

BIOCHEMISTRY, BS

Department Chair: Xiao-Ning Zhang, Ph.D.

The department of biology offers a program leading to the Bachelor of Science with a major in biochemistry. The biochemistry program provides students with a basic understanding of living systems that emphasizes the molecular and cellular aspects of biology.

A new biotechnology lab equipped with ultracentrifuge, ThermoCyclers, electrophoresis equipment, gel imaging system, cell culture hoods, confocal fluorescent microscope and various microscopes, etc. provides the technical component for the program and affords research opportunities for students during their junior and senior years. The final year of study features independent laboratory research.

Advances in the area of molecular biology and biochemistry have led to the expansion of job opportunities in the general field of biotechnology and bioengineering. The biochemistry program will be of special interest to students with a strong science and mathematics background who are preparing for graduate school, medical or dental school as well as law school.

Code	Title	Credits
Biology		24
BIO-105 & BIOL-105	BIOLOGICAL SCIENCE I and BIOLOGICAL SCI. I LAB	
BIO-106 & BIOL-106	BIOLOGICAL SCIENCE II and BIOLOGICAL SCI. II LAB	
BIO-291	GENETICS	
BIO-371 & BIOL-371	BIOCHEMISTRY and BIOCHEMISTRY LAB	
BIO-418	RES. PARTICIPATION III	
BIO-419	RES. PARTICIPATION IV	
BIO-460	BIOCHEMISTRY SEMINAR	
BIO-466 & BIOL-466	MOLECULAR BIOLOGY and MOLECULAR BIOLOGY LAB	
Chemistry		23
Mathematics		8
Physics		8
Foreign Language ¹		3
Mathematics & Natural Science Electives ²		16
General Education Requirements (https://catalog.sbu.edu/undergraduate/degree-requirements)		37
General Electives (enough to reach 120) ³		1
Total Credits		120

¹ The foreign language must be at the level of 202 or higher. Students not prepared to begin at this level will need to take additional courses in language.

- ² The Math & Natural Science electives (16 credits) must be chosen from among the following:
1. One Biology with lab: BIO-321/BIOL-321, BIO-331, BIO-350, BIO-362, BIO-406, BIO-472, BIO-494;
 2. One Chemistry with lab: CHEM-201/CHML-201, CHEM-402, CHEM-431;
 3. One Math course: MATH-117, MATH-207, MATH-241, MATH-251, MATH-252, MATH-322, MATH-323; and
 4. Minimum of two courses from Biology, Chemistry or Mathematics from courses above plus BIO-292, BIOL-293, BIO-318, BIO-319, BIO-390, and CHEM-441
- ³ General electives are needed when a major course is also fulfilling one of the General Education Distributions.

The comprehensive requirement for Biochemistry majors is the successful completion of BIO-460.

First Year		
Fall	Credits Spring	Credits
BIO-105 & BIOL-105	4 BIO-106 & BIOL-106	4
CHEM-101 & CHML-101	4 CHEM-102 & CHML-102	4
ENG-101	3 MATH-151	4
SBU-101	2 ENG-102	3
THFS-101	3 SBU-102	1
		16
Second Year		
Fall	Credits Spring	Credits
BIO-291	3 CHEM-302 & CHML-302	4
CHEM-301 & CHML-301	4 Math & Natural Science Electives ¹	7
MATH-152	4 General Education Requirements	3
General Education Requirement	3 Foreign Language 202 ²	3
		14
Third Year		
Fall	Credits Spring	Credits
BIO-371 & BIOL-371	4 PHYS-104 & PHYL-104	4
PHYS-103 & PHYL-103	4 BIO-466 & BIOL-466	4
Math & Natural Science Elective ¹	3 CHEM-470	3
General Education Requirement	3 General Education Requirements	3
		14
Fourth Year		
Fall	Credits Spring	Credits
BIO-418	2 BIO-419	2
CHEM-401 & CHML-401	4 Math & Natural Science Elective ¹	3
Math & Natural Science Elective ¹	3 BIO-460	1
General Education Requirement	3 General Education Requirement	6
General Electives	3 General Elective	2
		15
Total Credits 120		14

¹ The Math & Natural Science electives (16 credits) must be chosen from among the following:

1. One Biology with lab: BIO-321/BIOL-321, BIO-331, BIO-350, BIO-362, BIO-406, BIO-472, BIO-494;
2. One Chemistry with lab: CHEM-201/CHML-201, CHEM-402, CHEM-431;
3. One Math course: MATH-117, MATH-207, MATH-241, MATH-251, MATH-252, MATH-322, MATH-323; and
4. Minimum of two courses from Biology, Chemistry or Mathematics from courses above plus BIO-292, BIOL-293, BIO-318, BIO-319, BIO-390, and CHEM-441

² The foreign language must be at the level of 202 or higher. Students not prepared to begin at this level will need to take additional courses in language.

Changes in the sequence of the program listed above may be desirable. These must be made in consultation with the student's academic adviser.

The comprehensive requirement for Biochemistry majors is the successful completion of BIO-460.