CHEMISTRY (B.S.) (COMBINED B.S./M.A.T. TEACHING WITH TEACHER CERTIFICATION IN CHEMISTRY (PRESCHOOL-GRADE 12) AND TEACHER OF STUDENTS WITH DISABILITIES)

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. 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/).

The Combined Degree with Dual Certification program is a 5-year program that leads to teacher certification in Chemistry (grades P-12), teacher certification in Teacher of Students with Disabilities, a baccalaureate degree and a master's degree. Interested students must apply to and be admitted to the Teacher Education Program as an undergraduate. Students must successfully complete the undergraduate portion of the program in order to be admitted to the Graduate School and complete the one-year master's portion of the program. Please visit the Teacher Education Program website for the required undergraduate professional sequence of courses, overall course outline, and other important Program requirements, guidelines, and procedures. Students also are strongly advised to review the Teacher Education Program Handbook.

120 credits of coursework is required for the baccalaureate degree with a minimum 3.0 overall GPA. Major GPA requirements differ depending on field of study. Consult the Teacher Education Program Handbook for more information.

### Program Requirements Overview

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General Education Requirements</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>World Languages and Cultures Requirements</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td>Major Requirements</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Teacher Education Program Requirements</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Free Electives</td>
<td>6-3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>120</strong></td>
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</table>

### Major Requirements

Requirements for the graduate portion of this combined program can be found here. (http://catalog.montclair.edu/programs/teaching-certification-p12-students-disabilities-combined-bx-mat/)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 120</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 121</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 230</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 231</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 232</td>
<td>Experimental Organic Chemistry I</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 233</td>
<td>Experimental Organic Chemistry II</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 310</td>
<td>Analytical Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 340</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 370</td>
<td>Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 410</td>
<td>Instrumental Analysis</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 495</td>
<td>The Chemical Literature</td>
<td>1</td>
</tr>
</tbody>
</table>

### Math Collaterals

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMAT 120</td>
<td>Applied Calculus A</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 122</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>AMAT 220</td>
<td>Applied Calculus B</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 221</td>
<td>Calculus II</td>
<td></td>
</tr>
</tbody>
</table>

### Physics Collaterals

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 191</td>
<td>University Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 192</td>
<td>University Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits** 50

### Teacher Education Program Requirements

Teacher Education Program Requirements for Combined Degree Programs with Subject Area P-12 and Teacher of Students with Disabilities Certifications (http://catalog.montclair.edu/programs/combined-bx-mat-teacher-education-program-requirements-p12-tsd/)

### 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/)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 190</td>
<td>Freshman Seminar in Chemistry</td>
<td>1</td>
</tr>
</tbody>
</table>

### C. Communication

1. Writing 3
2. Literature 3
3. Communication 3

### D. Fine and Performing Arts

Complete a 3 credit Fine and Performing Arts course. 3

### F. Humanities

Complete one course from 1. Great Works and Their Influences or 2. Philosophical and Religious Perspectives 3

### G. Computer Science

Complete a 3 credit Computer Science course. 3

### H. Mathematics

Fulfilled in the major.
Chemistry (B.S.) (Combined B.S./M.A.T. Teaching with Teacher Certification in Chemistry (Preschool-Grade 12) and Teacher of Students with Disabilities)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>AMAT 120</td>
<td>Applied Calculus A</td>
<td></td>
</tr>
<tr>
<td>or MATH 122</td>
<td>Calculus I</td>
<td></td>
</tr>
</tbody>
</table>

I. Natural Science Laboratory

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 120</td>
<td>General Chemistry I (Fulfilled in the major.)</td>
<td></td>
</tr>
</tbody>
</table>

K. Social Science

1. American and European History                        | 3
2. Global Cultural Perspectives                        | 3
3. Social Science Perspectives                         |         |

EDFD 200 Psychological Foundations of Education (Fulfilled in the Teacher Education sequence.)

L. Interdisciplinary Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SASE 210</td>
<td>Public Purposes of Education: Democracy and Schooling (Fulfilled in the Teacher Education sequence.)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 25

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/)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>World Languages</td>
<td></td>
</tr>
<tr>
<td>Based on placement exam, complete one or two sequential courses in a single language.</td>
<td>3-6</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3-6

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.

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SASE 526</td>
<td>3</td>
<td>SASE 529</td>
<td>6</td>
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<tr>
<td></td>
<td>SASE 527</td>
<td>3</td>
<td>SASE 543</td>
<td>3</td>
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<tr>
<td></td>
<td>SPED 584</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching Methods Course</td>
<td>3-4</td>
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</table>

Total Credits 12-13

Fifth Year

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SASE 526</td>
<td>3</td>
<td>SASE 529</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>SASE 527</td>
<td>3</td>
<td>SASE 543</td>
<td>3</td>
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<tr>
<td></td>
<td>SPED 584</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching Methods Course</td>
<td>3-4</td>
<td></td>
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</table>

Total Credits 12-13

Total Credits 21-22