2025-26 Biochemistry Curriculum Checklist

(updated 03/28/2025)

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).

Required Courses

BIOLOGY

☐ **BIOL 2000** Molecules & Cells *(fall/spring)*

☐ **BIOL 2010** Ecology & Evolution *(fall/spring)* ***OR*** **BIOL 3030** Comparative Vertebrate Physiology (*fall/spring)* ***OR*** **BIOL 4330** Human Physiology *(spring only)*

☐ **BIOL 2040** Investigations in Molecular Cell Biology *(fall/spring)*

☐ One course in **cellular sciences** from the following list

- BIOL 3040 Cell Biology *(fall/spring)*
- BIOL 4140 Microbiology *(spring only)*

☐ One course in **genetics or genomics** from the following list

- BIOL 3050 Genetics
- BIOL 3060 Foundations in Genetics (*summer/fall*)

CHEMISTRY COURSES

☐ CHEM 1109/1111 General Chemistry I with Lab (or CHEM 1117/1119) *(fall only)*

☐ CHEM 1110/1112 General Chemistry II with Lab (or CHEM 1118/1120) *(spring only)*

☐ CHEM 2231/2233 Organic Chemistry I with Lab (or CHEM 2241) *(fall only)*

☐ CHEM 2232/2234 Organic Chemistry II with Lab (or CHEM 2242) *(spring only)*

☐ CHEM 3351/3353 Analytical Chemistry/Lab *(fall only)*

☐ CHEM 4473 Physical Chem/Biochem Majors *(spring only)*

BIOCHEMISTRY COURSES

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

☐ BIOL 4350 Biological Chemistry

☐ BIOL 4400 Molecular Biology *(spring only)*

Option 2 (Chemistry) – to be taken in sequence:

☐ CHEM 4461 Biochemistry 1 *(fall only)*

☐ CHEM 4462 Biochemistry 2 *(spring only)*

MATHEMATICS COURSES

☐ Calculus II: MATH 1101, MATH 1103 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.

Fall 2025

Lecture/Seminar Options:

☐ Virology (BIOL 4090)

☐ Inflammation and Disease (BIOL 4120)

☐ Introduction to Bioinformatics (BIOL 4200)

☐ Cellular Biochemistry (BIOL 4580)

☐ Nobel Winning Res in Medicine or Physio (BIOL 5010) (**2 cr)**

☐ Topics in Developmental Biology (BIOL 5040) ***(2 cr)***

☐ Glycobiology and Human Disease (BIOL 5200)

☐ Molecular Basis of Infectious Disease (BIOL 5210)

☐ Cancer as a Metabolic Disease (BIOL 5420)

☐ Biology of the Nucleus (BIOL 5700)

☐ NMR Spectroscopy (CHEM 5539)

☐ Chemical Genomics and Proteomics (CHEM 5541)

☐ Principles of Chemical Biology (CHEM 5560)

Advanced Labs Options:

☐ Research in Evolutionary Genomics (BIOL 4802)

☐ Research in Molecular Biology Lab (BIOL 4830)

☐ Two semesters of Undergraduate Research

Spring 2026

Lecture/Seminar Options:

☐ Developmental Biology (BIOL 3320)

☐ Metabolic Regulation and Human Disease (BIOL 4290)

☐ Cancer Biology (BIOL 4510)

☐ Principles of Immunology (BIOL 4570)

☐ Nobel Winning Res in Medicine or Physio (BIOL 5010) ***(2 cr)***

☐ Recombinant DNA Technology (BIOL 5060)

☐ Microbial Community Ecology (BIOL 5071) ***(2 cr)***

☐ Microbiomes/Human Disease (BIOL 5100) **(2 cr)**

☐ Seminar in Cellular Dynamics (BIOL 5180) **(2 cr)**

☐ Immunity and Infectious Disease (BIOL 5230)

☐ Cancer as a Metabolic Disease (BIOL 5420)

☐ Topics in Microbial Pathogenesis (BIOL 5460)

☐ Synthetic Biology: at the interface of Biology, Chemistry, and Engineering (CHEM 5513)

☐ Magnetic Resonance in Biology (CHEM 5540)

Advanced Labs Options:

☐ Research in Molecular Biology Lab (BIOL 4830)

☐ Two semesters of Undergraduate Research