




# OBJECTIVES & FACULTY

## Environmental Engineering Faculty

 **Dr. Pedro Alvarez, Chairman**  
Environmental Biotechnology & Nanotechnology


 **Dr. Phil Bedient**  
Hydrology & Water Resources  
SSPEED Center


 **Jim Blackburn, Professor in the Practice**  
Environmental Law & Sustainability

 **Dr. Daniel Cohan**  
Atmospheric Modeling & Policy


 **Dr. Rob Griffin**  
Aerosol Thermodynamics & Chemistry


 **Dr. Qilin Li**  
Advanced Technologies for Water Quality


 **Dr. Mason Tomson**  
Fate & Transport of Pollutants in Sediments, Brine Chemistry


 **Dr. Calvin (Herb) Ward**  
Remediation Technology Development


## Civil Engineering Faculty


 **Joe Cibor, Professor in the Practice**  
Geotechnics & Soil Mechanics


 **Dr. Leonardo Dueñas-Osorio**  
Complex Systems Modeling  
Infrastructure Reliability

 **Dr. Satish Nagarajaiah**  
Dynamic Systems & Control, Smart Structures

 **Dr. Jamie Padgett**  
Reliability & Risk Assessment, Bridge Engineering

 **Ed Segner, Professor in the Practice**  
Project Management & Engineering Economics

 **Dr. Rouzbeh Shahsavari**  
Computational Nanoscience for Green Infrastructure

 **Dr. Pol Spanos**  
Dynamic & Vibrations of Structural Systems

 **Dr. Illinca Stanculescu**  
Computational Mechanics & Nonlinear Dynamics

### Research Areas and Interests

CEVE faculty offer an array of research interests in which undergraduate students have opportunities to get involved.

- Environmental Nanotechnology
- Urban Hydrology & Flood Prediction
- Air Quality and Environmental Policy
- Water Quality and Sustainable Water Management
- Hazardous Waste Remediation
- Dynamics of Smart Structures
- Computational & Stochastic Mechanics
- Reliability of Civil Infrastructure and Complex Urban Systems

### BSCE Strengths

- **Size:** relatively small size facilitates engagement;
- **Agility:** ability to steer quickly toward new objectives;
- **Entrepreneurship:** risk-receptivity and ability to assess and amass the resources needed to undertake new ventures;
- **Interdisciplinary:** leadership in the integration of expertise to address complex problems;
- **Perspective:** focus on urban systems sustainability, the interplay between the built and natural environments, the challenges that face society in the foreseeable future;
- **Continuous Assessment:** to improve curriculum, class scheduling, student advising, and facilities;
- **Ethics:** hard-working attitude of faculty members, staff, and students, with an unwavering commitment to quality first.

**For More Information, contact the Department:**

 Keck Hall 116 | email: [ceve@rice.edu](mailto:ceve@rice.edu) | phone: (713) 348-4949

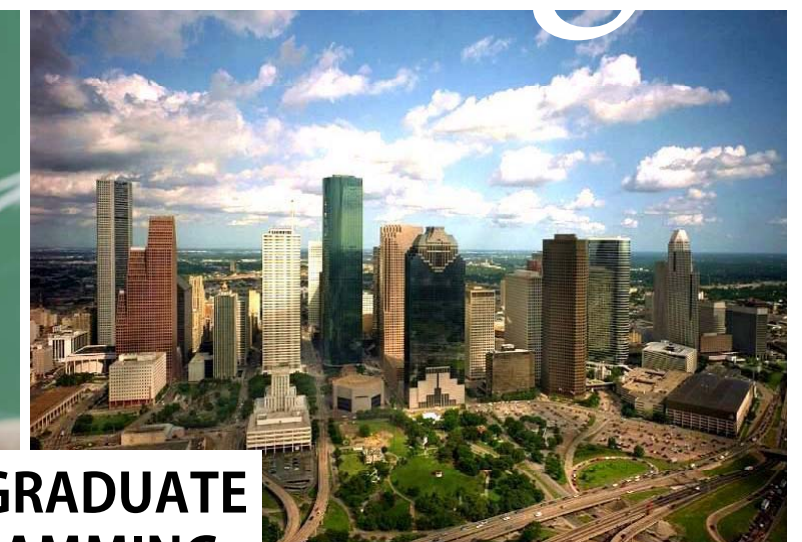
[ceve.rice.edu](http://ceve.rice.edu)



# CIVIL & ENVIRONMENTAL Engineering



## UNDERGRADUATE PROGRAMMING



*Global trends of mega-urbanization, population growth, climate change-related disasters, aging infrastructure, higher pollution, energy security concerns, and decreasing availability of natural resources will place an unprecedented demand for leadership from CEE over the next 25 years. Our challenges have never been clearer or more urgent.*



# CIVIL & ENVIRONMENTAL ENGINEERING

## Overview

- 12.5 Faculty + 3 professors of the practice
- 60 Undergraduate students
- 61 Graduate students
- 49 Doctoral candidates
- 12 Masters students
- 10 Postdoctoral fellows
- 5 Research scientists
- Graduate programs ranked 22 (Civil) & 16 (Env) ~ \$5M Annual research expenditure


## What is Civil & Environmental Engineering (CEVE)?

Enhance the sustainability of urban systems that are stressed by demographic explosion, mega-urbanization and climate change. CEVE students are well positioned to solve critical and emerging grand challenges of complex urban systems, including renewal of aging infrastructure, prediction, mitigation and recovery from extreme events, sustainable use of natural resources, pollution control, and enhancing water and energy security.



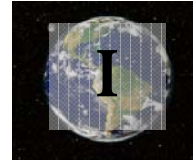
## Degrees offered

The department offers two degrees: B.S. Civil Engineering and B.A. Civil and Environmental Engineering. Both tracks offer students a robust curriculum, with small class sizes and hands-on opportunities for research and design.

- **B.S. Civil Engineering (ABET Accredited) – 132 hrs.**  
Contact Dr. Bedient: [bedient@rice.edu](mailto:bedient@rice.edu)   
The B.S. is designed to prepare students for a career in engineering and offers innovative and challenging courses while still providing significant flexibility to the student.
- **B.A. Civil & Environmental Engineering – 120 hrs.**  
Contact Dr. Tomson: [mtomson@rice.edu](mailto:mtomson@rice.edu)  
The B.A. offers a Civil or Environmental Engineering emphasis and allows both tracks to be tailored to the specific needs of each student.

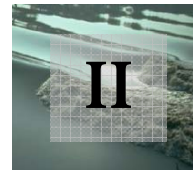
## Undergraduate Programs

Four Focus Areas – Two Courses in Each



### Environmental Engineering

Advisor: Dr. Mason Tomson  
[mtomson@rice.edu](mailto:mtomson@rice.edu) | x6048



### Urban Hydrology and Water Resources

Advisor: Dr. Philip Bedient  
[bedient@rice.edu](mailto:bedient@rice.edu) | x4953



### Urban Infrastructure and Management

Advisor: Dr. Leonardo Dueñas-Osorio  
[leonardo.duenas-osorio@rice.edu](mailto:leonardo.duenas-osorio@rice.edu)  
x5292



### Structural Engineering and Mechanics

Advisor: Dr. Satish Nagarajaiah  
[satish.nagarajaiah@rice.edu](mailto:satish.nagarajaiah@rice.edu) | x6207

Take a moment to look at the world around you. You might see buildings, bridges, roads, sidewalks, or hear a river flow. While these are everyday things that you may take for granted, they are also things that civil and environmental engineers have a hand in designing, building or maintaining.

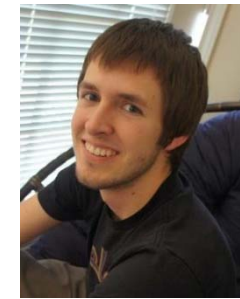
For example, Dr. Jamie Padgett's research focuses on risk assessment of structures and infrastructure such as bridges and buildings exposed to multiple threats, including earthquakes, hurricanes, aging and deterioration, and Dr. Dan Cohan's research involves satellite data and energy policy. **For further information on faculty research, visit [ceve.rice.edu](http://ceve.rice.edu).**



Undergraduate students from the Department of Civil and Environmental Engineering help build a bridge in Nicaragua. The students traveled with the Engineers Without Borders organization of the College of Engineering.

# UNDERGRAD EXPERIENCE

## Curtis Feronti, Sid Richardson College '13



*Curtis came to Rice from Plano, Texas totally undecided on his major freshman year. Since choosing to pursue civil engineering mid-way through his first spring semester, he's only become happier with his decision. He's concentrating in the environmental focus area and has been involved as an EcoRep,*

*PAA, and head of Sid's green committee. This summer Curtis has been researching the use of nanoparticles to improve water treatment in developing nations with a solar-powered autoclave.*

## Tatyana Luttschlager, Will Rice, '13

*Tatyana is focusing on hydrology and and Environmental Policy Studies.*

*She worked as a summer fellow for the Center for Civic Engagement on a research project with the City of Houston looking at Low Impact Development in neighborhoods. She is a teaching assistant and has worked on the solution manual for a hydrology book in addition to assisting on a green roofs research project. She interned with the Shell Center for Sustainability working on a list of sustainability professors on the Rice University campus. Luttschlager is the defensive captain for the Will Rice Powderpuff team and she is also an active member of Engineers Without Borders. She is also the Will Rice Eco-Rep and serves on the Head of the Will Rice Greens Committee.*



## Chris Chan, Jones '13



*Concentrating in Structures and Urban Infrastructure, Chris is interested in designing sustainable cities and buildings of the future. His college career includes an international array of experiences, from studying abroad in Hong Kong, researching in Germany, and working in Shanghai. He tested and researched the structural properties of textile-reinforced concrete (TRC), a novel construction material at the research institute RWTH Aachen in Germany and also served as a Student Ambassador at the 2010 World Expo with the theme of urban sustainability. He is currently one of the Co-Presidents of the Rice Chapter American Society of Civil Engineers and hopes to continue his aspirations in graduate school.*

## Student Life as a CEE Major

- **American Society of Civil Engineers (ASCE):** ASCE promotes civil engineering as a course of study and ultimately a profession to the students of Rice University. We sponsor a spring career fair, outreach and social events, and club meetings where students can learn about possible employers and relevant topics in engineering today. Additionally, we participate in national ASCE competitions like Concrete Canoe and the Mead Student Paper, as well as regional and national conferences.
- **Engineers Without Borders:** The Rice University Chapter of Engineers Without Borders is a student-run organization dedicated to collaboration with communities in the developing world aimed at providing sustainable and culturally appropriate engineering solutions that improve quality of life without harming society or environment while forming strong intercultural relationships and understanding. Through these projects, Rice-EWB encourages the development of socially and environmentally conscious engineers with outstanding leadership skills and practical, hands-on, international engineering experience.



A CEVE student collects data in the field.

- **Tau Beta Pi Engineering Honor Society:** Tau Beta Pi is the only engineering honor society representing the entire engineering profession. It is the nation's second-oldest honor society, founded at Lehigh University in 1885 to mark in a fitting manner those who have conferred honor upon their Alma Mater by distinguished scholarship and exemplary character as students in engineering, or by their attainments as alumni in the field of engineering, and to foster a spirit of liberal culture in engineering colleges. There are now collegiate chapters at 236 US colleges.