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).

### Required Courses

#### BIOLOGY

- **BIOL 2000** Molecules & Cells *(fall/spring)*
- **BIOL 2010** Ecology & Evolution *(fall/spring)*  **OR**  **BIOL 3030** Comparative Vertebrate Physiology *(fall only)*  **OR**  **BIOL 4330** Human Physiology *(spring only)*
- **BIOL 2040** Investigations in Molecular Cell Biology *(fall/spring)*

- One course in **cellular sciences** from the following list:
  - **BIOL 3040** Cell Biology *(fall/spring)*
  - **BIOL 3090** Foundations of Microbiology *(spring only)*
  - **BIOL 4140** Microbiology *(fall only)*

- One course in **genetics or genomics** from the following list:
  - **BIOL 3050** Genetics *(fall only)*
  - **BIOL 3060** Introduction to Genetics *(summer only)*
  - **BIOL 3150** Introduction to Genomics *(spring only)*

#### CHEMISTRY COURSES

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

#### BIOCHEMISTRY COURSES

**Option 1 (Biology) – may be taken in any order:**

- **BIOL4350** Biological Chemistry *(spring only)*  **or**  **CHEM 4461** Biochemistry 1 *(fall only)*

**Option 2 (Chemistry) – to be taken in sequence:**

- **CHEM4461** Biochemistry 1 *(fall only)*  **or**  **CHEM 4460** Molecular Biology *(spring only)*
- **CHEM4462** Biochemistry 2 *(spring only)*

#### MATHEMATICS COURSES

- **Calculus II:** MATH 1101, MATH 1103 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 2024

**Lecture/Seminar Options:**
- ☐ Virology (BIOL 4090)
- ☐ Inflammation and Disease (BIOL 4120)
- ☐ Introduction to Bioinformatics (BIOL 4200)
- ☐ Metabolic Regulation and Human Disease (BIOL 4290)
- ☐ Nobel Winning Res in Medicine or Physio (BIOL 5010) (2 cr)
- ☐ Topics in Developmental Biology (BIOL 5040) (2 cr)
- ☐ Microbiomes/Human Disease (BIOL 5100) (2 cr)
- ☐ Environmental Disruptors of Development (BIOL 5130)
- ☐ Glycobiology and Human Disease (BIOL 5200)
- ☐ Cancer as a Metabolic Disease (BIOL 5420)
- ☐ Biology of the Nucleus (BIOL 5700)
- ☐ NMR Spectroscopy (CHEM 5539)
- ☐ Principles of Chemical Biology (CHEM 5560)

**Advanced Labs Options:**
- ☐ Research in Phylogenetics (BIOL4075)
- ☐ Research in Molecular Biology Lab (BIOL 4830)
- ☐ Investigations in Cellular Re-Programming (BIOL 4890)
- ☐ Two semesters of Undergraduate Research

### Spring 2025

**Lecture/Seminar Options:**
- ☐ Developmental Biology (BIOL 3320)
- ☐ Cancer Biology (BIOL 4510)
- ☐ Principles of Immunology (BIOL 4570)
- ☐ Nobel Winning Res in Medicine or Physio (BIOL5010) (2 cr)
- ☐ Microbial Community Ecology (BIOL 5071) (2 cr)
- ☐ Environmental Disruptors of Development (BIOL 5130)
- ☐ Seminar in Cellular Dynamics (BIOL 5180) (2 cr)
- ☐ Movement in Biology (BIOL 5220) (2 cr)
- ☐ Immunity and Infectious Disease (BIOL 5230)
- ☐ Cancer as a Metabolic Disease (BIOL 5420)
- ☐ Genomics & Personalized Medicine (BIOL 5430)
- ☐ Drug Discovery and Medicinal Chemistry (CHEM 5510)
- ☐ Synthetic Biology: at the interface of Biology, Chemistry, and Engineering (CHEM 5513)
- ☐ Magnetic Resonance in Biology (CHEM 5540)
- ☐ Polymer Chemistry (CHEM5548)
- ☐ Principles and Methods in Biophysical Chemistry (CHEM5561)

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