

# ENVIRONMENTAL ENGINEERING, BACHELOR OF SCIENCE

## College of Engineering

Environmental engineers are responsible for designing processes and infrastructure to ensure society has access to safe water, clean air, and healthy ecosystems. Environmental engineers apply knowledge from physics, chemistry, biology and the social sciences to problems in a variety of areas including water & wastewater treatment and ecosystem remediation, analysis of chemical fate and transport in the natural environment, and modeling of hydrologic & atmospheric flows. As climate change creates new challenges, such as in the form of droughts and intense weather events, the field of environmental engineering evolves to meet society's needs. As an environmental engineering student at UC Davis, you will gain skills that enable you to design sustainable solutions for society.

The Environmental Engineering major started in 2017 and was accredited by the Engineering Accreditation Commission of ABET (<https://www.abet.org/>) in 2022.

Students are encouraged to adhere carefully to all prerequisite requirements. The instructor is authorized to drop students from a course for which stated prerequisites have not been completed. Exclusive of General Education units, the minimum number of units required for the Environmental Engineering major is 142 (75-80 units in lower division and 63-71 units in upper division).

Code	Title	Units
<b>Lower Division Required Courses</b>		
<i>Mathematics</i>		
MAT 021A	Calculus	4
MAT 021B	Calculus	4
MAT 021C	Calculus	4
MAT 021D	Vector Analysis	4
MAT 022A	Linear Algebra	3
MAT 022B	Differential Equations	3
<i>Chemistry</i>		
CHE 002A	General Chemistry	5
CHE 002B	General Chemistry	5
CHE 008A	Organic Chemistry: Brief Course	2
<i>Physics</i>		
PHY 009A	Classical Physics	5
PHY 009B	Classical Physics	5
Choose GEL 050 & GEO 050L or ATM 060:		4-5
GEL 050 & 050L	Physical Geology and Physical Geology Laboratory	
or ATM 060	Introduction to Atmospheric Science	
ENG 006 or ECS 032A	Engineering Problem Solving Introduction to Programming	4
<i>Biological Sciences</i>		
BIS 002A	Introduction to Biology: Essentials of Life on Earth	5

## Engineering

ENG 003 or ENG 003Y	Introduction to Engineering Design	4
ENG 035	Statics	4

## Civil & Environmental Engineering

Choose 6-10 units: 6-10

ECI 003	Civil & Environmental Infrastructure & Society <sup>1</sup>	
ECI 016	Spatial Data Analysis	
ECI 040	Introduction to Environmental Engineering	

Lower Division Composition/Writing; choose one; a grade of a C- or better is required 4

COM 001	Major Works of the Ancient World	
COM 002	Major Works of the Medieval & Early Modern World	

COM 003	Major Works of the Modern World	
COM 004	Major Works of the Contemporary World	

ENL 003 or ENL 003V	Introduction to Literature	
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NAS 005	Introduction to Native American Literature	
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UWP 001	Introduction to Academic Literacies (Recommended)	
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UWP 001V	Introduction to Academic Literacies: Online (Recommended)	
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UWP 001Y	Introduction to Academic Literacies (Recommended)	
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Lower Division Required Courses Subtotal 75-80

## Upper Division Required Courses

### Microbiology

MIC 102	Introductory Microbiology	3
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### Engineering

ENG 106	Engineering Economics	4
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### Civil & Environmental Engineering

ECI 100	Introduction to Fluid Mechanics for Civil & Environmental Engineers	4
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ECI 114	Probabilistic Systems Analysis for Civil & Environmental Engineers	4
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ECI 115	Computer Methods in Civil & Environmental Engineering	4
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ECI 123	Urban Systems & Sustainability	4
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ECI 140A	Environmental Analysis of Aqueous Systems	4
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ECI 140B	Chemical Principles for Environmental Engineers	4
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ECI 140D	Water & Wastewater Treatment System Design (Discontinued)	4
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ECI 141	Engineering Hydraulics	3
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ECI 141L	Engineering Hydraulics Laboratory	1
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ECI 144	Groundwater Systems Design	4
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ECI/ATM 149	Air Pollution (Discontinued)	4
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ECI 193A	Civil & Environmental Engineering Senior Design	4
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ECI 193B	Civil & Environmental Engineering Senior Design	4
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Choose one: 4

ECI 153	Deterministic Optimization & Design
ECI 155	Water Resources Engineering Planning

Choose one: 4

ECI 142	Engineering Hydrology
ECI 145	Hydraulic Structure Design
ECI 146	Water Resources Simulation
ECI 153	Deterministic Optimization & Design
ECI 155	Water Resources Engineering Planning
ECI 189A	Selected Topics in Civil Engineering: Environmental Engineering
ECI 189B	Selected Topics in Civil Engineering: Hydraulics & Hydrologic Engineering
ECI 189I	Selected Topics in Civil Engineering: Water Resources Engineering
ECI 189J	Selected Topics in Civil Engineering: Water Resources Planning
ECI 198	Directed Group Study <sup>3</sup>
ECI 199	Special Study for Advanced Undergraduates <sup>3</sup>

*Civil & Environmental Engineering (ECI) Electives*4 units of Upper Division ECI electives are required. <sup>2</sup> 0-4*Upper Division Composition Requirement*

Choose one; a grade of C- or better is required: 0-4

UWP 101	Advanced Composition
or UWP 101V	Advanced Composition
or UWP 101Y	Advanced Composition
UWP 102E	Writing in the Disciplines: Engineering
UWP 102G	Writing in the Disciplines: Environmental Writing
UWP 104A	Writing in the Professions: Business Writing
or UWP 104AV	Writing in the Professions: Business Writing
or UWP 104AY	Writing in the Professions: Business Writing
UWP 104E	Writing in the Professions: Science
UWP 104T	Writing in the Professions: Technical Writing

Passing the Upper Division Composition Exam.

Upper Division Required Courses Subtotal 63-71

**Total Units 142-146**

<sup>1</sup> ECI 003 is designed for lower division students and is not open to upper division students; students who do not take this course will substitute 4 units of additional letter graded upper division Civil & Environmental Engineering (ECI) coursework; see Civil & Environmental Engineering.

<sup>2</sup> If ECI 003 was not completed in the Lower Division requirements.

<sup>3</sup> Up to 4 units.