Biochemistry is an interdisciplinary major that is administered jointly by the Biology and Chemistry Departments. Students interested in the biochemistry major may consult Seth Robertson (355E Higgins), Prof. Anthony Annunziato (401A Higgins), Prof. Kathy Dunn (412 Higgins), Prof. Eranthie Weerapana (202 Merkert), or Prof. Jianmin Gao (203 Merkert).

### 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 3210** Plant Biology *(anticipated spring)*
- **BIOL 4140** Microbiology *(spring)*

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

*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**

- **CHEM 1109/1111** General Chemistry I with Lab *(or CHEM 1117/1119) (fall)*
- **CHEM 2231/2233** Organic Chemistry I with Lab *(or CHEM 2241) (fall)*
- **CHEM 3351/3353** Analytical Chemistry/Lab *(fall)*
- **CHEM 1110/1112** General Chemistry II with Lab *(or CHEM 1118/1120) (spring)*
- **CHEM 2232/2234** Organic Chemistry II with Lab *(or CHEM 2242) (spring)*
- **CHEM 4473** Physical Chem/Biochem Majors *(fall/spring)*

**BIOCHEMISTRY COURSES**

**Option 1 (Biology) – may be taken in any order:**
- **BIOL 4350** Biological Chemistry *(fall/spring)*
- **BIOL 4400** Molecular Biology *(spring)*

**Option 2 (Chemistry) – to be taken in sequence:**
- **CHEM 4461** Biochemistry 1 *(fall)*
- **CHEM 4462** 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 go to Grad School are urged to become involved in Undergraduate Research or take an Advanced Laboratory course.

### Fall 2020

**Lecture/Seminar Options:**
- Virology (BIOL 4090)
- Introduction to Bioinformatics (BIOL 4200)
- Developmental Biology (BIOL 4320)
- Molecular Biology of Disease (BIOL 4460)
- Principles of Immunology (BIOL 4570)
- Biology of the Nucleus (BIOL 5070)
- Environmental Disruptors of Development (BIOL 5130)
- Vaccine Development & Public Health (BIOL 5150)
- Cancer as a Metabolic Disease (BIOL 5420)
- NMR Spectroscopy (CHEM 5539)
- Chemical Biology (CHEM 5567)

**Advanced Labs Options:**
- Research in Molecular Cell Biology (BIOL 4220)
- Research in Evolutionary Genomics (BIOL 4802)
- Research in Molecular Microbiology Lab (BIOL 4810)
- Research in Molecular Biology Lab (BIOL 4830)
- Investigations in Cellular Re-Programming (BIOL 4890)
- Two semesters of Undergraduate Research

### Spring 2021

**Lecture/Seminar Options:**
- Cancer Biology (BIOL 4510)
- Medical Biochemistry and Metabolism (BIOL 4290)
- Topics in Developmental Biology (BIOL 5040) (2 credits)
- Recombinant DNA Technology (BIOL 5060)
- Microbial Community Ecology (BIOL 5071) (2 credits)
- Microbiomes and Human Disease (BIOL5100) (2 credits)
- Immunity and Infectious Disease (BIOL5230)
- Cancer as a Metabolic Disease (BIOL 5420)
- Genomics & Personalized Medicine (BIOL 5430)
- Synthetic Biology (BIOL 5440)

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