CHEMISTRY WITH TEACHER CERTIFICATION IN CHEMISTRY (PRESCHOOL-GRADE 12) (B.S.)

Students who wish to pursue P-12 teacher certification in Chemistry must apply to and be admitted to the Teacher Education Program. Please visit the Teacher Education Program website (http://www.montclair.edu/cehs/academics/cop/) for the required professional sequence of courses and other important Program requirements, guidelines, and procedures. Students also are strongly advised to review the Teacher Education Program Handbook. Students majoring in chemistry have two teacher certification options to choose from – Physical Science or Chemistry – and should consult with an advisor to determine which certification program they wish to complete. The Teacher Education Professional Sequence Departmental Methods Course is SASE 402 Teaching of Science in Secondary Schools. (Credits are counted in the professional sequence.)

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>
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<tr>
<td></td>
<td>Teacher Education Program Requirements</td>
<td>37</td>
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<td></td>
<td>Free Electives</td>
<td>5-2</td>
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<td><strong>Total Credits</strong></td>
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Major Requirements

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<th>Code</th>
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<tr>
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<td>Required Chemistry Courses</td>
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</tr>
<tr>
<td>CHEM 120</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>CHEM 121</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td>CHEM 230</td>
<td>Organic Chemistry I</td>
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<tr>
<td>CHEM 231</td>
<td>Organic Chemistry II</td>
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<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>
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<td>CHEM 310</td>
<td>Analytical Chemistry</td>
<td>5</td>
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<tr>
<td>CHEM 311</td>
<td>Instrumental Analysis</td>
<td>4</td>
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<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>
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<tr>
<td>CHEM 495</td>
<td>The Chemical Literature</td>
<td>1</td>
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<tr>
<td></td>
<td>Math Collateral Courses</td>
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</tr>
<tr>
<td>AMAT 120</td>
<td>Applied Calculus A</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 122</td>
<td>Calculus I</td>
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<tr>
<td>AMAT 220</td>
<td>Applied Calculus B</td>
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<td>or MATH 221</td>
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Physics Collateral Courses

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<tr>
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<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>
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<td><strong>Total Credits</strong></td>
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Teacher Education Program Requirements

Teacher Education Program Requirements (Teacher Certification in Subject Area P-12) (http://catalog.montclair.edu/programs/teacher-education-program-requirements-p12/)

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></td>
<td>A. New Student Seminar</td>
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<tr>
<td>CHEM 190</td>
<td>Freshman Seminar in Chemistry</td>
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<tr>
<td></td>
<td>C. Communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Writing</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2. Literature</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3. Communication</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>D. Fine and Performing Arts</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Complete a 3 credit Fine and Performing Arts course.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F. Humanities</td>
<td></td>
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<tr>
<td></td>
<td>Complete one course from 1. Great Works and Their Influences or 2. Philosophical and Religious Perspectives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>G. Computer Science</td>
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</tr>
<tr>
<td></td>
<td>Complete a 3 credit Computer Science course.</td>
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<tr>
<td></td>
<td>H. Mathematics</td>
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<tr>
<td></td>
<td>Fulfilled in the major.</td>
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<tr>
<td></td>
<td>AMAT 120 Applied Calculus A</td>
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<tr>
<td></td>
<td>or MATH 122 Calculus I</td>
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<tr>
<td></td>
<td>I. Natural Science Laboratory</td>
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<tr>
<td>CHEM 120</td>
<td>General Chemistry I (Fulfilled in the major.)</td>
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</tr>
<tr>
<td></td>
<td>K. Social Science</td>
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<tr>
<td></td>
<td>1. American and European History</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2. Global Cultural Perspectives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3. Social Science Perspectives</td>
<td></td>
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<tr>
<td></td>
<td>L. Interdisciplinary Studies</td>
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<tr>
<td>SASE 210</td>
<td>Public Purposes of Education: Democracy and Schooling (Fulfilled in the Teacher Education sequence.)</td>
<td></td>
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<td></td>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

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/)
World Languages
Based on placement exam, complete one or two sequential courses in a single language.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3-6</td>
</tr>
</tbody>
</table>

Total Credits 3-6

**Recommended Roadmap to Degree Completion**

This recommended 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**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL EDUCATION:</td>
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<td>GENERAL EDUCATION:</td>
<td></td>
</tr>
<tr>
<td>(A) New Student Seminar</td>
<td>1</td>
<td>(C2) Literature</td>
<td>3</td>
</tr>
<tr>
<td>GENERAL EDUCATION:</td>
<td>3</td>
<td>(C3) Communication</td>
<td>3</td>
</tr>
<tr>
<td>(C1) Writing</td>
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<td></td>
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</tr>
</tbody>
</table>

Total Credits 10