

CEE

Civil and Environmental Engineering

WEB LINKS	https://ceve.rice.edu/undergraduate-program
FRANK ADVICE	Make a 4-year plan early on to know what the major entails and update as you go. Consult with advisers if in doubt. Don't overload your schedule in the first two semesters; try to get the requisites out of the way and aim to take 15-18 credits per semester. Take CEVE 101 in the freshman year to get a broad overview of courses and research in the department. Take CEVE 481 in the fall term and CEVE 480 in the spring of your senior year. Try studying in groups, after your own reviews, to enhance learning and critical discussion skills. Join and actively participate in student and professional organizations.
ADVICE FOR STUDENTS WITH AP CREDIT	With at least a 4 on AP exams, you may not need to take courses such as Physics, Chemistry, Calculus or Biology. If you feel you are ready, you can take higher level courses or honors courses. You can also get started with your master's degree in the last one to two years.
GRADUATION REQUIREMENTS	Students are responsible for making certain that their plan of study meets all degree and major requirements. These requirements are found in the General Announcements. Students have the option of following either their matriculation or graduation year requirements.
BS VERSUS BA	The B.S. program is accredited by the Engineering Accreditation Commission (EAC) of ABET, www.abet.org . The B.S. is recommended for those interested in graduate studies or careers as licensed professional engineers. The B.A. degree is recommended to students interested in graduate studies outside of engineering such as policy, law or medicine, or those interested in pursuing a double major or a minor, such as the one in energy and water sustainability.
NOT REQUIRED BUT HIGHLY RECOMMENDED COURSES	CEVE 304 Structural Analysis, (required for structures and mechanics specialty), CEVE 322 Engineering Economics, CEVE 313 Uncertainty and Risk in Urban Infrastructures, CAD/CAE course (CEE tutorial), and Fondren Library's Introduction to GIS.



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RESEARCH	Students are encouraged to seek undergraduate research experience with CEE faculty members. Explore research opportunities early by talking to professors and expressing interest in their work. CEVE 101 will introduce you to CEE faculty and their research areas.
INTERNSHIPS	Students are encouraged to apply for summer internships. The ASCE student chapter and the Center for Career Development's job fairs are great resources. Internships are not limited to engineering firms, but have more leverage if related to your career focus.
STUDY ABROAD	While challenging, study abroad is possible for engineers. Required Rice courses may not be offered at universities abroad. Plan to travel in the spring of the sophomore year or fall of the junior year. Consider joining Engineers Without Borders and implement engineering projects in developing countries. Travel is typically during scheduled breaks.
PROFESSIONAL ORGANIZATIONS AND STUDENT CLUBS	ASCE (American Society of Civil Engineers) student chapter, EWB (Engineers Without Borders), Chi Epsilon Honor Society, Concrete Canoe Club, Earthquake Engineering Research Institute (EERI), and the Society of Women Engineers, among others.
EXPLORATORY COURSES FOR NON-MAJORS	CEVE 101 Fundamentals of Civil and Environmental Engineering, CEVE 310 Principles of Environmental Engineering, CEVE 307 Energy and the Environment, CEVE 406 Intro Environmental Law, CEVE 313 Uncertainty and Risk in Urban Infrastructures.

B.S. In Civil Engineering

Specializations: Environmental Engineering
 Hydrology and Water Resources
 Structural Engineering and Mechanics
 Urban Infrastructure, Reliability and Management

Sample Degree Plan

THIS IS ONE GENERIC EXAMPLE OF MANY POSSIBLE SCHEDULES.

CONSULT A DIVISIONAL OR DEPARTMENTAL ADVISER TO CUSTOMIZE YOUR DEGREE PLAN.

(SAMPLES FOR EACH OF THE SPECIALIZATION AREAS CAN BE FOUND AT [HTTP://CEVE.RICE.EDU/UNDERGRAD/](http://ceve.rice.edu/undergrad/))

FALL			SPRING		
FRESHMAN 18 credits			FRESHMAN 17 credits		
CHEM 121	General Chemistry I	3	CHEM 122	General Chemistry II	3
CHEM 123	General Chemistry I Lab	1	CHEM 124	General Chemistry II Lab	1
MATH 101	Single Variable Calculus I	3	MATH 102	Single Variable Calculus II	3
	or 105			or 106	
PHYS 101	Mechanics w/Lab	4	MATH 211	Ord Differential Equations	3
PHYS 103	Mechanics Discussion	0	PHYS 102	Electricity & Magnetism w/Lab	4
CEVE 101	Fundamentals of CEE	3	PHYS 104	Electricity & Magnetism Discussion	0
FWIS	First-Year Writing-Intensive Seminar	3	DIST	Distribution elective	3
LPAP	Lifetime Phys Activity Program	1			
SOPHOMORE 18 credits			SOPHOMORE 15 credits		
MATH 212	Multivariable Calculus	3	CEVE 311	Mechanics of Solids	3
CEVE 211	Engineering Mechanics	3	CEVE 312	Mechanics of Solids Lab	1
CEVE 302	Sustainable Design	3	DIST	Distribution Elective	3
DIST	Distribution elective	3	OPEN	Open Elective	3
DIST	Distribution elective	3	OPEN	Open Elective	3
DIST	Distribution elective	3			
JUNIOR 18 credits			JUNIOR 17 credits		
STAT 312	Probability & Stat for Engrs	3	ESCI 301	Introduction to the Earth	4
CEVE 301	Engr Economics & Proj Mgmt	3	CEVE 311	Mechanics of Solids w/ Lab	4
CEVE 310	Principles of Envi Engr	3	DIST	Distribution elective	3
CEVE 420	Envi Remed Restoration	3	OPEN	Open elective	3
DIST	Distribution Elective	3	OPEN	Open elective	3
OPEN	Open Elective	3			
SENIOR 16 credits			SENIOR 16 credits		
MATH 355	Linear Algebra	3	CEVE 401	Environmental Chemistry	2*
CEVE 363	Applied Fluid Mechanics	3	CEVE 480	Senior Design	3
CEVE 407	Reinforced Concr Design	3	CEVE XXX	Area 1,2,3 or 4 Focus Area Course	3
CEVE 481	Intro. Senior Design	1	CEVE XXX	Area 1,2,3 or 4 Focus Area Course	3
CEVE 470	Principles of Soil Mechanics***	3	OPEN	Open Elective	3
	or Open Elective				
OPEN	Open Elective	3			

** For focus areas 1 and 2, elective (FAS or FAC) for Areas 3 & 4

*** Required for focus areas 3 and 4, electives (FAS or FAC) for areas 1 and 2

BASIC REQUIREMENTS	General math & science courses	40-41
	Core courses	24
	Focus area courses	24
	Focus specialization courses	6
ELECTIVE REQUIREMENTS	Open electives, FWIS and LPAP	21
	Distribution courses	18*
Minimum credit required for the B.S.		133-134

Of the 133-134 credits, the B.S. in Civil Engineering requires 94 credits in general math and science, core, and specialization area courses.

*Our B.A. required Math & Science includes (3) Distribution III courses, so only 18 additional hours are needed.

Major Requirements

NUMBER	CREDIT	TITLE
CAAM 210	3	Introduction to Engineering Comp
CAAM 335 or MATH 354 or MATH 355	3	Matrix Analysis/Honors Linear Algebra/Linear Algebra (or approved equivalent)
CHEM 121	4*	General Chemistry I w/Lab
CHEM 122	4*	General Chemistry II w/Lab
ESCI 115 or any ESCI course or BIOC 201	3	Earth Structure & Deformation/Earth System Evolution & Cycles/Global Biochemical Cycles & Ecology
MATH 101/105	3	Single Variable Calculus I /AP or other credit in Calculus I
MATH 102/106	3	Single Variable Calculus II /AP or other credit in Calculus II
MATH 211	3	Ordinary Differential Equations
MATH 212	3	Multivariable Calculus
PHYS 101	4*	Mechanics w/Lab
PHYS 102	4*	Electricity and Magnetism w/ Lab
STAT 312	3	Probability and Statistics or equivalent
CEVE 101	3	Fundamentals of Civil and Environmental Engineering
CEVE 211	3	Engineering Mechanics
CEVE 310	3	Principles of Environmental Engineering
CEVE 311	3	Mechanics of Solids and Structures
CEVE 312	1	Strength of Materials Lab
CEVE 363	3	Applied Fluid Mechanics
CEVE 401** or CEVE 470***	4	Environmental Chemistry and Lab Principles of Soil Mechanics
CEVE 480	3	Senior Design
CEVE 481	1	Introduction to Senior Design
FAC**	18	6 courses (2 courses each) in 3 remaining focus area courses
FAS**	12	4 courses from one focus area preferred for specialization

* The Engineering BS is broken down into 4 focus areas.

¹ Environmental Engineering - CEVE 302, 307, 308, 404, 406, 411, 434, 442, 444 or other approved course.

² Hydrology and Water Resources - CEVE 314, 412, 418, 420, 512, 518 or other approved course.

³ Structural Engineering and Mechanics - CEVE 304, 400, 405, 407, 408, 427, 476, 496 or other approved course.

⁴ Urban Infrastructure, Reliability and Management - CEVE 301, 313, 424, 452, 460, 492 or other approved course.

** Required for focus areas 1 and 2, elective (FAS or FAC) for Areas 3 & 4

*** Required for focus areas 3 and 4, electives (FAS or FAC) for areas 1 and 2