

Biochemistry

Website: Biochemistry (<https://new.sewanee.edu/programs-of-study/biochemistry/>)

Students in the interdisciplinary field of biochemistry explore life's molecular building blocks and the intersections of biology and chemistry. Majors complete six required courses in Biology and Chemistry, then choose electives from such courses as cell biology, organic chemistry, thermodynamics and kinetics, genetics, immunology, microbiology, environmental physiology and biochemistry of animals, inorganic chemistry, chemical analysis, and advanced biochemistry.

Science students pursue their work in Spencer Hall, Sewanee's LEED-certified \$22 million science facility.

Faculty

Associate Professors: Kikis, Seballos (Chair), R. Summers

Assistant Professor: C. Smith

Major

The interdisciplinary major in Biochemistry is administered by the Departments of Biology and Chemistry.

Requirements for the Major in Biochemistry

The major requires successful completion of the following:

Code	Title	Semester Hours
Course Requirements		
BIOL 133	Introductory Molecular Biology and Genetics	4
BIOL 233	Molecular Cell Biology	4
BIOL 243	Molecular Methods (Lab)	4
BIOL/CHEM 316 or BIOL 317 or BIOL 236	Biochemistry of Metabolism and Molecular Biology (Lab) Biochemistry of Metabolism and Molecular Biology Biochemistry	4
CHEM 120 or CHEM 150	General Chemistry (Lab) Advanced General Chemistry (Lab)	4
CHEM 201	Organic Chemistry I (Lab)	4
CHEM 202	Organic Chemistry II (Lab)	4
CHEM/BIOL 307	Mechanistic Biochemistry (Lab)	4
CHEM 352	Thermodynamics and Kinetics (Lab)	4
MATH 102	Calculus II	4
PHYS 101	General Physics I (Lab)	4
Select at least two of the following: ¹		8
BIOL 223 or BIOL 224	Genetics (Lab) Genetics	
BIOL 280	Molecular Genetics (Lab)	
BIOL 318	Molecular Revolutions in Medicine	
BIOL 319 or BIOL 320	Cancer Cell Biology (Lab) Cancer Cell Biology	
BIOL 325	Biology of Aging	
BIOL 331	Immunology	
BIOL 340 or BIOL 339	Microbiology (Lab) Microbiology	
BIOL 351	Environmental Physiology and Biochemistry of Animals	
BIOL 360	Virology	
BIOL 388 or BIOL 389	Epigenetics Epigenetics (Lab)	

CHEM 308	Inorganic Chemistry (Lab)	
CHEM 311	Instrumental Analysis (Lab)	
CHEM 417	Advanced Biochemistry	
Total Semester Hours		52

Code	Title	Semester Hours
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Additional Requirements

A comprehensive examination ²

¹ Students who take BIOL 236 or BIOL 317 must select at least one laboratory course.

² The comprehensive exam in Biochemistry has three parts: a written exam covering CHEM 201, CHEM 202, and BIOL 233, which students are expected to take in the first semester of their junior year; a written exam covering CHEM 307, BIOL 316, and CHEM 352, which students are expected to take in the second semester of their senior year; and an oral exam that follows the second written exam.

Honors

In order to receive honors in the Biochemistry program, a student must have a 3.20 or higher GPA in the major courses and must complete a research project that the Biochemistry committee considers worthy of honors. The research project may be done as part of a course (usually BIOL 444 or CHEM 494), or it may be done in the context of a summer research program at the University of the South or at another institution. The honors project must involve some original work. A formal written report and seminar presentation on the research are required. Students must inform the Biochemistry committee of their intention to seek honors no later than October 1 of their senior year.

Minor

Requirements for the Minor in Biochemistry

The minor requires successful completion of the following:

Code	Title	Semester Hours
Course Requirements		
BIOL 316	Biochemistry of Metabolism and Molecular Biology (Lab)	4
CHEM 307	Mechanistic Biochemistry (Lab)	4
Select at least three of the following:		12
BIOL 223 or BIOL 224	Genetics (Lab) Genetics	
BIOL 233	Molecular Cell Biology	
BIOL 280	Molecular Genetics (Lab)	
BIOL 318	Molecular Revolutions in Medicine	
BIOL 331	Immunology	
BIOL 340 or BIOL 339	Microbiology (Lab) Microbiology	
BIOL 388 or BIOL 389	Epigenetics Epigenetics (Lab)	
CHEM 201	Organic Chemistry I (Lab)	
CHEM 202	Organic Chemistry II (Lab)	
CHEM 417	Advanced Biochemistry	
Total Semester Hours		20