

2018-19 Biochemistry Curriculum Checklist

(updated 10/24/2018)

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/spring/summer*)
- 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 (*spring*)
 - BIOL 4140 Microbiology (*spring*)
- One course in **genetics or genomics** from the following list
 - BIOL 3150 Introduction to Genomics (*fall/spring*)
 - BIOL 3190 Modern and Classical Genetics (*spring*)
 - BIOL 3050 Genetics (*summer only*)

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.

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 (*fall/spring*)

BIOCHEMISTRY COURSES

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

- BIOL 4400 Molecular Biology (*fall*)
- BIOL 4350 Biological Chemistry (*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 Advance Laboratory course.

Fall 2018

Lecture/Seminar Options:

- Developmental Biology (BIOL 4320)
- Topics in Developmental Biology (BIOL 5040) (2 credits)
- Environmental Disruptors of Development (BIOL 5130)
- Vaccine Development & Public Health (BIOL 5150)
- Cancer as a Metabolic Disease (BIOL 5420)
- NMR Spectroscopy (CHEM 553901)

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 2019

Lecture/Seminar Options:

- Advanced Cell Biology (BIOL 4020)
- Introduction to Bioinformatics (BIOL 4200)
- Cancer Biology (BIOL 4510)
- Principles of Immunology (BIOL 4570)
- Recombinant DNA Technology (BIOL 5060)
- Microbial Community Ecology (BIOL 5071) (2 credits)
- Immunity and Infectious Disease (BIOL5230)
- Literature for Neurological Diseases (BIOL 5370)
- Cancer as a Metabolic Disease (BIOL 5420)
- Genomics & Personalized Medicine (BIOL 5430)
- Introduction to Mass Spectrometry (CHEM 3356)
- 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