EARTH AND ENVIRONMENTAL SCIENCE (B.S.) (COMBINED B.S./M.A.T. TEACHING WITH TEACHER CERTIFICATION IN EARTH SCIENCE (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 Earth Science (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 (https://www.montclair.edu/cehs/academics/centers-and-institutes/cop/teacher/) 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>General Education Requirements</td>
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<td>19</td>
</tr>
<tr>
<td>World Languages and Cultures Requirements</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>Major Requirements</td>
<td></td>
<td>59-62</td>
</tr>
<tr>
<td>Teacher Education Program Requirements</td>
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<td>36</td>
</tr>
<tr>
<td>Free Electives</td>
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<td>3-0</td>
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<tr>
<td>Total Credits</td>
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<td>120-123</td>
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</table>

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>EAES 105</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>EAES 220</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>EAES 240</td>
<td>Earth System History</td>
<td>4</td>
</tr>
<tr>
<td>EAES 302</td>
<td>Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>EAES 320</td>
<td>Igneous Metamorphic Petrology</td>
<td>4</td>
</tr>
<tr>
<td>EAES 441</td>
<td>Stratigraphy</td>
<td>4</td>
</tr>
</tbody>
</table>

Collateral Chemistry Courses

Complete one of the following sequences: 7-8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 100</td>
<td>Introductory Chemistry</td>
<td></td>
</tr>
<tr>
<td>&amp; EAES 322</td>
<td>and Environmental Geochemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 120</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 121</td>
<td>and General Chemistry II</td>
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</tr>
</tbody>
</table>

Collateral Math Courses

Complete two courses from the following: 8

<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></td>
</tr>
<tr>
<td>or MATH 121Calculus I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMAT 220</td>
<td>Applied Calculus B</td>
<td></td>
</tr>
<tr>
<td>or MATH 221Calculus II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 111</td>
<td>Applied Precalculus</td>
<td></td>
</tr>
<tr>
<td>STAT 230</td>
<td>Data Science and Statistics</td>
<td></td>
</tr>
</tbody>
</table>

Collateral Physics Courses

Select one of the following sequences: 7-8

<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></td>
</tr>
<tr>
<td>&amp; PHYS 192</td>
<td>and University Physics II</td>
<td></td>
</tr>
<tr>
<td>PHYS 193</td>
<td>College Physics I</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 194</td>
<td>and College Physics II</td>
<td></td>
</tr>
</tbody>
</table>

Collateral Biology Course

Select one course each in Meteorology, Astronomy and Oceanography for a total of 10-11 credits from the list below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 112</td>
<td>Principles of Biology: Introduction to the Cell</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 113</td>
<td>Principles of Biology: Organisms and Diversity</td>
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</table>

Major Electives

Select one course in Meteorology, Astronomy and Oceanography for a total of 10-11 credits from the list below.

Major Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAES 201</td>
<td>Understanding Weather and Climate</td>
<td>4</td>
</tr>
<tr>
<td>EAES 301</td>
<td>Climatology</td>
<td>3</td>
</tr>
<tr>
<td>EAES 403</td>
<td>Meteorology</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 180</td>
<td>Astronomy for Everyone</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 280</td>
<td>Astronomy for Physicists</td>
<td>4</td>
</tr>
<tr>
<td>EAES 150</td>
<td>General Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>EAES 250</td>
<td>Introduction to Marine Sciences</td>
<td>4</td>
</tr>
<tr>
<td>EAES 350</td>
<td>Oceanography</td>
<td>3</td>
</tr>
</tbody>
</table>
Earth and Environmental Science (B.S.) (Combined B.S./M.A.T. Teaching with Teacher Certification in Earth Science (Preschool-Grade 12) and Teacher of Students with Disabilities)

## 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/](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/](http://catalog.montclair.edu/programs/general-education-requirements-ba-bs/))

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>A.</td>
<td>New Student Seminar</td>
<td>1</td>
</tr>
<tr>
<td>C.</td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Writing</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Literature</td>
<td>3</td>
</tr>
<tr>
<td>C2</td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>D.</td>
<td>Fine and Performing Arts or F1. Great Works and Their Influences or F2. Philosophical and Religious Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>G.</td>
<td>Computer Science</td>
<td></td>
</tr>
<tr>
<td>H.</td>
<td>Mathematics</td>
<td>0</td>
</tr>
<tr>
<td>I.</td>
<td>Natural Science Laboratory</td>
<td></td>
</tr>
<tr>
<td>K.</td>
<td>Social Science</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Complete one course from K1. American and European History or K3. Social Science</td>
<td>3</td>
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<tr>
<td>2.</td>
<td>Global Cultural Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>L.</td>
<td>Interdisciplinary Studies</td>
<td></td>
</tr>
<tr>
<td>SASE</td>
<td>Public Purposes of Education: Democracy and Schooling (Fulfilled in the Teacher Education sequence.)</td>
<td>3-4</td>
</tr>
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</table>

Total Credits: 19

### 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/](http://catalog.montclair.edu/programs/world-languages-and-cultures-requirements/))

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>A.</td>
<td>New Student Seminar</td>
<td>1</td>
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<tr>
<td>C.</td>
<td>Communication</td>
<td></td>
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<tr>
<td>1.</td>
<td>Writing</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Literature</td>
<td>3</td>
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<tr>
<td>C2</td>
<td>Communication</td>
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<tr>
<td>C3</td>
<td>Communication</td>
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<tr>
<td>D.</td>
<td>Fine and Performing Arts or F1. Great Works and Their Influences or F2. Philosophical and Religious Perspectives</td>
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<tr>
<td>G.</td>
<td>Computer Science</td>
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<td>H.</td>
<td>Mathematics</td>
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<tr>
<td>I.</td>
<td>Natural Science Laboratory</td>
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<td>K.</td>
<td>Social Science</td>
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<tr>
<td>1.</td>
<td>Complete one course from K1. American and European History or K3. Social Science</td>
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<tr>
<td>2.</td>
<td>Global Cultural Perspectives</td>
<td>3</td>
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<tr>
<td>L.</td>
<td>Interdisciplinary Studies</td>
<td></td>
</tr>
<tr>
<td>SASE</td>
<td>Public Purposes of Education: Democracy and Schooling (Fulfilled in the Teacher Education sequence.)</td>
<td>3-4</td>
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</tbody>
</table>

Total Credits: 19

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

#### First Year

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

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<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>SASE 320</td>
<td>3</td>
<td>SASE 322</td>
<td>3</td>
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<td>SASE 321</td>
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<td>SPED 469</td>
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<td>SPED 279</td>
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### Fourth Year

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<tbody>
<tr>
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<td>SPED 566</td>
<td>3</td>
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<tr>
<td>SPED 488</td>
<td>3</td>
<td>SPED 586</td>
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### Fifth Year

<table>
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<th>Fall</th>
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<tbody>
<tr>
<td>SASE 526</td>
<td>3</td>
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<td>SASE 527</td>
<td>3</td>
<td>SASE 543</td>
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<td>SPED 584</td>
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### Total Credits 21-22

### 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.