

# CHEMISTRY (B.S.) (COMBINED B.S./M.S. CHEMISTRY)

A Combined Degree program enables undergraduate students to enroll in graduate courses in their senior year, which can be counted towards the completion of both their Bachelor's and Master's degree requirements.

The ability to take these "swing courses" allows students to earn both their Bachelor's and Master's degrees in a shortened period of time, typically within five years of intensive study. Undergraduate students interested in this option can find more information regarding program requirements on the University's Combined Programs website (<https://www.montclair.edu/combined-programs/programs-of-study/>).

## Program Requirements

Students in this program must complete the requirements for:

Chemistry Major (B.S.) (<http://catalog.montclair.edu/programs/chemistry-bs/>)

Chemistry (M.S.) (<http://catalog.montclair.edu/programs/chemistry-ms/>)

## Graduate Swing Courses

A combined degree program allows students to complete 6-12 graduate credits ("graduate swing courses") while enrolled as an undergraduate. These courses count for both their bachelor and master's degrees. Graduate swing courses will count toward undergraduate free electives, unless noted otherwise.

The Graduate Swing Courses for this program:

Code	Title	Credits
CHEM 520	Advanced Inorganic Chemistry	3
CHEM 530	Advanced Organic Chemistry	3
CHEM 540	Advanced Physical Chemistry	3
CHEM 560	Advanced Analytical Chemistry	3
<b>Total Credits</b>		<b>12</b>

## Recommended Roadmap to Degree(s)

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

Fifth year courses are taken at the graduate level, after matriculation into the graduate portion of this combined degree program.

Course	Title	Credits
<b>First Year</b>		
<b>Fall</b>		
GENERAL EDUCATION: (A) New Student Seminar		1
GENERAL EDUCATION: (C1) Writing		3
World Language 1		3
CHEM 120	General Chemistry I	4
MATH 122	Calculus I	4
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
GENERAL EDUCATION: (C2) Literature		3
GENERAL EDUCATION: (D) Fine and Performing Arts		3
World Language 2		3

CHEM 121	General Chemistry II	4
MATH 221	Calculus II	4

**Credits** 17

### Second Year

#### Fall

CHEM 220	Descriptive Inorganic Chemistry	3
CHEM 230	Organic Chemistry I	3
CHEM 232	Experimental Organic Chemistry I	2
CSIT 100	Introduction to Computer Concepts	3
PHYS 191	University Physics I	4

**Credits** 15

#### Spring

GENERAL EDUCATION: (C3) Communication		3
CHEM 231	Organic Chemistry II	3
CHEM 233	Experimental Organic Chemistry II	2
CHEM 310	Analytical Chemistry	5
PHYS 192	University Physics II	4

**Credits** 17

### Third Year

#### Fall

GENERAL EDUCATION: (F1) Humanities – Great Works and Their Influences		3
GENERAL EDUCATION: (K3) Social Science – Social Science Perspectives		3
CHEM 340	Physical Chemistry I	3
CHEM 370	Biochemistry I	3
CHEM 372	Experimental Biochemistry I	2

**Credits** 14

#### Spring

GENERAL EDUCATION: (F2) Humanities – Philosophical and Religious Perspectives		3
GENERAL EDUCATION: (J) Physical Education		1
CHEM 311	Instrumental Analysis	4
CHEM 341	Physical Chemistry II	3
CHEM 343	Experimental Physical Chemistry	2

**Credits** 13

### Fourth Year

#### Fall

GENERAL EDUCATION: (K1) Social Science – American and European History		3
World Cultures		3
CHEM 499	Undergraduate Research	1
CHEM 530	Advanced Organic Chemistry	3
CHEM 560	Advanced Analytical Chemistry	3
Free Elective		3

**Credits** 16

#### Spring

GENERAL EDUCATION: (K2) Social Science – Global Cultural Perspectives		3
CHEM 495	The Chemical Literature	1
CHEM 499	Undergraduate Research	2
CHEM 520	Advanced Inorganic Chemistry	3
CHEM 540	Advanced Physical Chemistry	3
Free Elective		1

**Credits** 13

**Total Credits** 120

Course	Title	Credits
<b>Fifth Year</b>		
<b>Fall</b>		
Graduate Level CHEM Elective		3
Graduate Level CHEM Elective		3
Graduate Level CHEM Elective		3
CHEM 595	Graduate Research	1
<b>Credits</b>		<b>10</b>

2 Chemistry (B.S.) (Combined B.S./M.S. Chemistry)

**Spring**

Graduate Level CHEM Elective		3
Graduate Level CHEM Elective		3
CHEM 595	Graduate Research	1
CHEM 698	Master's Thesis	3
<b>Credits</b>		<b>10</b>
<b>Total Credits</b>		<b>20</b>