GEOLOGICAL ENGINEERING, B.S.

Geological engineering integrates two disciplines—geology and engineering. Geologists study the Earth—its origins, its composition, and its evolution. Engineers apply scientific principles to practical ends, such as the sustainable design and construction of facilities and infrastructure, the environmentally responsible extraction of resources, and the use of geo-systems for the generation of alternative energy. Geological engineering is interdisciplinary, with faculty from the College of Engineering and the College of Letters & Science.

Geological engineers find responsible ways to use the Earth's resources to address engineering challenges while protecting the environment. They solve a variety of practical problems associated with rock and soils using principles of sustainable engineering. They design and construct underground and foundation systems, transportation facilities, dams, tunnels, and power plants. They mitigate natural hazards such as floods, landslides, and earthquakes, and develop safe and environmentally sound sources of energy and minerals. Geological engineers also manage groundwater and surface water resources to ensure the public has access to safe drinking water. They also design and construct subsurface repositories for waste disposal and remediate contaminated sites.

Students pursuing the B.S. degree in geological engineering are encouraged to obtain the dual major in Geological Engineering and Geology with no required extra course work. The geological engineering curriculum allows students to obtain the dual major in a single 126-credit program. The B.S. degree in geological engineering is accredited by the Accreditation Board of Engineering and Technology (ABET), which is required to obtain a professional engineering license.

GEOLOGICAL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

Graduates will be prepared to assume positions as geological engineers upon graduation. After proper training and exposure to a comprehensive education in our program, our graduates will be able to:

1. apply geological engineering principles, analyses, and synthesis to design and implement projects in the natural and built environment;
2. incorporate economic, environmental, political, ethical, social, safety, and global considerations to generate sustainable solutions in the natural and built environment;
3. exhibit strong communication, leadership, and teamwork skills;
4. serve others through professional responsibility and participation in professional and public activities and good citizenship; and
5. demonstrate a continuing commitment to and interest in their own and others' education.