Biochemistry

Website: sewanee.edu/academics/biochemistry/

Students in this interdisciplinary field 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 new, LEED-certified $22 million science facility.

Faculty

Assistant Professor Kikis

Professor

Associate Professors Pongdee, B. Seballos, A. Summers (Chair), R. Summers

Major

The biochemistry major is an interdisciplinary major administered by the Departments of Biology and Chemistry.

Requirements for the Major in Biochemistry

The major requires successful completion of the following:

Course Requirements		
BIOL 133	Introductory Molecular Biology and Genetics	4
BIOL 233	Molecular Cell Biology	4
BIOL/CHEM 316	Biochemistry of Metabolism and Molecular Biology (Lab)	4
CHEM 120	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:		8
BIOL 280	Molecular Genetics (Lab)	
BIOL 301	Genetics	
BIOL 300	Biology of Aging (Lab)	
or BIOL 325	or Biology of Aging	
BIOL 318	Molecular Revolutions in Medicine	
or BIOL 328	or Molecular Revolutions in Medicine (Lab)	
BIOL 319	Cancer Cell Biology (Lab)	
or BIOL 320	or Cancer Cell Biology	
BIOL 330	Immunology (Lab)	
or BIOL 331	or Immunology	
BIOL 340	Microbiology (Lab)	
BIOL 350	Environmental Physiology and Biochemistry of Animals (Lab)	
or BIOL 351	or Environmental Physiology and Biochemistry of Animals	
BIOL 380	Genomics	
or BIOL 381	or Genomics (Lab)	
BIOL 388	Epigenetics	
or BIOL 389	or Epigenetics (Lab)	
CHEM 308	Inorganic Chemistry (Lab)	

CHEM 311	Instrumental Analysis (Lab)	
CHEM 415	Mechanistic Enzymology	
CHEM 417	Advanced Biochemistry	
CHEM 418	Structural Methods	
CHEM 425	Drug Design and Development	
Total Semester Hours		**48**

Additional Requirements

A comprehensive examination [1]

[1] 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 biochemistry, 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 this University 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:

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 233	Molecular Cell Biology	
BIOL 280	Molecular Genetics (Lab)	
BIOL 301	Genetics	
BIOL 318	Molecular Revolutions in Medicine	
or BIOL 328	or Molecular Revolutions in Medicine (Lab)	
BIOL 330	Immunology (Lab)	
or BIOL 331	or Immunology	
BIOL 340	Microbiology (Lab)	
BIOL 350	Environmental Physiology and Biochemistry of Animals (Lab)	
or BIOL 351	or Environmental Physiology and Biochemistry of Animals	
BIOL 380	Genomics	
or BIOL 381	or Genomics (Lab)	
BIOL 388	Epigenetics	
or BIOL 389	or Epigenetics (Lab)	
CHEM 201	Organic Chemistry I (Lab)	
CHEM 202	Organic Chemistry II (Lab)	
CHEM 417	Advanced Biochemistry	
Total Semester Hours		**20**