# SPECIALTY AREA: ENVIRONMENTAL ENGINEERING

### **RESEARCH TOPICS**

Air Resources Drinking Water Treatment Environmental Chemistry Environmental Microbiology Wastewater Treatment Resource Recovery Environmental Systems Site Remediation Biogeochemistry

### **DEGREE PROGRAMS**

Master's Programs: Coursework-only professional track Ph.D. Program

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The UW CEE Environmental Engineering research area investigates the effects of natural and human activities on the environment, with the goal of both protecting human populations and safeguarding the environment. Researchers develop methods to remove contaminants from air, water, soil and sediment, and decrease the amount and adverse effects of wastes. Researchers also work on solutions to better utilize water, air and soil resources to maintain a sustainable environment. Research is focused on the following areas:

### **Air Resources Engineering**

Air pollution currently causes more than 3 percent of all deaths in the U.S. This is a higher percentage than deaths related to drug use or road injuries. To address this challenge, researchers assess the origins of pollutants, work to remove air pollutants and measure and model downwind air quality.

### **Environmental & Water Quality Engineering**

Researchers identify chemical and biological contaminants in water, air, soil, or solid waste; explore the sources, movement and transport of contaminants in natural systems; and develop engineered processes to minimize the impacts of contaminants on humans and sensitive environments.

### **Environmental Systems**

Researchers investigate the effects of pollutants in waters by examining the chemistry and biology of lakes, streams and estuaries. They explore the processes involved in eutrophication, which is how the environment responds to artificial or natural substances, primarily phosphates found in fertilizers, detergents and sewage.

### **Best Graduate Schools**

UW CEE received the following rankings from U.S. News & World Report for 2018:

best graduate school in environmental engineering





# CAREERS

People with advanced degrees in environmental engineering enjoy careers as engineers for consulting companies, managers of drinking water and wastewater treatment plants, educators in institutions of higher learning, researchers in national laboratories, modelers and engineers in governmental agencies concerned with the protection of public health and environmental quality.

# START-UPS

Ideas that originate in the lab have real-world impact. A start-up founded by CEE emeritus faculty member Mark Benjamin and alumnus Nathan Cai (Ph.D. '11) began operations in 2016. MicroHAOPS Incorporated is developing technology that will significantly increase the rate at which water purification processes can produce clean drinking water, which has the potential to address the current and future water crisis around the world. Half of the world's population will be living in water-stressed areas by 2025, according to the World Health Organization.

# FACULTY

Mark Benjamin Michael Brett David Butman Michael Dodd Edward Kolodziej **Gregory Korshin Timothy Larson** 

Julian Marshall Rebecca Neumann David Stahl David Stensel Stuart Strand Mari Winkler



## STUDENT RESEARCH



#### **Exploring Climate Change's Impact on Rice** Rice is the primary staple food for more than half of the world's population. The impact of climate change on the nutritional quality of rice, therefore, may have devastating consequences, especially in the developing world. As part of her research on this topic, Ph.D. student Yasmine Farhat participated in a training course in the Philippines, where she learned about rice agriculture.



### **Recovering Phosphorus from Wastewater**

All living organisms require phosphorus, a critical component in our DNA that enables cell growth. As a limited and nonrenewable source, phosphorus recovery is becoming increasingly important. To address this challenge, Ph.D. student Stephany Wei is researching a biological wastewater treatment process that increases the potential to recover phosphorus from waste.



**CIVIL & ENVIRONMENTAL ENGINEERING** 

**CONTACT US** ceginfo@uw.edu ce.uw.edu