

# 2016-2017 Bulletin

## Bachelor of Science in Environmental Engineering

This document corresponds to a Catalog Term of Fall 2016. Determine your Catalog Term by performing a Degree Evaluation in Trailhead. Important: this document is an advising tool for students and faculty -- not an official document. Students are responsible for complying with all graduation requirements as stated in the CSM Bulletin that corresponds to their Catalog Term.

### LEGEND

	Required by the CSM Core Curriculum
	Distributed Science Courses
	Assessed for ABET Accreditation

‡ indicates a course that applies to the in-major GPA. In addition to a 2.0 minimum overall GPA, students must maintain a 2.0 minimum in-major GPA for graduation.

FRESHMAN YEAR	FALL	4.0 hr. <b>MATH 111</b> Calculus for Scientists and Engineers I	4.0 hr. <b>GEGN 101</b> Earth and Environmental Systems	4.0 hr. <b>CHGN 121</b> Principles of Chemistry I	0.5 hr. <b>CSM 101</b> Freshman Success Seminar	4.0 hr. <b>LAIS 100</b> Nature and Human Values	0.5 hr. <b>PAGN</b> Physical Education <i>(any PAGN course)</i>
	SPRING	4.0 hr. <b>MATH 112</b> Calculus for Scientists and Engineers II <i>Pre-req: C or better in MATH 111</i>	4.5 hr. <b>PHGN 100</b> Physics I - Mechanics <i>Co-req: MATH 112</i>	4.0 hr. <b>CHGN 122</b> Principles of Chemistry II <i>Pre-req: C- or better in CHGN 121</i>	3.0 hr. <b>EPIC 151</b> Design (EPICS) I		0.5 hr. <b>PAGN</b> Physical Education <i>(any PAGN course)</i>
SOPHOMORE YEAR	FALL	4.0 hr. <b>MATH 213</b> Calculus for Scientists and Engineers III <i>Pre-req: C or better in MATH 112</i>	4.5 hr. <b>PHGN 200</b> Physics II - Electromagnetism & Optics <i>Pre-req: C- in PHGN 100; Co-req MATH 213</i>	3.0 hr. <b>CEEN 241</b> Statics <i>Pre-req: PHGN 100 and co-req: MATH 112</i>	2.0 hr. <b>MATH 307 (Matlab), CSCI 260 (Fortran), or CSCI 261 (C++)</b> <i>Pre-req: Varies</i>	3.0 hr. <b>CEEN 310‡</b> Fluid Mechanics for Civil & Env. Eng. <i>Co-req: CEEN 241</i>	0.5 hr. <b>PAGN</b> Physical Education <i>(any PAGN course)</i>
	SPRING	3.0 hr. <b>MATH 225</b> Differential Equations <i>Pre-req: C or better in MATH 112</i>	3.0 hr. <b>EBGN 201</b> Principles of Economics	3.0 hr. <b>CEEN 311‡</b> Mechanics of Materials <i>Pre-req: CEEN 241</i>	3.0 hr. <b>EPIC 251*</b> Design (EPICS) II <i>Pre-req: EPIC 151</i>	3.0 hr. <b>LAIS 200</b> Human Systems <i>Pre-req: LAIS 100</i>	0.5 hr. <b>PAGN</b> Physical Education <i>(any PAGN course)</i>
JUNIOR YEAR	FALL	3.0 hr. <b>CEEN 301‡</b> Fund. of Env. Sci. & Eng. I <i>Pre-req: CHGN 122, PHGN 100, &amp; MATH 213</i>	3.0 hr. <b>CEEN 381‡</b> Hydro. and Water Resources Eng. <i>Pre-req: CEEN 301</i>	3.0 hr. <b>MATH 201</b> Probability and Statistics for Engineers <i>Pre-req: MATH 213</i>	3.0 hr. Thermodynamics: CHGN 209 or CBEN 210, or MEGN 361 <i>Pre-req: VARIES, see bulletin for details.</i>	3.0 hr. <b>LAIS/EBGN****</b> H&SS Restricted Elective I <i>Co-req: LAIS 200</i>	
	SPRING	3.0 hr. <b>CEEN 302‡</b> Fund. of Env. Sci. & Eng. II <i>Pre-req: CHGN 122, PHGN 100, &amp; MATH 213</i>	3.0 hr. <b>CEEN 303‡</b> Environmental Eng. Laboratory <i>Pre-req: CEEN 301 or CEEN 302</i>	3.0 hr. <b>ENV. ELECT.***</b> Environmental Eng. Elective	3.0 hr. <b>BIOSCIENCE ELECT.‡**</b> <i>Pre-req: Varies</i>	3.0 hr. <b>LAIS/EBGN****</b> H&SS Restricted Elective II <i>Co-req: LAIS 200</i>	
SUMMER	3.0 hr. <b>CEEN 330‡</b> Environmental Eng. Field Session <i>Pre-req: CEEN 301</i>						
SENIOR YEAR	FALL	3.0 hr. <b>CEEN 482‡</b> Hydro. & Water Resources Lab. <i>Pre-req: CEEN 381</i>	3.0 hr. <b>CEEN 480‡</b> Chem. Fate & Transp. In the Env. <i>Pre-req: CEEN 301</i>	3.0 hr. <b>CEEN 470‡</b> Water and Wastewater Treat. Proc. <i>Pre-req: CEEN 301</i>	3.0 hr. <b>EGGN 491</b> Senior Design I <i>Pre-req: CEEN 330</i>	3.0 hr. <b>ENV. ELECT.***</b> Environmental Eng. Elective	3.0 hr. <b>FREE</b> Free Elective
	SPRING		3.0 hr. <b>ENV. ELECT.***</b> Environmental Eng. Elective	3.0 hr. <b>ENV. ELECT.***</b> Environmental Eng. Elective	3.0 hr. <b>EGGN 492</b> Senior Design II <i>Pre-req: EGGN 491</i>	3.0 hr. <b>FREE</b> Free Elective	3.0 hr. <b>LAIS/EBGN****</b> H&SS Restricted Elective III <i>Co-req: LAIS 200</i>

### Notes:

\* Can also be fulfilled with EPIC 261 (GIS) or EPIC 262 (AutoCAD). Other EPICS II courses are also acceptable but require a course substitution form.

\*\* Select either BIOL 110‡ (Biology), CEEN 461‡ (Fundamentals of Ecology), or CHGN 462‡ (Microbiology)

\*\*\* The list of courses that can be used as Environmental Engineering Electives is on the reverse side of this document.

\*\*\*\* The list of classes that qualify for this requirement are revised yearly and posted on the CSM website. At least one of the 3 courses must be at the 400-level; at least one must have an LAIS prefix.

**134.5 Credit Hours**

# Environmental Engineering Electives

- CEEN 312<sup>‡</sup> SOIL MECHANICS
- CEEN 405<sup>‡</sup> NUMERICAL METHODS FOR ENGINEERS
- CEEN 410<sup>‡</sup> ADVANCED SOIL MECHANICS
- CEEN 461<sup>‡</sup> FUNDAMENTALS OF ECOLOGY (if not used for the Biosci. Elect.)
- CEEN 471<sup>‡</sup> WATER AND WASTEWATER TREATMENT SYSTEMS ANALYSIS & DESIGN
- CEEN 472<sup>‡</sup> ONSITE WATER RECLAMATION AND REUSE
- CEEN 474<sup>‡</sup> SOLID WASTE MINIMIZATION AND RECYCLING
- CEEN 475<sup>‡</sup> SITE REMEDIATION ENGINEERING
- CEEN 476<sup>‡</sup> POLLUTION PREVENTION: FUNDAMENTALS AND PRACTICE
- CEEN 477<sup>‡</sup> SUSTAINABLE ENGINEERING DESIGN
- CHGN 403 INTRODUCTION TO ENVIRONMENTAL CHEMISTRY
- CHGN 462 MICROBIOLOGY
- ENGY 320 RENEWABLE ENERGY
- GEGN 466 GROUNDWATER ENGINEERING
- GEGN 473 GEOLOGICAL ENGINEERING SITE INVESTIGATION
- GEGN 475 APPLICATIONS OF GEOGRAPHIC INFORMATION SYSTEMS
- CEEN 498<sup>‡</sup> SPECIAL TOPICS COURSES - ADVISOR PRE-APPROVAL REQUIRED
- CEEN 5xx GRADUATE LEVEL COURSES - ADVISOR PRE-APPROVAL REQUIRED

# Combined BS + MS Program

In this program, students can receive the Bachelor's degree in Environmental Engineering and the Master's degree in Civil and Environmental Engineering in just five years. Key advantages of this program include early provisional acceptance into graduate school and the ability to earn credit towards the graduate degree while still enrolled as an undergraduate. Contact Tim VanHaverbeke (tvanhave@mines.edu) for detailed information.

## Prerequisite / Corequisite Relationships for Selected Courses

●→ prerequisite  
 ----> corequisite

