

Chemical Biology Option and Typical Schedule	
Fall	Spring
FIRST YEAR	
General Chemistry Lecture (4.0 cr) ¹ 01:160:161 OR 01:160:163	General Chemistry Lecture (4.0 cr) 01:160:162 OR 01:160:164
General Chemistry Laboratory (1.0 cr) 01:160:171 Either fall or spring	
Calculus I (4.0 cr) 01:640:151	Calculus II (4.0 cr) 01:640:152
SECOND YEAR	
Organic Chemistry Lecture (4.0 cr) 01:160:307 OR 01:160:315 ² (by invitation)	Organic Chemistry Lecture (4.0 cr) 01:160:308 OR 01:160:316
Analytical Chemistry (3.0 cr) 01:160:251	Organic Chemistry Laboratory ³ (2.5 cr) 01:160:309
General Physics (3.0 cr) 01:750:203	General Physics (3.0 cr) 01:750:204
General Physics Lab (1.0 cr) 01:750:205	General Physics Lab (1.0 cr) 01:750:206
Multivariable Calculus (4.0 cr) 01:640:251	Linear Algebra (3.0 cr) 01:640:250 OR Elementary Differential Equations (3.0 cr) 01:640:252
THIRD YEAR	
Physical Chemistry Lecture (3.0 cr) 01:160:341 ⁴	Physical Chemistry Lecture (3.0 cr) 01:160:328 OR 01:160:342
Organic Chemistry Laboratory ² (2.5 cr) 01:160:310	Experimental Physical Chemistry (2.5 cr) 01:160:329
Chemical Bonding (1.5 cr) 01:160:361 ⁶	Inorganic Chemistry (3.0 cr) 01:160:371 ⁶
Instrumental Analysis (3.0 cr) 01:160:348 ⁵	
FOURTH YEAR	
Seminar (1.0 cr) 01:160:491	Seminar (1.0 cr) 01:160:492
Research (=2 cr) 01:160:495 Independent Study OR 01:160:497 Honors Research ⁷	Research (=2 cr) 01:160:496 Independent Study OR 01:160:498 Honors Research
Biochemistry ⁸ (3 cr) 01:160:437 Biophysical Chemistry I OR 01:694:407 Molecular Biology and Biochem OR 11:115:403 General Biochemistry (3)	Biochemistry (3 cr) 01:160:438 (3 cr) Biophysical Chemistry I OR Course selected from list ⁹ below.

Chemical Biology Option: Summary

The Chemical Biology Option is intended for students who have a strong interest in chemistry as it relates to the life sciences. Often the students who choose this option plan to use chemistry as academics, researchers, or research managers, or incidentally, as practicing physicians or other health professionals. It provides intensive training in the laboratory and the classroom.

To the courses of the Core Option, the Chemical Biology Option adds

- at least 4 credits of senior-level research; 6 credits are recommended
- one or two courses related to biochemistry
- one advanced course in chemistry, possibly a second biochemistry course.

An “advanced course” is a chemistry or chemistry-related course that is not part of the core, but has a major element of the core curriculum as a pre-requisite, either the second semester of organic chemistry or the second semester of physical chemistry. An advanced course will typically have a 400 number assigned to it in the Undergraduate Catalog.

The Chemical Biology Option leads to certification by the American Chemical Society, a credential that is valued by some employers.

Chemical Biology Option: Course and Scheduling Notes

Detailed schedules for the third and the fourth years may vary. Some students defer Chemical Bonding, Inorganic Chemistry, and Instrumental Analysis to the senior year.

¹ Pre-calculus prerequisite

² Chem 309 is offered in the *spring* only; Chem 310 is offered only in the *fall* only.

³ By invitation only.

⁴ Chemistry 327 and 341 have Math 251 as a pre-requisite, not as a co-requisite.

Chemistry 327-328 is acceptable for all Chemistry majors and is required for the Chemical Physics Option.

Chemistry 341-342 is recommended for students oriented toward the life sciences, and for students taking the Chemical Biology option.

⁵ Chem 348 is offered in the *fall* only and has Chem 251 as a pre-requisite. Chem 251 is offered both *fall* and *spring*.

⁶ Chem 361 and 371 may be taken later than indicated above, if desired. Both courses are offered *fall* and *spring*. Chem 371 has Chem 361 AND Chem 308 or 316 as pre-requisites.

⁷ Permission of department. Open only to senior honors students. For a complete description of the requirements for Honors in Chemistry, see [Honors](#).

⁸ The biochemistry courses listed are offered only in the *fall*. The two-semester sequence 01:160:437 -438 is preferred.

⁹ Students may choose any of the courses from the list below.

- 01:160:418 Bioorganic Mechanisms (3) or 11:115:412 Protein & Enzyme Chemistry (3)
- 11:115:410 Physical Biochemistry (3)
- 01:160:476 Bioinorganic Chemistry (3)
- 01:694:408 Molecular Biology and Biochemistry (3) or 11:115:404 General Biochemistry (3)
- 30:715:450 Drugs: Structure and Function (3)
- 30:715:451 Advanced Medicinal Chemistry (3)