

GEOLOGICAL ENGINEERING, BS

A career in geological engineering offers opportunities to work outdoors, help communities grow and respond to climate change, and guide the sustainable use of natural resources.

Using geology and engineering to solve challenges in natural and built environments, you'll work with Earth's most fundamental resources: soils and rocks. These materials are essential for nearly every aspect of infrastructure and sustainability. You'll use them to:

- Support structures by designing foundations for structures, energy systems, and other critical infrastructure
- Build into them when excavating tunnels, canals, and mine passages
- Source construction materials by mining sand, gravel, and other materials used in roads, embankments, levees, and dams
- Access natural resources like groundwater for drinking and industrial uses, and mine valuable minerals and economic resources
- Harvest energy by exploring and developing sites for geothermal, wind, solar, oil, and gas energy
- Protect the environment when designing systems to contain pollutants, such as those found in landfills or resulting from chemical spills
- Engineer solutions to manage the risks and impacts of landslides, earthquakes, floods, and other natural hazards

Geological engineers are in demand as society adapts to climate change and resource depletion. Professionals in this field help us sustainably overcome the grand challenges we face in meeting our energy, infrastructure, and resource needs.

At the University of Wisconsin–Madison, geological engineering students excel with hands-on opportunities in well-equipped labs (<https://engineering.wisc.edu/blog/gle-spotlight-sydney-klinzing-reflects-on-undergrad-research-and-student-life/>), computer facilities, and field research sites. We study minerals, rocks, soil, and the history of the Earth to understand the natural world and how we can live and work in concert with it.

You will learn from faculty and staff from the College of Engineering and the College of Letters and Science, as well as practicing engineers. You'll use the tools and technology that geological engineers use every day, and you'll apply your knowledge to create multidisciplinary solutions for real-world challenges in our capstone design course (<https://engineering.wisc.edu/blog/excellence-in-civil-engineering-education-capstone-course-wins-10th-and-11th-ncees-awards/>).

As a student in our program, you can increase your career potential by earning a dual major in geological engineering and geology and geophysics (<https://guide.wisc.edu/undergraduate/letters-science/geoscience/geology-geophysics-bs/>) in a single 126-credit program, with no extra coursework. There are also a variety of certificate programs that you can pair with your degree, including two options for sustainable energy, to set yourself up for success.

We encourage students to take the Fundamentals of Engineering (FE) exam before or shortly after graduating (<https://engineering.wisc.edu/blog/taking-the-fe-exam-as-an-undergrad/>), which is the first step

in professional engineering licensure. Geological engineering students surpasses the national average, ensuring our graduates are well-prepared for their careers.

Geological engineering (<https://www.youtube.com/watch?v=OAadhKvlel>) alumni from our program find rewarding careers with planning and design consulting firms; the natural resource sector; construction companies; energy developers and providers; and city/county, state, and federal agencies. Typical entry-level position titles include geological engineer, geotechnical engineer (<https://engineering.wisc.edu/blog/geological-engineering-degree-sparks-rewarding-career-for-devin-welch/>), geologist, design engineer, and project engineer.