# Biochemistry Curriculum Checklist
*(updated 3/16)*

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

## Required Courses

### BIOLOGY
*(total of 12 Credits Required)*

- **BIOL 2000** Molecules & Cells *(fall & spring)*
- **BIOL 2010** Ecology & Evolution *(fall/spring)* OR **BIOL 3030** Introduction to Physiology *(fall/spring)*

One course in **cell biology** from the following list *(3-4 credits)*
- **BIOL 3040** Cell Biology *(fall/spring)*
- **BIOL 3210** Plant Biology *(spring)*
- **BIOL 4140** Microbiology *(spring)*

One course in **genetics or genomics** from the following list *(3-4 credits)*
- **BIOL 3150** Introduction to Genomics *(fall)*
- **BIOL 3190** Genetics & Genomics *(fall/spring)*—4 credits

*Biochemistry Majors who have a 5 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 6 credits of additional biology courses, level 3000 or above.*

### BIOLOGY LAB *(3 credits)*

- **BIOL 2040:** Investigations in Molecular Cell Biology *(fall & spring)*

### CHEMISTRY COURSES *(23 credits)*

#### Fall

- **CHEM 1109/1111** General Chemistry I with Lab (or CHEM 1117/1119)
- **CHEM 2231/2233** Organic Chemistry I with Lab (or CHEM 2241)
- **CHEM 3351/3353** Analytical Chemistry and Lab

#### Spring

- **CHEM 1110/1112** General Chemistry II with Lab (or CHEM 1118/1120)
- **CHEM 2232/2234** Organic Chemistry II with Lab (or CHEM 2242)
- **CHEM 4473** Physical Chemistry / Biochem Majors

### BIOCHEMISTRY COURSES *(6 credits)*

**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 *(3 credits)*

- **Calculus II:** MATH 1101 or MATH 1105

### PHYSICS COURSES *(10 credits)*

- **PHYS 2100** Intro to Physics I with Lab *(calc-based)*
- **PHYS 2101** Intro to Physics II with Lab *(calc-based)*
ADVANCED ELECTIVES (2 courses)

Students planning to go to Grad School are urged to become involved in Undergraduate Research or take an Advance Laboratory course.

<table>
<thead>
<tr>
<th>Fall 2016</th>
<th>Spring 2017</th>
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<tbody>
<tr>
<td><strong>Lecture Options:</strong></td>
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<tr>
<td>□ Introduction to Bioinformatics (BIOL 4200)</td>
<td>□ Developmental Biology (BIOL 4320)</td>
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<td>□ Virus Infections &amp; Cellular Transport (BIOL 5330)</td>
<td>□ Cancer Biology (BIOL 4510)</td>
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<td>□ Cancer as a Metabolic Disease (BIOL 5420)</td>
<td>□ Recombinant DNA Technology (BIOL 5060)</td>
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<td>□ Synthetic Biology (BIOL5440)—2 credits</td>
<td>□ Immunity and Infectious Disease (BIOLS5230)</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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<tr>
<td>□ Physical Methods of Biochemistry (CHEM 5564)</td>
<td>□ DNA Viruses and Cancer (BIOL 5630)</td>
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<td><strong>Advanced Labs Options:</strong></td>
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<tr>
<td>□ Research in Molecular Cell Biology Lab (BIOL4801)</td>
<td>□ Genomics &amp; Personalized Medicine (BIOL 5430)</td>
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<tr>
<td>□ Research in Molecular Microbiology Lab (BIOL4810)</td>
<td>□ Advanced Topics in Biochemistry (CHEM 5582)</td>
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<tr>
<td>□ Research in Molecular Biology Lab (BIOL 4830)</td>
<td>□ Research in Molecular Cell Biology Lab (BIOL4801)</td>
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<tr>
<td>□ Two semesters of Undergraduate Research</td>
<td>□ Research in Molecular Biology Lab (BIOL 4830)</td>
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University Core Requirements

| □ Arts (1 course) | □ Cultural Diversity (1 course) | □ History (2 courses) |
| □ Literature (1 course) | □ Math (1 course) | □ Natural Science (2 courses) |
| □ Philosophy (2 courses) | □ Social Science (2 courses) | □ Theology (2 courses) |
| □ Writing (1 course) | | |

Foreign Language Requirement

Completed: □ Yes  □ Missing