



SPECIALTY AREA: GEOTECHNICAL ENGINEERING



RESEARCH TOPICS

- Soil Mechanics
- Geologic Hazards
- Foundation Engineering
- Geotechnical Earthquake Engineering

DEGREE PROGRAMS

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

OVERVIEW

The UW CEE Geotechnical Engineering Program is one of the oldest programs in the United States. Beginning in 1935, the program has produced outstanding students who have achieved great success in practice and academia. Students come from across the United States and around the world to work closely with faculty on research projects.

The program provides a solid background in all traditional areas of geotechnical engineering and allows students to focus on areas of particular interest. The research group explores a broad range of areas related to geotechnical engineering, including seismic site response, earthquake- and rainfall-induced landslide analysis, numerical modeling of flow slides and other large deformation problems, soil liquefaction, soil-structure interaction and partially saturated soils.

CAREERS

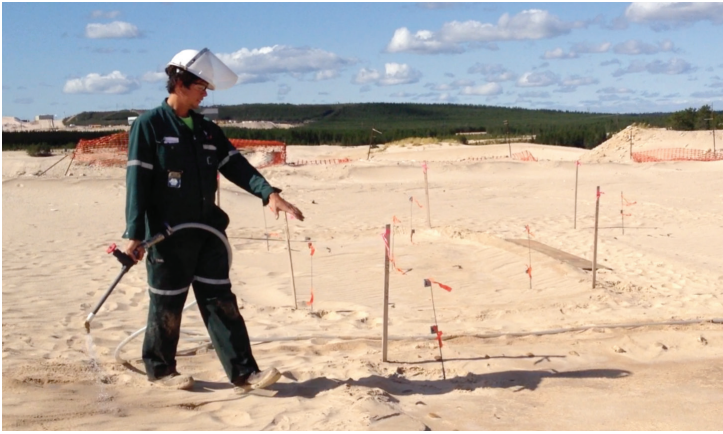
Geotechnical graduate students enjoy careers with consulting firms, major contractors, design firms and government agencies. Geotechnical engineers enjoy a balance of analysis, design, subsurface investigation and construction monitoring that allows them to spend time both in the field and in the office. They work closely with geologists, seismologists, structural engineers and construction engineers on the design and construction of buildings, bridges, dams, pipelines and other critical elements of modern infrastructure.

Best Graduate Schools

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

#12 best graduate school in environmental engineering

#16 best graduate school in civil engineering



FACULTY

Pedro Arduino
Michael Gomez
Steve Kramer
Brett Maurer

Joe Wartman
Peter Mackenzie-
Helnwein

RESEARCH FUNDING

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STUDENT RESEARCH



Protecting Infrastructure from Seismic Soil Movement

Induced by seismic shaking, lateral spreading is a phenomenon that causes soil to move horizontally, which can result in significant damage to buildings and other infrastructure, as illustrated in the above figure. Master's student Andrew Makdisi researched a commonly used analytical procedure used to assess lateral spreading, revealing biased and extraordinarily uncertain estimates of lateral spreading deformations. Makdisi received a Valle Scholarship & Scandinavian Exchange Program fellowship to conduct part of his research during a nine-month stay at the Norwegian University of Science and Technology.



Evaluating Seismic Earth Pressures on Retaining Walls

During an earthquake, an increase in soil pressure on retaining walls can lead to wall failures on a catastrophic level if the wall is not adequately designed to sustain the additional forces. To address this, Ph.D. student Cyndi Lopez is performing finite element analyses with the goal of improving the outdated methodology for estimating seismic earth pressures. Thanks to a nine-month Valle Scholarship & Scandinavian Exchange Program fellowship, she traveled to Oslo, Norway, to work on her research with the computational geomechanics department at the Norwegian Geotechnical Institute.