

# 2017-18 Biochemistry Curriculum Checklist

(updated 3/17)

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 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 (4 credits)
  - BIOL 3150 Introduction to Genomics (fall/Spring)
  - BIOL 3190 Genetics & Genomics (fall/spring)

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)

- 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 (fall/spring)

### 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.

### Fall 2017

#### Lecture/Seminar Options:

- Genetics in Contemporary Society (BIOL 4041)
- Developmental Biology (BIOL 4320)
- Vaccine Development and Public Health (BIOL 5150)
- Inflammation in Health & Disease (BIOL 5160)
- Virus Infections & Cellular Transport (BIOL 5330)
- Cancer as a Metabolic Disease (BIOL 5420)
- Biology of the Nucleus (BIOL 5700)
- Human Metabolism/Dis/Entrepreneurship (CHEM 5511)

#### Advanced Labs Options:

- 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 2018

#### Lecture/Seminar Options:

- Introduction to Bioinformatics (BIOL 4200)
- Cancer Biology (BIOL 4510)
- Principles of Immunology (BIOL 4570)
- Recombinant DNA Technology (BIOL 5060)
- Environmental Disruptors of Development (BIOL 5130)
- Immunity and Infectious Disease (BIOL5230)
- Cancer as a Metabolic Disease (BIOL 5420)
- Genomics & Personalized Medicine (BIOL 5430)
- DNA Viruses and Cancer (BIOL 5630)
- Introduction to Computational Chemistry (CHEM 5522)

#### Advanced Labs Options:

- Research in Molecular Biology Lab (BIOL 4830)
- Research in Molecular Genetics Lab (BIOL 4870)
- Two semesters of Undergraduate Research

## University Core Requirements

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|---|--|--|
| <input type="checkbox"/> Arts (1 course)        | <input type="checkbox"/> Cultural Diversity (1 course) | <input type="checkbox"/> History (2 courses)         |
| <input type="checkbox"/> Literature (1 course)  | <input type="checkbox"/> Math (1 course)               | <input type="checkbox"/> Natural Science (2 courses) |
| <input type="checkbox"/> Philosophy (2 courses) | <input type="checkbox"/> Social Science (2 courses)    | <input type="checkbox"/> Theology (2 courses)        |
| <input type="checkbox"/> Writing (1 course)     |  |  |

## Foreign Language Requirement

Completed:  Yes  Missing