

BIOCHEMISTRY (B.S.)

Unless otherwise noted, 120 credits of coursework is required for a baccalaureate degree with a minimum 2.0 overall GPA, and a minimum 2.0 major GPA.

Degree Requirements Overview

Code	Title	Credits
	New Student Seminar	1
	SEEDS General Education Requirements	24-27
	Major Requirements	72
	Free Electives	23-20
	Total Credits	120

Major Requirements

Code	Title	Credits
Chemistry Courses		
CHEM 120	General Chemistry I	4
CHEM 121	General Chemistry II	4
CHEM 230	Organic Chemistry I	3
CHEM 231	Organic Chemistry II	3
CHEM 232	Experimental Organic Chemistry I	2
CHEM 233	Experimental Organic Chemistry II	2
CHEM 310	Analytical Chemistry	4
CHEM 340	Physical Chemistry I	3
CHEM 347	Biophysical Chemistry	3
CHEM 370	Biochemistry I	3
CHEM 371	Biochemistry II	3
CHEM 372	Experimental Biochemistry I	2
CHEM 373	Experimental Biochemistry II	4
CHEM 495	The Chemical Literature	1
Biology Courses		
BIOL 230	Cell and Molecular Biology	4
BIOL 350	Microbiology	4
BIOL 380	Genetics	4
BIOL 434	Molecular Biology	3
Mathematics Courses		
AMAT 120 or MATH 122	Applied Calculus A Calculus I	4
AMAT 220 or MATH 221	Applied Calculus B Calculus II	4
Physics Courses		
PHYS 191	University Physics I	4
PHYS 192	University Physics II	4
	Total Credits	72

New Student Seminar

Code	Title	Credits
	Students in the Adult Learner program must take GNED 100.	
	Complete one course from the following. Some courses may be restricted by major. Consult with an academic advisor.	1
ADVS 198	Pathways to Success	

CHEM 190	Freshman Seminar in Chemistry
FYS 100	First Year Seminar
GNED 100	Adult Academic Success Seminar
GNED 199	New Student Seminar
HPEM 199	Freshman Seminar in Health and Physical Education
IDS 155	Pathways to Adult Learning
JUST 199	New Student Seminar
MATH 102	New Student Experience for Mathematical Sciences
MUGN 199	Freshman Seminar for Music Majors
NURS 199	Introduction to Nursing
POLS 199	Freshman Seminar in Political Science and Law

SEEDS General Education Requirements

Click here for a list of courses that fulfill the SEEDS requirements. (<http://catalog.montclair.edu/programs/seeds-general-education-requirements/>)

Code	Title	Credits
Foundations		
<i>Effective Writing I</i>		
	Complete one Effective Writing I course.	3
<i>Effective Writing II</i>		
	Complete one Effective Writing II course.	3
<i>Interactive Communication</i>		
	Complete one Interactive Communication course.	3
<i>Quantitative Reasoning</i>		
	Fulfilled by AMAT 120 or MATH 122 in the major.	
<i>Political and Civic Life</i>		
	Complete one Political and Civic Life course.	3
<i>World Language</i>		
	Complete two sequential classes in one World Language when starting at the Beginner I or Beginner II level. Complete one class when starting at the Intermediate/Advanced Level.	3-6
Exploration		
	Complete one course from four different Exploration categories:	9
<i>Analyzing Cultures and Societies</i>		
<i>Creative Expression</i>		
<i>Ethical Inquiry</i>		
<i>Historical Thinking</i>		
<i>Literary and Artistic Analysis</i>		
<i>Scientific Reasoning</i>		
	Fulfilled by CHEM 120 in the major.	
	Total Credits	24-27

Recommended Roadmap to Degree Completion

This recommended degree plan is provided as an outline for students to follow in order to complete their degree requirements within four years and 120 credits. This plan is a recommendation and **MUST** be used in consultation with their academic advisor. Important note: Students should be aware this plan assumes no pre-requisite coursework is

required. If pre-requisite coursework is needed, students may have additional requirements to fulfill which do not appear on the plan.

First Year

Fall	Credits	Spring	Credits
CHEM 190 (Fulfills New Student Seminar)		1 CHEM 121	4
CHEM 120 (Fulfills SEEDS: Exploration 1 - Scientific Reasoning)		4 MATH 221 or AMAT 220	4
AMAT 120 or MATH 122 (Fulfills SEEDS: Quantitative Reasoning)		4 SEEDS: Effective Writing II	3
SEEDS: Effective Writing I		3 SEEDS: Interactive Communication	3
Free Elective		3	
	15		14

Second Year

Fall	Credits	Spring	Credits
CHEM 230		3 CHEM 231	3
CHEM 232		2 CHEM 233	2
CHEM 310		4 BIOL 230	4
PHYS 191		4 PHYS 192	4
SEEDS: World Language 1		3 SEEDS: World Language 2 or Free Elective	3
	16		16

Third Year

Fall	Credits	Spring	Credits
CHEM 370		3 CHEM 371	3
CHEM 372		2 CHEM 347	3
CHEM 340		3 CHEM 373	4
BIOL 380		4 SEEDS: Exploration 3	3
SEEDS: Exploration 2		3 Free Elective	3
	15		16

Fourth Year

Fall	Credits	Spring	Credits
BIOL 350		4 BIOL 434	3
CHEM 495		1 Free Elective	3
Free Elective		3 Free Elective	3
Free Elective		3 Free Elective	2
SEEDS: Political and Civic Life		3 SEEDS: Exploration 4	3
	14		14

Total Credits 120