



B.S. in Environmental Engineering

RICE UNIVERSITY

Fall 2024



Environmental engineers address critical environmental problems that impact the health and prosperity of modern societies and the quality of the natural environment, including air and water pollution, sustainable energy transitions, and mitigating anthropogenic impacts on the environment and climate change. Rice University's undergraduate degree in Environmental Engineering offers a wide variety of classes that develop innovative problem solvers with a strong engineering foundation and multidisciplinary skills.

What We Offer

Our faculty bring their expertise to the classroom, ensuring that you receive a comprehensive understanding of environmental engineering principles and applications. They are committed to guiding you in discovering your career path, making your learning experience both enriching and rewarding.

Our department has 13 established research groups, including major centers such as the NSF-funded [NEWT Center](#), the [SSPEED Center](#), the [WaTER Institute](#), and the [Brine Chemistry Consortium](#). These groups and centers offer our undergraduates access to an expanding network of resources and opportunities to develop skills, broaden experiences, refine career focus, and expand career paths.



Degree Focus Areas

- You will explore courses in four Focus Areas (two courses from each area):
 - Sustainable Water
 - Air, Climate, and Energy
 - Resilient Infrastructure, Disasters, and Risk
 - Environmental Management
- Select two additional courses from one of the four areas, to be considered your Specialization Area

The program is flexible and can be tailored to your specific interests, supporting your path to discovering what kind of engineering you want to pursue.



Become Involved: Undergraduate Clubs

- [American Society of Civil Engineers \(ASCE\)](#)
- [National Society of Black Engineers \(NSBE\)](#)
- [Society of Women Engineers \(SWE\)](#)
- [Society of Hispanic Engineers \(SHPE\)](#)
- [Engineers without Borders \(EWB\)](#)
- [Chi Epsilon](#)

Rice Center for Engineering Leadership (RCEL)

Through a series of curricular and co-curricular learning experiences, RCEL students learn to create and communicate a vision, build a high-performing team, form and execute collaborative plans, and create innovations that endure.

Contact Information

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Focus Area Advisors

Areas I & IV: Dr. Jorge Loyo, Jorge.Loyo@rice.edu
Area II: Dr. Daniel Cohan, Cohan@rice.edu
Area III: Dr. Phil Bedient, Bedient@rice.edu

B.S. in Environmental Engineering Requirements

Required Core Courses

Total: 25 hours

CEVE 101 (F)	Fundamentals of CEVE	2
CEVE 211 (F)	Engineering Mechanics	3
CEVE 310 (F)	Principles of Environmental Engineering	3
CEVE 315 (S)	Urban Water Systems	3
CEVE 316 (S)	Urban Water Systems Lab.	1
CEVE 363 (S)	Applied Fluid Mechanics	3
CEVE 411 (F)	Atmospheric Chemistry & Climate	3
CEVE 412 (F)	Hydrology & Water Resources Engineering	3
CEVE 481 (F)	Introduction to Senior Design	1
CEVE 482 (S)	Senior Design	3

Required Science and Math Courses

Total: 36 hours

BIOS 201	Introductory Biology	3
CMOR 220	Introduction to Engineering Computation	3
CHEM 121	General Chemistry I	3
CHEM 122	General Chemistry II	3
CHEM 123	General Chemistry I Laboratory	1
CHEM 124	General Chemistry II Laboratory	1
EEPS 107	Climate Change and Extreme Weather	3
MATH 101	Single Variable Calculus I or MATH 105	3
MATH 102	Single Variable Calculus II or MATH 106	3
MATH 211	Ordinary Differential Eqs. and Linear Algebra	3
MATH 212	Multivariable Calculus or MATH 232	3
PHYS 101	Mechanics with Lab	4
PHYS 103	Mechanics Discussion	0
STAT 310	Probability and Statistics	3

(or STAT 305 Intro to Stat for Biosciences)

Suggested Electives

Any CEVE course not taken to fulfill a Focus Area requirement can be taken as an elective. Other suggestions are listed below

ANTH 320	Climate Change and Social Inequality	3
BIOS 271	Environmental Management	3
BIOS 374	Global Change Biology	3
BIOS 559	Sustainability Impact Assessments	3
CHBE 405	Decision Tools for Chemical Engineers	3
CMOR 410	Modeling Mathematical Physics	3
EEPS 420	Organic Geochemistry	3
EEPS 434	Climate of the Common Era	3
EEPS 436	GIS for Scientists and Engineers	3
EEPS 484	Decision Making and Econ in the Energy Industry	3
ENST 202	Culture, Energy & Environment	3
ENST 210	Sustainable Futures	3
ENST 250	Understanding Energy	3
ENST 281	Engineering Sustainable Communities	3
ENST 301	Environmental Justice	3
ENST 313	Case Studies in Sustainable Design	3
ENST 315	Environmental Health	3
ENST 322	Case Studies in Sustainability	3
ENST 437	Energy Economics	3
HEAL 375	The Built Environment and Public Health	3
STAT 485	Environmental Statistics and Decision Making	3

See complete BSENE Degree requirements in General Announcements (to be posted soon)

Overall Hours

Required Core Courses – 25 hrs

Focus Area General Courses* – 24 hrs

Focus Area Specialization Courses* – 6 hrs

Required Math & Science Courses – 36 hrs

Addl. Required Distribution Courses – 18 hrs

Open Electives/FWIS/LPAP – 15 hrs

Total – 124 hrs

*at least 20 Focus Area hrs from CEVE courses

Select 6 credit hours in each Focus Area I-IV below. Select Focus Area I, II, III or IV as a specialization, and select an additional 6 credit hours in this focus area.

I Focus Area I Sustainable Water

CEVE 314 (F)	Sustainable Water Purif. For Devlp. World	3
CEVE 401 (S)	Environmental Chemistry	3
CEVE 420 (S)	Environmental Remediation & Restoration	3
CEVE 426 (F)	Smart Materials for the Environment	3
CEVE 434 (F)	Fate and Transport of Contaminants	3
CEVE 444 (F)	Environmental Microbiology & Microbial Ecol.	3

II Focus Area II Air, Climate, and Energy

CEVE 302 (F)	Sustainable Design	3
CEVE 307 (F)	Energy and the Environment	3
CEVE 414 (F)	Coastal Hazards in a Changing Climate	3
EEPS 433 (F)	Climate Dynamics	3
EEPS 437 (F)	Earth's Natural Resources	3
EEPS 438 (F)	Nature-Based Carbon Sequestration	3
EEPS 471 (F)	Earth Systems Modeling I: Philosophy & Fundamentals	3
EEPS 472 (S)	Earth Systems Modeling: Numerical Techniques and Applications	3

III Focus Area III Resilient Infrastructure, Disasters, and Risk

CEVE 424 (F)	System Reliability Methods	3
CEVE 425 (F)	Sustainable Infrastructure Materials	3
CEVE 452 (S)	Urban Transportation Systems	3
CEVE 518 (F)	Environmental Hydrogeology	3
CEVE 543 (F)	Data-Driven Climate Hazard	3
EEPS 432 (F)	Quantitative Hydrogeology	3

IV Focus Area IV Environmental Management

CEVE 301 (S)	Eng. Economics & Project Management.	3
CEVE 313 (S)	Uncertainty and Risk in Urban Infrastructures	3
CEVE 320 (F)	Ethics & Engineering Leadership	3
CEVE 406 (S)	Intro to Environmental Law	3
CEVE 421 (S)	Climate Risk Management	3
EEPS 435 (S)	Remote Sensing	3