320)
- Principles of Immunology (BIOL 4570)
- Microbial Community Ecology (BIOL 5071) (**2 cr**)  
- 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)
- NMR Spectroscopy (CHEM 5539)
- Synthetic Biology: at the interface of Biology, Chemistry, and Engineering (CHEM 5513)

**Advanced Labs Options:**
- Research in Molecular Phylogenetics (BIOL 4075)
- Research in Molecular Biology Lab (BIOL 4830)
- Investigations in Cellular Re-Programming (BIOL 4890)
- Two semesters of Undergraduate Research

### Spring 2023

**Lecture/Seminar Options:**
- Medical Biochemistry and Metabolism (BIOL 4290)
- Cancer Biology (BIOL 4510)
- Recombinant DNA Technology (BIOL 5060)
- Microbiomes/Human Disease (BIOL5100) (**2 cr**)  
- Vaccine Development & Public Health (BIOL 5150)
- Cancer as a Metabolic Disease (BIOL 5420)
- Genomics & Personalized Medicine (BIOL 5430)
- Drug Discovery and Medicinal Chemistry (CHEM 5510)
- Peptide Therapeutics (CHEM 5512)
- Magnetic Resonance in Biology (CHEM 5540)
- Chemical Biology (CHEM 5567)

**Advanced Labs Options:**
- Research in Molecular Biology Lab (BIOL 4830)
- Research in Molecular Genetics Lab (BIOL 4870)
- Two semesters of Undergraduate Research