

# CHEMISTRY (NON-ACS) 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
<b>First Year</b>		
Select one of the following:		8-9
CHEM 1123 & CHEM 1124 & CHEM 1125 & CHEM 1126	General Chemistry I and General Chemistry II and General Chemistry Lab I and General Chemistry II Lab	
CHEM 1107 & CHEM 1108	Principles of Chemistry I and Principles of Chemistry II	
MATH 1501 & MATH 1511	Calculus I - Math - Phys Sci and Calculus II - Math - Phys Sci *	8
<b>Hours</b>		<b>16-17</b>
<b>Second Year</b>		
Select one of the following:		8-10
CHEM 2321 & CHEM 2322 & CHEM 2315 & CHEM 2316	Organic Chemistry I and Organic Chemistry II and Organic Chemistry I-Lab and Organic Chemistry II-Lab	
CHEM 2313 & CHEM 2314	Organic Chemistry I and Organic Chemistry II	
Select one of the following:		6

PHYS 1701 & PHYS 1702	General Physics I and General Physics II	
PHYS 1705 & PHYS 1706	Principles of Physics I and Principles of Physics II	
Select one of the following:		2-3
PHYS 1811 & PHYS 1812	Physics Laboratory I and Physics Laboratory II	
PHYS 1815 & PHYS 1816	Physics Lab and Data Analy I and Physics Lab and Data Analy II	
<b>Hours</b>		<b>16-19</b>
<b>Third Year</b>		
CHEM 2215	Analytical Chemistry I	4
CHEM 3415	Physical Chemistry I	4
Electives as described below		3-4
<b>Hours</b>		<b>11-12</b>
<b>Fourth Year</b>		
Select six credits of electives from the following:		6
CHEM 2216	Analytical Chemistry II	
CHEM 3512 or CHEM 3522	Elements of Biochemistry or Elements of Biochemistry	
CHEM 3416	Physical Chemistry II	4
CHEM 3611 or CHEM 4601	Inorganic Chemistry or Advanced Inorganic Chemistry	
CHEM 4891 & CHEM 4892	Chemistry Research and Chemistry Research (maximum)	
Select eight credits of electives from the following:		8
BIOL **		
CHEM ***		
CSAS ****		
MATH *****		
PHYS *****		
<b>Hours</b>		<b>18</b>
<b>Total Hours</b>		<b>61-66</b>

\* 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.

\*\* Above BIOL 1202 .

\*\*\* Selected from graduate courses or from electives listed above (not to be counted twice).

\*\*\*\* Above CSAS 1111 Introduction to Computer Science I

\*\*\*\*\* Above MATH 1411 Calculus II

\*\*\*\*\* Above PHYS 1812 Physics Laboratory II