

# CEE

## Civil and Environmental Engineering

<b>WEB LINKS</b>	<a href="http://ceve.rice.edu/undergrad/">http://ceve.rice.edu/undergrad/</a>
<b>FRANK ADVICE</b>	Make a 4-year plan early on to know what the major entails and update as you go. Consult with advisors 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.
<b>ADVICE FOR STUDENTS WITH AP CREDIT</b>	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.
<b>GRADUATION REQUIREMENTS</b>	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.
<b>BS VERSUS BA</b>	The B.S. program is accredited by the Engineering Accreditation Commission (EAC) of ABET, <a href="http://www.abet.org">www.abet.org</a> . 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.
<b>NOT REQUIRED BUT HIGHLY RECOMMENDED COURSES</b>	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.



CIVIL



<b>RESEARCH</b>	Students are encouraged to seek undergraduate research experience with CEE faculty members. Explore research early by talking to professors and showing your interest in their work. CEVE 101 will introduce you to CEE faculty and their research areas.
<b>INTERNSHIPS</b>	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 they have more leverage if related to your career focus.
<b>STUDY ABROAD</b>	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.
<b>PROFESSIONAL ORGANIZATIONS AND STUDENT CLUBS</b>	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.
<b>EXPLORATORY COURSES FOR NON-MAJORS</b>	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			
<b>FRESHMAN</b>		18 credits		<b>FRESHMAN</b>		17 credits	
MATH 101	Single Variable Calculus I	3		MATH 102	Single Variable Calculus II	3	
PHYS 101•	Mechanics w/Lab	4*		PHYS 102**	Electricity & Magnetism w/Lab	4	
CHEM121	General Chemistry I w/Lab	4*		CHEM122	General Chemistry II w/Lab	4*	
CEVE 101	Fundamentals of CEE	3		DIST	Distribution elective	3	
FWIS	Freshman Writing	3		DIST	Distribution elective	3	
LPAP	Lifetime Phys Activity elective	1					
<b>SOPHOMORE</b>		17 credits		<b>SOPHOMORE</b>		16 credits	
MATH211	Ord Diff Eqs Algebra	3		MATH 212	Multivariable Calculus	3	
CAAM 210	Intro. To Eng. Computation	2		ESCI 323	Earth Structure and Deformation		
CEVE 310	Principles of Enviro Engineering	3			or ESCI 324/EBIO 325	3	
CEVE 211	Engineering Mechanics	3			or BIOC 201		
FAC	Focus Area I	3		CEVE 311	Mechanics of Solids	3	
DIST	Distribution elective	3		CEVE 312	Strength of Materials Lab	1	
				FAC	Focus Area II	3	
				DIST	Distribution elective	3	
<b>JUNIOR</b>		16 credits		<b>JUNIOR</b>		18 credits	
CEVE 401**	Enviro. Chem & Lab	4		STAT 310	Probability and Statistics	3	
	or CEVE 470***			CAAM 335	Matrix Analysis	3	
CEVE 363	Applied Fluid Mechanics	3		FAC	Focus Area I	3	
FAC	Focus Area II	3		FAC	Focus Area IV	3	
FAC	Focus Area III	3		OPEN	Open Elective	3	
DIST	Distribution elective	3		DIST	Distribution elective	3	
<b>SENIOR</b>		16 credits		<b>SENIOR</b>		15 credits	
CEVE 481	Intro. Senior Design	1		CEVE 480	Senior Design	3	
FAC	Focus Area III	3		FASPEC	Recommended elective	3	
FAC	Focus Area IV	3		OPEN	Open Elective	3	
FASPEC	Area I	3		OPEN	Open Elective	3	
OPEN	Open Elective	3		OPEN	Open Elective	3	
OPEN	Open elective	3					

\* In addition to class hours, these courses have a regularly scheduled lab and/or discussion session that must fit into your schedule.

\*\* 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

• When registering for PHYS 101, you must also register for PHYS 103, the discussion section for 101.

•• When registering for PHYS 102, you must also register for PHYS 104, the discussion section for 102.

BASIC REQUIREMENTS	General math & science courses	40-41
	Core courses	24
	Focus area courses	18
	Focus specialization courses	12
ELECTIVE REQUIREMENTS	Open electives and LPAP	18
	FWIS and distribution courses	21
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.

## Major Requirements

NUMBER	CREDIT	TITLE
ESCI 323 OR ESCI 324/EBIO 325 OR BIOC 201	3	Earth Structure & Deformation/Earth System Evolution & Cycles/Global Biochemical Cycles & Ecology
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
MATH 101	3	Single Variable Calculus I
MATH 102	3	Single Variable 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 470 ***	4	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.

<sup>1</sup> Environmental Engineering - CEVE 302, 307, 308, 404, 406, 411, 434 or other approved course.

<sup>2</sup> Hydrology and Water Resources - CEVE 412, 418, 420, 512, 518 or other approved course.

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

<sup>4</sup> Urban Infrastructure, Reliability and Management - CEVE 313, 322, 424, 452, 460, 470, 479, 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

• When registering for PHYS 101, you must also register for PHYS 103, the discussion section for 101.

•• When registering for PHYS 102, you must also register for PHYS 104, the discussion section for 102.