

# CHEMISTRY (B.S.)

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

## Program Requirements

Code	Title	Credits
	General Education Requirements	32
	World Languages and Cultures Requirements	3-9
	Major Requirements	69
	Free Electives	16-10
<b>Total Credits</b>		<b>120</b>

## Major Requirements

Code	Title	Credits
<b>Chemistry Courses</b>		
CHEM 120	General Chemistry I	4
CHEM 121	General Chemistry II	4
CHEM 220	Descriptive Inorganic Chemistry	3
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 341	Physical Chemistry II	3
CHEM 343	Experimental Physical Chemistry	2
CHEM 370	Biochemistry I	3
CHEM 372	Experimental Biochemistry I	2
CHEM 410	Instrumental Analysis	5
CHEM 495	The Chemical Literature	1
<b>Laboratory Elective</b>		
CHEM 498	Senior Laboratory	3
or CHEM 499	Undergraduate Research	
<b>Mathematics Courses</b>		
AMAT 120	Applied Calculus A	4
or MATH 122	Calculus I	
AMAT 220	Applied Calculus B	4
or MATH 221	Calculus II	
<b>Physics Courses</b>		
PHYS 191	University Physics I	4
PHYS 192	University Physics II	4
<b>Chemistry Electives</b>		
Select two of the following: <sup>1</sup>		6
CHEM 371	Biochemistry II	
CHEM 420	Advanced Inorganic Chemistry	
CHEM 421	Experimental Inorganic Chemistry	
CHEM 430	Advanced Organic Chemistry	
CHEM 440	Advanced Physical Chemistry	

CHEM 490	Special Topics in Chemistry	
<b>Total Credits</b>		<b>69</b>

<sup>1</sup> Students in the combined B.S./M.S. Chemistry program do not have to complete this requirement. They will complete graduate swing courses instead. See the combined program page for more details (<http://catalog.montclair.edu/programs/chemistry-bs-ms/>).

## General Education Requirements

Click here for a list of courses that fulfill General Education categories. (<http://catalog.montclair.edu/programs/general-education-requirements-ba-bs/>)

Code	Title	Credits
<b>A. New Student Seminar</b>		
CHEM 190	Freshman Seminar in Chemistry	1
<b>C. Communication</b>		
1. Writing		3
2. Literature		3
3. Communication		3
<b>D. Fine and Performing Arts</b>		
Complete a 3 credit Fine and Performing Arts course.		3
<b>F. Humanities</b>		
1. Great Works and Their Influences		3
2. Philosophical and Religious Perspectives		3
<b>G. Computer Science</b>		
Complete a 3 credit Computer Science course.		3
<b>H. Mathematics</b>		
Fulfilled in the major.		
AMAT 120	Applied Calculus A	
or MATH 122	Calculus I	
<b>I. Natural Science Laboratory</b>		
CHEM 120	General Chemistry I (Fulfilled in the major.)	
<b>J. Physical Education</b>		
Complete a 1 credit Physical Education course.		1
<b>K. Social Science</b>		
1. American and European History		3
2. Global Cultural Perspectives		3
3. Social Science Perspectives		3
<b>L. Interdisciplinary Studies</b>		
PHYS 191	University Physics I (Fulfilled in the major.)	
<b>Total Credits</b>		<b>32</b>

## World Languages and Cultures Requirements

Click here for a list of courses that fulfill World Languages and Cultures categories. (<http://catalog.montclair.edu/programs/world-languages-and-cultures-requirements/>)

Code	Title	Credits
<b>World Languages</b>		
Based on language placement exam, complete one or two sequential courses in the same language. <b>Requirement is automatically fulfilled by language major courses.</b>		

**World Cultures**

Requirement may be fulfilled by course selected in General Education 0-3 - Social Science: Global Cultural Perspectives. Requirement may also be fulfilled by major coursework. See list of courses.

**Total Credits** **3-9**

## Recommended Roadmap to Degree Completion

This four-year plan is provided as an outline for students to follow in order to complete their degree requirements within four years. This plan is a recommendation and students should only use it in consultation with their academic advisor.

**First Year**

Fall	Credits	Spring	Credits
CHEM 120		4 CHEM 121	4
AMAT 120 or MATH 122		4 AMAT 220 or MATH 221	4
WRIT 105		3 GENERAL EDUCATION (C2) Literature	3
CMST 101		3 CSIT 100	3
CHEM 190		1 GENERAL EDUCATION (D) Fine and Performing Arts	3
<b>15</b>		<b>17</b>	

**Second Year**

Fall	Credits	Spring	Credits
CHEM 230		3 CHEM 231	3
CHEM 232		2 CHEM 233	2
CHEM 220		3 CHEM 310	4
PHYS 191		4 PHYS 192	4
GENERAL EDUCATION (F1) Humanities – Great Works and Their Influences		3 GENERAL EDUCATION (F2) Humanities – Philosophical and Religious Perspectives	3
<b>15</b>		<b>16</b>	

**Third Year**

Fall	Credits	Spring	Credits
CHEM 370		3 CHEM 341	3
CHEM 372		2 CHEM 343	2
CHEM 340		3 CHEM 410	5
GENERAL EDUCATION (J) Physical Education		1 GENERAL EDUCATION (K1) Social Science – American and European History	3
GENERAL EDUCATION (K2) Social Science – Global Cultural Perspectives		3 GENERAL EDUCATION (K2) Social Science – Global Cultural Perspectives	3
World Language 1		3 World Cultures	3
<b>15</b>		<b>19</b>	

**Fourth Year**

Fall	Credits	Spring	Credits
CHEM 495		1 Chemistry Elective	3

CHEM 498 or 499	3 GENERAL EDUCATION (L) Interdisciplinary Studies	3
Chemistry Elective	2-3 Free Elective	3
GENERAL EDUCATION (K3) Social Science – Social Science Perspectives	3 Free Elective	3
Free Elective	3	
<b>12-13</b>		<b>12</b>
<b>Total Credits 121-122</b>		