

Environmental Soil/Water Science, BS, BA

Emphases: Soil; Water; Plant

Department: Plants, Soils, and Climate Department

College: College of Agriculture and Applied Sciences

Overview

About This Degree

The environmental soil/water science major provides students with an understanding of the physical, chemical, and biological processes that occur in the soil-water-atmosphere zone at the earth's surface. USU is the only university in the state that offers degrees in soil science. USU's program is unique in its focus on water issues in the arid West and has research emphasis in urban and rural land use, erosion, agricultural waste management, measurement of soil water, and the origins of soil.

Students graduating from this program will be well qualified for careers in the prevention, characterization, and improvement of environmental soil and water management. Soil scientists work with engineers, geologists, and ecologists, providing expertise on how to build strong structures in various types of soil, how to irrigate efficiently with different soil situations, etc. They also play a major role in ensuring that high-quality soil and clean water are available to current and future generations.

The program features small class sizes where students receive individual attention from excellent faculty and the opportunity to research alongside them in labs as they gain valuable research experience.

Students receive a **BS** by completing all required courses in the major. To receive a **BA**, students must also gain proficiency in one or more foreign languages.

Career Options

With this degree, students can pursue the following careers:

- Soil conservationists
- Soil scientists for federal agencies
- Environmental consultants
- Soil regulatory specialists
- Soil, plant, water, and atmosphere relations (determining irrigation needs, working with biometeorologists)
- Construction site analysis (soil analysis, sediment mapping, classification, interpretation, sampling, etc.)
- Analyzing and determining soil quality (working with farmers, conservation, erosion prevention and restoration, soil fertility, etc.)
- Water quality (analyzing chemicals, water analysis)
- Waste management (analysis and transformation of agricultural and environmental pollutants in the soil-water zone)

[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 soil/water science program has additional requirements:

- **Freshman:** New freshmen admitted to USU in good standing qualify for admission to this major.
- **Transfer Students:** Transfer students from other institutions and students transferring from other USU majors need a 2.5 total GPA for admission to this major.

International students have [additional admissions requirements](#).

Major Requirements

[Click here](#) to see course requirements for the **Bachelor of Science**.

[Click here](#) to see course requirements for the **Bachelor of Arts**.

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.

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Get Involved

Professional Organizations, Honor Societies, and Clubs

American Geophysical Union: The American Geophysical Union is dedicated to furthering the geophysical sciences through the individual efforts of its members and in cooperation with other national and international scientific organizations.

American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America: ASA, CSSA, and SSSA are prominent international scientific societies headquartered in Madison, Wisconsin. Because of their common interests, all three societies share a close working relationship as well as the same headquarters office staff. Society members are dedicated to the conservation and wise use of natural resources to produce food, feed, and fiber crops while maintaining and improving the environment.

American Society of Plant Biologists: ASPB is a professional society devoted to the advancement of the plant sciences. It publishes two world-class journals and organizes conferences and other activities that are key to the advancement of the science. Membership in the American Society of Plant Biologists is open to anyone who is concerned with the physiology, molecular biology, environmental biology, cell biology, and biophysics of plants, and other related matters.

Water Science and Technology Board: The Water Science and Technology Board provides a focal point within the National Research Council for studies related to water resources. The board's studies are accomplished under the support of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The board's scope covers all dimensions of water resources, including science, engineering, economics, policy, and social aspects.

AG-ri-CULTURE Club: This club provides students opportunities to learn from and network with fellow students and professionals from various agriculture-related fields. Professionals from the industry give lectures at club meetings throughout the year, providing students with valuable knowledge and career opportunities. Lectures are diversified so the club is open to students from all of the departments in the college as well as any students that want to learn about agriculture. This club exists to diversify and broaden students thinking by talking about many different disciplines in agriculture and bringing in real-world experience from professionals throughout the industry.

Plant Science Club: This club provides a means for students to meet together, build relationships, and participate in worthwhile projects. The club conducts fundraising projects, such as growing and selling plants and flowers, to finance student competitions and trips to areas of interest throughout the western United States. The Plant Science Club is also involved in service activities.

Soils Judging Team: This team is comprised of students interested in soil science that are selected by faculty to compete and gain experience describing, classifying, and interpreting soils and landscapes. The team competes at local, regional, and national events.

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.

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.

Ecology Center: The Ecology Center is an administrative structure in the university that supports and coordinates ecological research and graduate education in the science of ecology and provides professional information and advice for decision makers considering actions that affect the environment. The Ecology Center at USU has had a string of directors known nationally and worldwide as premier scientists in the field of ecology, and students graduating with a degree in ecology are able to make important contacts with influential faculty that can help them go on to prestigious post-doctoral programs and faculty positions at universities around the world.

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.

Utah Agricultural Experiment Station: The UAES is part of a network of researchers and facilities at the nation's land-grant universities and is committed to improving agriculture and managing natural resources for the people of Utah. At research facilities on the USU campus and throughout the state, UAES supports hundreds of research projects that promote agriculture and human nutrition and enhance the quality of rural life.

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 Climate Center: The UCC facilitates access to climate data and information and uses expertise in atmospheric science to interpret climate information in an accurate and innovative fashion for the public. The mission includes the design of new products to meet present and future needs of agriculture, natural resources, government, industry, tourism, and educational organizations in Utah and the Intermountain region.

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 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.