CHEMICAL BIOLOGY, BS

Campus: NYC, Westchester

Chemical Biology is an interdisciplinary major that integrates the principles and techniques from the biological and chemical sciences toward understanding and addressing challenges in medicine and healthcare, research and development, environment and climatic trends, (bio-) materials and energy, and emerging technologies. In particular, Chemical Biology focuses on the generation and the effects of small to moderately-sized molecules on living and dynamic systems. Students graduating from the Chemical Biology program possess the necessary depth and breadth of knowledge to qualify for and succeed in pursuing a wide variety of postgraduate studies: Master's and Doctoral degrees in dozens of specialized disciplines (e.g., medicine, dentistry, pharmacy, teaching, nutrition, environment, R&D, law) and or immediately fulfilling their employment aspirations.

Major Completion Summary

Requirement	Credits
University Core Requirements	44-55
Major Requirements	64-65
Open Electives	1-7
Total Credits	**120 -124**

University Core Requirements (44-55 Credits)

See complete University Core (https://catalog.pace.edu/undergraduate/university-core-curriculum/) requirements.

Includes several of the major required Math, Biology and Physics courses listed in the Major Requirements.

Code	Title	Credits
Major Required Math and Science Courses		
The following University Core courses satisfy several Math and Science foundation requirements of the Chemical Biology Major, BS:		
BIO 101	General Biology I [1,2,3]	4
BIO 102	General Biology II [1,2,3]	4
MAT 131	Calculus I	4
MAT 132	Calculus II	4
PHY 111	General Physics I [1,2,3]	4
PHY 112	General Physics II [1,2,3]	4
BIO 264	Microbiology	4
MAT 141	Introductory Statistics for the Life Sciences	4

Major Requirements (62-63 Credits)

Code	Title	Credits
Required Major Courses		
CHE 111	General Chemistry I [1,3]	4
CHE 112	General Chemistry II [1,3]	4
CHE 223	Organic Chemistry I	4
CHE 224	Organic Chemistry II	4
CHB 232	Bioanalytical Chemistry and Instrumentation (or PLS 232)	4
CHE 300	Introduction to Physical Chemistry	4
CHE 326	Biochemistry	4
or BIO 327	Cellular Biochemistry	
BIO 251	Principles of Human Anatomy	4
CHB 200	Fundamentals of Chemical Biology	3
CHB 301	Bioinformatics	3
BIO 335	Molecular and Cellular Biology	4
BIO 334	General Physiology	4
CHB 392	Chemical Biology Seminar I	1

CHB 492	Chemical Biology Seminar II	1
CHB 480	Research in Chemical Biology	3

Code	Title	Credits
Major Electives		
PLS 200	Fundamentals of Pharmaceutical Sciences	3
BIO 359	Immunology	4
BIO 325	Neurobiology	3
CHE 370	Advanced Biophysical Chemistry: Membrane Transport and Ionic Channels	3
BIO 346	Introduction to Basic Pharmacology	3
CHE 221	Analytical Methods and Techniques	3
CHE 331	Instrumental Analysis	4
BIO 264	Microbiology	4

1 Take credit-bearing lecture and its 0-credit lab in the same semester.
2 Reduced credits (effective from Spring, 2025) shown.

Open Electives (1-11 Credits)

Code	Title	Credits
UNV 101	First-Year Seminar: Introduction to University Community	1
Total Credits		1-11

1 Select 1-11 credits, including UNV 101 First-Year Seminar: Introduction to University Community and Major-required Biology, Math, and Physics courses not taken for University Core credit.
2 Take the lecture and its corresponding lab in the same semester.
3 In-depth sequence.

In addition to the courses listed below, students are required to complete two courses with the Anti-Racism Education attribute attached. These courses may be taken during any semester of their education. See advisor for more information.

Course	Title	Credits
First Year		
Fall		
ENG 110	Composition	3
BIO 101	General Biology I	4
CHE 111	General Chemistry I	4
MAT 131	Calculus I	4
UNV 101	First-Year Seminar: Introduction to University Community	1
	Credits	**16**
Spring		
ENG 120	Critical Writing	4
BIO 102	General Biology II	4
CHE 112	General Chemistry II	4
MAT 132	Calculus II	4
	Credits	**16**
Second Year		
Fall		
CHE 223	Organic Chemistry I	4
BIO 231	Genetics	4
BIO 251	Principles of Human Anatomy	4
Second Language I		3
	Credits	**15**
Spring		
BIO 335	Molecular and Cellular Biology	4

CHE 224	Organic Chemistry II	4
MAT 141	Introductory Statistics for the Life Sciences	4
Second Language II		3
	Credits	**15**
Third Year		
Fall		
PHY 111	General Physics I	4
CHE 300	Introduction to Physical Chemistry	4
CHE 326 or BIO 327	Biochemistry or Cellular Biochemistry	4
ENG 201	Writing in the Disciplines	3
	Credits	**15**
Spring		
PHY 112	General Physics II	4
CHB 200	Fundamentals of Chemical Biology	3
BIO 334	General Physiology	4
COM 200	Public Speaking	3
Take any one remaining Area of Knowledge course		3
	Credits	**17**
Fourth Year		
Fall		
CHB 232	Bioanalytical Chemistry and Instrumentation (or PLS 232)	4
CHB 301	Bioinformatics	3
CIS 101	Introduction to Computing	3
CHB 392	Chemical Biology Seminar I	1
Take any one remaining Area of Knowledge course		3
	Credits	**14**
Spring		
CHB 480	Research in Chemical Biology	3
CHB 492	Chemical Biology Seminar II	1
Take any one remaining Area of Knowledge course		3
Take any one remaining Area of Knowledge course		3
Take any one remaining Area of Knowledge course		3
Take any one remaining Area of Knowledge course		3
	Credits	**16**
	Total Credits	**124**

1 Reduced credits (effective from Spring 2025) shown

2 Students must take one Civic Engagement (CE) course. Many AOK II-V courses also count as CE.

3 Take the lecture and its corresponding lab in the same semester.