Environmental Engineering, BS

Department: Civil and Environmental Engineering Department
College: College of Engineering

Overview

About This Degree

Environmental engineering applies scientific and engineering principles to protect human populations from harmful environmental factors and to protect and improve the quality of the environment. Environmental engineers are concerned with local and worldwide environmental issues, such as sustainable engineering, global climate change, air and water pollution, hazardous waste management, and more.

Environmental engineering majors at USU gain experience in water/wastewater engineering, air quality management, public health/industrial hygiene, solid and hazardous waste management, and water quality management. Students in the program have ample opportunities to work with faculty on real-world research projects that seek to find solutions to environmental problems. Students also have the opportunity to join the USU chapter of Engineers Without Borders and work with professors and professional engineers on volunteer projects in various developing countries. These projects provide students with hands-on experience in environmental engineering and also improve the quality of life for the individuals and communities with whom they partner.

The environmental engineering degree is accredited by the EAC Accreditation Commission of ABET. More than 95% of the graduates from this program are employed in the field or are pursuing advanced degrees.

Concurrent Bachelor's/Master's Program:

The department also offers a concurrent bachelor's/master's program, which allows USU engineering students to begin taking graduate classes during their senior year as an undergraduate and to complete requirements for both the bachelor's degree and the master's degree concurrently over two years.

Career Options

With a degree in environmental engineering, students may pursue careers in the following areas:

- Air pollution control
- Recycling
- Industrial hygiene
- Waste disposal
- Conduct studies/research
- Design treatment systems
- Radiation protection
- Hazardous waste management
- Toxic materials control
- Water supply
- Wastewater management
- Storm water management
- Solid waste disposal
- Public health
- Land management

Career Services provides counseling and information on hundreds of job and internship opportunities and even helps students apply and interview.

What it takes

Admissions Requirements

In addition to Utah State University's admissions requirements, the environmental engineering program has additional requirements:

- **New Freshmen:** Students that meet the USU admission requirements can be admitted as pre-engineering

majors. In order to get into the professional engineering program, students must complete two years of prerequisite coursework, have a C- or better in every required class, no more than three classes repeated, and entrance GPA of 2.3 or above.

- **Transfer Students:** Students transferring from other institutions will be referred to the Engineering Admission Committee for evaluation. Evaluations will include transfer GPA and evaluation of the program of the former college or university. Students transferring from other USU majors must be approved by the Engineering Admission Committee before transferring to the College of Engineering. Students in this category must have demonstrated a potential to succeed in engineering through courses taken at USU.
- Recommended high school courses: two or three years of algebra, one year of geometry, one-half year of trigonometry, four years of English, and courses in chemistry, physics (especially AP physics), and mechanical drawing are preferred.

International students have additional admissions requirements.

Major Requirements

Click here to see course requirements for the **Bachelor of Science**.

Students will be required to purchase and use an HP calculator.

Students majoring in environmental engineering must complete a capstone design project during their senior year.

Passing the Fundamentals of Engineering examination, which is the first step in becoming a licensed professional engineer, is desired for graduation.

Contact

Advising

All new USU students participate in a New Student Orientation program, where they receive detailed information about major requirements, registering for classes, and other important advising information.

Kathy Bayn
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Get Involved

Professional Organizations, Honor Societies, and Clubs

American Council of Engineering Companies: ACEC is the voice of America's engineering industry. Council members, numbering more than 5,300 firms throughout the country, are engaged in a wide range of engineering works that propel the nation's economy and enhance and safeguard America's quality of life. The council's mission is to contribute to America's prosperity and welfare by advancing the business interests of member firms.

American Society of Civil Engineers: The ASCE represents more than 144,000 members of the civil engineering profession worldwide and is America's oldest national engineering society. Its goal is to provide essential value to its members and partners, advance civil engineering, and serve the public. The student chapter helps students learn more about career options, hear from guest speakers, and make connections with professors and other important members of the engineering community.

American Water Resources Association: The American Water Resources Association is a nonprofit professional association dedicated to the advancement of people in water resources management, research, and education. AWRA's membership is multidisciplinary; its diversity is its hallmark. It is the professional home of a wide variety of water resources experts, including engineers, educators, foresters, biologists, ecologists, geographers, managers, regulators, hydrologists, and attorneys.

American Water Works Association: AWWA is an international nonprofit educational association dedicated to safe water. Founded in 1881 as a forum for water professionals to share information and learn from each other for the common good, AWWA is the authoritative resource for knowledge, information, and advocacy for improving the

quality and supply of water in North America and beyond. Students can participate in activities of the Intermountain Section of AWWA, as well as compete for scholarships sponsored by the Section.

Engineers without Borders: The USU chapter of Engineers without Borders is a nonprofit organization. Contributions help the organization build projects that developing communities will own and operate. EWB works with communities worldwide to improve the quality of life by promoting sustainable development in water supply, housing construction, food production, energy, sanitation, transportation, communication, and employment. EWB's vision is a world where all people have the knowledge and resources needed to meet basic human needs. It involves international professionals and students in all fields as they build this vision together.

National Engineers Week Foundation: This foundation strives to be the global leader in cultivating and celebrating the engineering profession. Its cornerstone program is Engineers Week. All programs are designed to reach out to current and future generations of engineering talent.

Utah Engineers Council: The UEC is an umbrella organization of 14 different local chapters and sections of engineering societies. The purpose of the UEC is to advance the art and science of engineering and to provide a forum for communication between the varying engineering societies.

Engineering Student Council: The Engineering Council is an organization of engineering students. The council provides students with the opportunity to communicate opinions and suggestions to the College of Engineering administration, university administration, and the Associated Students of Utah State University. The Engineering Student Council represents students who are in the College of Engineering, communicates with engineering students about concerns, and publicizes programs and activities.

Society of Environmental Engineering Students: SEES is the club for environmental engineering majors at the USU Logan campus. Activities include meetings with professors, volunteer service activities, and tours of various environmental engineering facilities throughout the region.

Society of Women Engineers: Utah State University's Society of Women Engineers is open for both male and female members. SWE is committed to encouraging women engineers to attain high levels of educational and professional achievement, serve as a center of information for women in engineering, and promote the value of diversity.

Society of Hispanic Professional Engineers Student Chapter: SHPE is a national organization that aims to build unity through diversity of engineering students. The club holds fund-raising and service activities, participates in engineering-related campus-wide activities and competitions, and hosts activities with local middle and high school students aimed at science and technology. The national organization holds an annual conference, which is the major event and the largest technical and career conference for Hispanics in the country. The conference is an opportunity for engineering companies and corporations to recruit top talent from SHPE.

Future Association of Tomorrow's Engineers: FATE is the USU regional campus engineering club. It aims to promote and support engineering throughout the USU regional campus system via social networking, community outreach, recruitment, and fun (possibly geeky) activities.

National Society of Black Engineers Student Chapter: NSBE has more than 35,700 members and is one of the largest student-governed organizations in the country. Founded in 1975, NSBE now includes more than 450 colleges, pre-college, and technical professional/alumni chapters in the United States and abroad. NSBE's mission is to increase the number of culturally responsible black engineers who excel academically, succeed professionally, and positively impact the community. NSBE offers its members leadership training, professional development, mentoring opportunities, career placement services, and more.

Tau Beta Pi 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. It marks, 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. There are now collegiate chapters at 236 U.S. colleges and universities, active alumnus chapters in 16 districts across the country, and a total initiated membership of more than 500,000.

Labs, Centers, Research

With the second oldest undergraduate research program in the nation, USU offers students a wide range of opportunities to gain hands-on research experience. The Undergraduate Research and Creative Opportunities program allows students to apply for grants and receive funding. USU's Honors Program prepares students for excellent graduate programs by helping them build relationships with professors, participate in research projects, take smaller, more intensive classes, and develop leadership skills.

AggieAir Flying Circus: AggieAir Flying Circus provides high-resolution, multispectral aerial imagery using a small, unmanned aerial system. The system is able to map small areas quicker, more frequently, at greater resolution, and at a smaller cost than conventional remote sensing. Some applications for AggieAir include monitoring of soil moisture and evapotranspiration in agriculture, riparian habitat mapping, road and highway surface monitoring, wetland mapping, and fish and wildlife tracking.

Buried Structures Laboratory: The Buried Structures Laboratory conducts research into the performance of buried pipes. The lab has performed research on both flexible and rigid pipes.

Center for Integrated BioSystems: The CIB leads a progressive, interdisciplinary effort in research, core services, and education serving agriculture and life sciences. The CIB is where the first hybrid animal, a mule, was cloned, and was named one of “30 Awesome College Labs” by Popular Science magazine. The CIB has a research program with several active projects in diverse areas of life science that encompass plant, animal, and microbe functional genomics.

Energy Dynamics Laboratory: EDL bridges the gap between academia and industry, confronting the challenges of prototyping, deployment, and commercialization of enabling technologies for renewable and advanced energy systems. USU researchers originate projects to derive energy from non-fossil fuels, such as biofuels, wind, and solar power. With EDL’s collaboration, research develops through pilot projects to commercial application.

Energy Laboratory: This lab seeks to develop solutions to America's most intractable energy problems through scientific and technological innovation. It provides a cohesive framework permitting faculty, students, and partnering institutions to focus on contemporary energy-related research issues.

Environmental Management Research Group: EMRG is a research unit of the Utah Water Research Laboratory focused on integrated watershed management and systems analysis of environmental problems. EMRG provides software development, watershed and water quality modeling, and GIS data analysis service to internal and external entities directed at solving integrated watershed and environmental management-related problems of a variety of scales.

Environmental Quality Laboratory: The EQL is located at the Utah Water Research Lab and is equipped for analyses of organic and inorganic constituents in air, water, and soil. The EQL consists of chemistry, microbiology, radiological and analytical instrumentation laboratories, two constant-temperature rooms, and research project areas.

Hydraulics Laboratory: The Hydraulics Lab at the Utah Water Research Laboratory contains a variety of flumes, channels, pumps, pipelines, equipment, and instrumentation for conducting hydraulic research, model studies, valve testing, and flow-meter calibrations.

Institute for Dam Safety Risk Management: The IDSRM conducts research to advance the state of practice in risk-informed approaches to dam safety management. Approaches developed by the institute are now used by engineers, private and government dam owners, and regulators in many countries. These approaches help improve the understanding and management of the risks associated with owning and operating dams, with the goal of improving public safety, reducing economic, environmental, and societal risks, and reducing the owner’s liability.

Institute for Natural Systems Engineering: The INSE is a recognized leader in the development, testing, and application of multi-disciplinary assessment methods for aquatic ecosystems and instream flow assessment methodologies.

International Irrigation Center: The IIC was established in a response to an increasing need for providing training and research to enhance the capabilities of professionals and scientists outside the United States for improving irrigated agriculture in their countries.

Utah Botanical Center: The UBC, located in Kaysville, Utah, is home to research and demonstration projects focused on sustainable living in the Intermountain West. Studies of water conservation, horticulture, water quality enhancement, wetland ecology, integrated pest management, urban forestry, agriculture, fish and wildlife, highway enhancement, and storm-water management combine to make the center a living laboratory.

Utah Center for Water Resources Research: The UCWRR facilitates water research, outreach, design, and testing elements within a university environment that supports student education and citizen training.

Utah Local Technical Assistance Program: LTAP specializes in projects such as road-surface management, asset management, traffic operations, highway safety, innovative contracting, infrastructure management, and other transportation challenges.

Utah On-Site Wastewater Training Center: This center provides education, training, and technology transfer to installers, inspectors, regulators, and homeowners within the Rocky Mountain Region on the proper design and use of wastewater treatment systems.

Utah Transportation Center: The UTC uses its expertise in natural hazards to research congestion chokepoints, evacuation occurrences, infrastructure renewal, and operations as it relates to multi-modal transportation.

Utah Water Research Laboratory: The UWRL works on nearly 250 water-related projects a year and has projects in all of Utah's 29 counties and more than 40 countries. The lab is one of the go-to places that addresses the technical and societal aspects of water-related issues, including quality, quantity, and distribution of water.

Water Initiative: Utah State University supports a broad community of students and faculty engaged in water education, research, and outreach. The USU Water Initiative provides an overarching umbrella for the activities of this community aimed at fostering interdisciplinary collaboration and collegial sharing of ideas related to water across the departments and colleges of USU.