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. Kathy Dunn (412 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 (*anticipated 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

- **CHEM 1109/1111** General Chemistry I with Lab (or **CHEM 1117/1119**) (*fall*)
- **CHEM 1110/1112** General Chemistry II with Lab (or **CHEM 1118/1120**) (*spring*)
- **CHEM 2231/2233** Organic Chemistry I with Lab (or **CHEM 2241**) (*fall*)
- **CHEM 2232/2234** Organic Chemistry II with Lab (or **CHEM 2242**) (*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:**
- **BIOL 4350** Biological Chemistry (*spring*)
  or **CHEM 4461** Biochemistry 1 (*fall*)
- **BIOL 4400** Molecular Biology (*spring only*)

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

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<tr>
<td><strong>Lecture/Seminar Options:</strong></td>
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<tr>
<td>[ ] Virology (BIOL 4090)</td>
<td>[ ] Medical Biochemistry and Metabolism (BIOL 4290)</td>
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<td>[ ] Introduction to Bioinformatics (BIOL 4200)</td>
<td>[ ] Cancer Biology (BIOL 4510)</td>
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<td>[ ] Developmental Biology (BIOL 4320)</td>
<td>[ ] Topics in Developmental Biology (BIOL 5040) <em>(2 cr)</em></td>
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<td>[ ] Principles of Immunology (BIOL 4570)</td>
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<td>[ ] Environmental Disruptors of Development (BIOL 5130)</td>
<td>[ ] Microbiomes/Human Disease (BIOL5100) <em>(2 cr)</em></td>
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<td>[ ] Cancer as a Metabolic Disease (BIOL 5420)</td>
<td>[ ] Vaccine Development &amp; Public Health (BIOL 5150)</td>
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<tr>
<td>[ ] Biology of the Nucleus (BIOL 5700)</td>
<td>[ ] Cancer as a Metabolic Disease (BIOL 5420)</td>
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<td>[ ] Peptide Therapeutics (CHEM 5512)</td>
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<td>[ ] Metallobiochemistry (CHEM 5527)</td>
<td>[ ] Synthetic Biology (BIOL 5440)</td>
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<td>[ ] NMR Spectroscopy (CHEM 5539)</td>
<td>[ ] Drug Discovery and Medicinal Chemistry (CHEM 5510)</td>
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</tbody>
</table>

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

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