ENVIRONMENTAL ENGINEERING - MASTER OF SCIENCE (MS)

The Master of Science in the Environmental Engineering Program focuses on fundamental and applied understanding of the processes that govern our natural and engineered environmental systems. The program of over 35 research and instructional faculty members and about 70 graduate students covers topics ranging from drinking and wastewater treatment, water re-use, ecosystem processes, fate and transport of contaminants, alternative energy, air quality, sustainability and global engineering.

For more information, visit the Environmental Engineering Program (https://www.colorado.edu/even/prospective-students/) website.

Bachelor’s–Accelerated Master’s Degree Program

Students may earn this degree as part of the Bachelor’s–Accelerated Master’s (BAM) degree program, which allows currently enrolled CU Boulder undergraduate students the opportunity to earn a bachelor’s and master’s degree in a shorter period of time.

For more information, see the Accelerated Master’s tab for the associated bachelor’s degree(s): BSEV in Environmental Engineering (https://catalog.colorado.edu/undergraduate/colleges-schools/engineering-applied-science/programs-study/civil-environmental-architectural-engineering/environmental-engineering-bachelor-science-bsev/#acceleratedmasterstext)

Requirements

General Requirements

The following course requirements are subject to change; for the most current information, visit the Program’s Curriculum and Courses (http://www.colorado.edu/even/prospective-students/graduate-studies/curriculum-and-courses/) webpage.

Students must complete at least 30 credit hours.

For students who have undertaken prior graduate study, up to 9 hours of relevant graduate-level coursework may be transferred to meet the course requirements for the MS degree, following the rules established by the Graduate School for transfer credit.

Degree Plans

Requirements for the Master of Science in environmental engineering can be fulfilled in two ways.

Plan I: Thesis Option

In addition to 24 credit hours of coursework, candidates complete 4–6 credit hours of thesis credit with a sum of course and thesis credit of at least 30 hours. Additionally, the successful completion and defense of an MS thesis is required.

Plan II: Non-Thesis Option

In addition to 24 credit hours of coursework, candidates complete an additional 6 credit hours of elective courses or independent study.

Course Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 5464</td>
<td>Environmental Engineering Processes</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5404</td>
<td>Water Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 5151</td>
<td>Atmospheric Chemistry</td>
<td></td>
</tr>
<tr>
<td>Emphasis Area</td>
<td></td>
<td>12-18</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>0-9</td>
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</table>

Elective courses will be determined in consultation with the student’s faculty advisor.

Environmental Engineering Graduate Seminar

Two semesters of Environmental Engineering graduate seminar, a non-credit seminar requiring attendance at 2/3 of the seminars each semester for satisfactory completion.

Plan I: Thesis Option

Plan II: Non-Thesis Option

Additional elective or independent study credits

Requirements for Recommended Emphasis Areas

General Environmental Engineering Emphasis

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CVEN 5484</td>
<td>Applied Microbiology and Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>MCEN 5131</td>
<td>Air Pollution Control Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5524</td>
<td>Drinking Water Treatment</td>
<td>3</td>
</tr>
<tr>
<td>or CVEN 5534</td>
<td>Wastewater Treatment</td>
<td></td>
</tr>
</tbody>
</table>
| Select one of the following:  
  CVEN 5537 | Numerical Methods in Civil Engineering | 3      |
| or CVEN 5454 | Statistical Methods for Natural and Engineered Systems | |

Total Credit Hours 12

Drinking Water, Wastewater and Water Reuse Treatment Emphasis

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</tr>
</tbody>
</table>
| Select one of the following:  
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| or CVEN 5454 | Statistical Methods for Natural and Engineered Systems | |

Total Credit Hours 12

Natural Waters Emphasis

<table>
<thead>
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<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CVEN 5424</td>
<td>Environmental Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5353</td>
<td>Groundwater Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5333</td>
<td>Physical Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5323</td>
<td>Applied Stream Ecology</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5537</td>
<td>Numerical Methods in Civil Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
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<tr>
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</tr>
<tr>
<td>CVEN 5919</td>
<td>Global Development for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5939</td>
<td>Global Development Practicum</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5969</td>
<td>Water, Sanitation, and Hygiene</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5484</td>
<td>Applied Microbiology and Toxicology</td>
<td>3</td>
</tr>
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<td>Drinking Water Treatment</td>
<td>3</td>
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<tr>
<td>or CVEN 5534</td>
<td>Wastewater Treatment</td>
<td></td>
</tr>
<tr>
<td>or MCEN 5131</td>
<td>Air Pollution Control Engineering</td>
<td></td>
</tr>
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Total Credit Hours: 15

**Global Engineering Emphasis**

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<tr>
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<tbody>
<tr>
<td>MCEN 5131</td>
<td>Air Pollution Control Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MCEN 5021</td>
<td>Introduction to Fluid Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>or CVEN 5313</td>
<td>Environmental Fluid Mechanics</td>
<td></td>
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<tr>
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<tr>
<td>MCEN 5141</td>
<td>Indoor Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>or MCEN 5161</td>
<td>Aerosols</td>
<td></td>
</tr>
<tr>
<td>or CVEN 5484</td>
<td>Applied Microbiology and Toxicology</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
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</tr>
<tr>
<td>CVEN 5537</td>
<td>Numerical Methods in Civil Engineering</td>
<td>3</td>
</tr>
<tr>
<td>or CVEN 5454</td>
<td>Statistical Methods for Natural and Engineered Systems</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours: 12

**Air Quality Emphasis**

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<tbody>
<tr>
<td>CVEN 5564</td>
<td>Water Profession: Communication and Utility Finance</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5574</td>
<td>Water Utility Management: Current Issues and Future Challenges</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5584</td>
<td>Water Profession: Leadership and Management</td>
<td>3</td>
</tr>
</tbody>
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Total Credit Hours: 15

**Water & Engineering Management Emphasis**

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<tr>
<td>CVEN 5574</td>
<td>Water Utility Management: Current Issues and Future Challenges</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 5584</td>
<td>Water Profession: Leadership and Management</td>
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