The Environmental Engineering minor will provide a wide range of undergraduate majors with an introductory background in sustainability, pollution prevention, environmental modeling, and pollution control technologies. By completing the minor in Environmental Engineering, students should add considerably to their major program skills, and become more valuable to their future employer. Science majors will gain an understanding of engineering problem-solving methods and procedures, as well as standard pollution control technologies. Other engineering majors will become more aware of the environmental effects of technologies in their major field, and how to reduce these effects.

**Prerequisites for Environmental Engineering Minor**

*Must be completed prior to beginning the minor program:*

- Math 1151
- Chemistry 1220 General Chemistry II (non-engineering students)
- Chemistry 1250 Chem. for Eng (engineering students)
- Science majors will gain an understanding of engineering problem-solving methods and procedures, as well as standard pollution control technologies. Other engineering majors will become more aware of the environmental effects of technologies in their major field, and how to reduce these effects.

**Requirements of Environmental Engineering Minor:**

**Credit hour requirement: minimum of 15 credit hours**

**Required Courses** All 3 courses below must be completed

- ENE 2100 Environmental Engineering Analytical Methods (3 hrs)
- ENE 3200 Fundamentals of Env Ead* (3 hrs)
- ENE 3210 Environmental Engineering Unit Operations (3 hrs) (POI)

**Electives of Minor**

Select 6 hours of coursework from the approved elective list below. Engineering students may overlap six credit hours from the minor with the elective portion of their engineering degree program.

*Civil Engineering students, who use ENE 3200 as one of the six Core Electives in the major must take an additional 3 hours of elective credit from below.

*Course Number* | *Title* | *Credit Hrs* | *Pre-requisites*
--- | --- | --- | ---
ENR 4200 | Unit Operations in Environmental Eng Lab | 1 | ENE 2100, ENE 3200, ENE 5110(c)
ENE 5110 | Environmental Biotechnology | 3 | ENE 3200
ENE 5170 | Sustainability and Pollution Prevention Practices | 3 | ENE 3200
ENE 5530 | Ecological Engineering and Science | 3 | Rank 3+, course in one of the following: biology, ecology, engineering or geology
ENE 5410 | Hazardous Waste Management | 2 | ENE 3210
ENE 5430 | Principles of Risk Assessment | 3 | ENE 3200
CE 5230 | Transport Phenomena in Water Resources Engineering | 3 | Math 2173, 2177, 2255, or 2415; CE 3160
CHBE 5771 | Air Pollution | 3 | Rank 4 in engineering
CHBE 5772 | Principles of Sustainable Engineering | 3 | POI or CHBE 4760
EarthSci 5651 | Hydrogeology | 4 | EarthSci 1121; Math 1152
ENR 3000 and 3001 | Soil Science | 3 | Rank 2*
ENR 5273 | Fate of Pollutants in Soils and Natural Waters | 3 | 2 semesters of Chemistry

**POI** = student may need Permission of Instructor for enrollment if prereq is not part of major curriculum

(c) = concurrent requisite

**Suggested Sequence of Course**

<table>
<thead>
<tr>
<th>Autumn Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>ENE 3200 (or take in SP)</td>
<td>ENE 3200 (or take in AU)</td>
</tr>
<tr>
<td>ENE 3210</td>
<td>ENE 2100</td>
</tr>
<tr>
<td>Electives</td>
<td>Electives</td>
</tr>
</tbody>
</table>

**Environmental Engineering minor program guidelines**

**Required for graduation** No

**Credit hours required** A minimum of 15 credit hrs. 1000 level courses shall not be counted in the minor. At least 6 cr hrs need to be at the 3000 level or above.

**Transfer and EM Credit Hours Allowed** A student is permitted to count up to 6 total hours of transfer credit and/or credit by examination toward the minor.

**Overlap with the GE** A student is permitted to overlap up to 6 cr hrs between the GE and the minor.

**Overlap with the Major and Additional Minor(s)**

- The minor must be in a different subject than the major.
- The minor must contain a minimum of 12 hours distinct from the major and/or additional minors.

**Grades Required**

- Minimum C- for a course to be listed on the minor.
- Minimum 2.00 cumulative GPA for all minor course work.
- Course work graded Pass/Non-Pass cannot count on the minor.
- No more than 3 cr hrs of course work graded Satisfactory/Unsatisfactory may count towards the minor.

**X193 Credits** No more than 3 cr hrs

**Minor Approval** A student who completes the minor following the requirements need only file their college’s minor program form with their academic advisor or college office.

**Filing the Minor Program Form** The minor program form must be filed at least by the time the graduation application is submitted to a college/school counselor.

**Changing the Minor** Any changes must be approved by the Department of Civil, Environmental and Geodetic Engineering.