BIOCHEMISTRY MAJOR (B.S.)

In addition to meeting the standards and requirements of the College of Arts and Sciences, a degree candidate must complete a minimum of 53 credits in chemistry and allied fields. In general, required courses will be taken in the order listed. However, each student's program is designed in consultation with the student's faculty adviser, who may modify the program in view of the student's background and objectives.

There are three distinct undergraduate programs in chemistry and biochemistry, each leading to the Bachelor of Science (B.S.) degree. The first leads to a B.S. in chemistry degree certified by the American Chemical Society (ACS). This program can also lead one of two five-year B.S.-M.S. programs. The ACS certified B.S. can be coupled with a Master of Science in Chemistry at Seton Hall. A second five-year dual degree program can lead to a Bachelor of Science in Chemistry from Seton Hall and a Master of Chemical Engineering from Stevens Institute of Technology.

The second degree is a general chemistry major that allows the student more flexibility. Since fewer chemistry courses are required, the student in the second program may also concentrate on an additional field, such as biology, computer science or business administration, or may take a greater variety of liberal arts courses. Either program can lead to further study at the graduate level in a variety of chemistry intensive areas, including chemistry, biochemistry, medicine, dentistry, forensic science, and intellectual property law.

The third degree is a B.S. in biochemistry, which is designed to prepare students for graduate study in biochemistry or related fields, for medical school or for employment in the pharmaceutical and clinical industries. The course requirements include those for the general chemistry major, with advanced biology and biochemistry courses added to the program of study. Students who intend to enter graduate school may select from a variety of advanced electives in order to meet specific admission requirements.

Link to College Core requirement (http://catalogue.shu.edu/undergraduate/college-arts-sciences/core-curriculum/).

Course	Title	Hours
First Year		
Select one of the following:		8-9
CHEM 1123	General Chemistry I	
& CHEM 1124	and General Chemistry II	
& CHEM 1125	and General Chemistry Lab I	
& CHEM 1126	and General Chemistry II Lab	
CHEM 1107	Principles of Chemistry I	
& CHEM 1108	and Principles of Chemistry II	
MATH 1401	Calculus I	8
& MATH 1511	and Calculus II - Math - Phys Sci *	
	Hours	**16-17**
Second Year		
BIOL 1211	General Biology- Organisms	4
& BIOL 1212	and General Biology-Organisms Lab	
BIOL 1222	General Biology-Cell	4
& BIOL 1223	and General Biology-Cell Lab	
Select one of the following:		8-10
CHEM 2321	Organic Chemistry I	
& CHEM 2322	and Organic Chemistry II	
& CHEM 2315	and Organic Chemistry I-Lab	
& CHEM 2316	and Organic Chemistry II-Lab	
CHEM 2313	Organic Chemistry I	
& CHEM 2314	and Organic Chemistry II	
	Hours	**16-18**
Third Year		
BIOL 2221	Genetics	4
& BIOL 2222	and Genetics Lab	
BIOL 2238	Cell Biology	4
& BIOL 2239	and Cell Biology Lab	
CHEM 2215	Analytical Chemistry I	4
CHEM 3512	Elements of Biochemistry	4
Science Electives **		3-4
Select one of the following:		6
PHYS 1701	General Physics I	
& PHYS 1702	and General Physics II	
PHYS 1705	Principles of Physics I	
& PHYS 1706	and Principles of Physics II	
Select one of the following:		2-3
PHYS 1811	Physics Laboratory I	
& PHYS 1812	and Physics Laboratory II	
PHYS 1815	Physics Lab and Data Analy I	
& PHYS 1816	and Physics Lab and Data Analy II	
	Hours	**27-29**
Fourth Year		
CHEM 3415	Physical Chemistry I	4
Three Science electives **		9-12
	Hours	**13-16**
	Total Hours	**72-80**

* Students lacking high school trigonometry or making unsatisfactory scores on the Mathematics Placement Test take MATH 1015 Pre Calc Math Alg and Trig, and MATH 1401 Calculus I in the freshman year and MATH 1411 Calculus II in the following Summer Session.

** Chosen from the electives described in the ACS and non-ACS programs described above.