

DEPARTMENT OF SOIL AND WATER SYSTEMS

Jodi Johnson-Maynard, Chair, phone
208-885-7012, jmaynard@uidaho.edu

The Department of Soil and Water Systems (SWS) addresses resource issues related to soil, water quality and quantity, and sustainable food, energy, agricultural, and waste systems. The unit combines faculty with expertise in soil science, hydrology, sediment transport, water resources, irrigation engineering, bioenergy, precision agriculture, nutrient cycling and transport, and waste management to study complex ecological processes and problems in wildland and managed ecosystems. SWS faculty fulfill this commitment through focused excellence in research, teaching, and extension. With faculty located at four research centers throughout the state, SWS has statewide responsibility and impact. The department's teaching program includes a Bachelor of Science in soil and water systems with majors in environmental soil science, water science and management, and agricultural systems management. A college-wide major in sustainable food systems is also administered through SWS. Graduate programs (M.S. and Ph.D.) are available in soil and land resources. Graduate degrees in water are offered through the interdisciplinary Water Resources Program. Minors are available in soil science and agricultural systems management.

The Agricultural Systems Management B.S.S.W.S. degree prepares students to apply biological, physical, mechanical, and business knowledge to the production, service, sales, application, and management of the equipment and processes used in agriculture. The curriculum stresses courses in agricultural systems management and basic and applied sciences. It also includes a strong background in agricultural economics, accounting, and business. It prepares students for a variety of important and rewarding career opportunities across the entire spectrum of the food and fiber sector. Many graduates return to farming, while others pursue careers as farm managers or are employed in agricultural and natural resource-oriented businesses, banking firms, educational institutions, or governmental agencies.

The Environmental Soil Science B.S.S.W.S. degree prepares students to work in a variety of fields related to natural resource management. The curriculum stresses in-depth understanding of the field through interdisciplinary training in pedology, soil chemistry, soil physics, soil ecology, and fertility. Graduates are employed as soil scientists, conservationists, agronomists, laboratory managers, and consultants. Students gain hands-on experience by working in laboratories and conducting undergraduate research. Students work towards becoming certified soil scientists prior to graduating.

The Water Science and Management B.S.S.W.S. degree produces graduates that understand the critical importance of using science to better manage water resources. Graduates fill critical roles in the agricultural industry, research facilities, and state and federal agencies. The breadth of the major offered in this curriculum allows students to develop strong expertise in managing water in complex ecosystems including agriculture, forestry, and rangeland. The degree includes additional math and GIS-based mapping requirements to ensure that graduates have the ability to be successful in job roles such as quantitative hydrologist and irrigation, precision agriculture, and watershed management technicians.

The Sustainable Food Systems B.S.Ag.L.S. degree takes an interdisciplinary approach to the study of food and farming systems. The degree is designed to provide a science-based understanding of the many facets of food from sustainable production, food chemistry, and food safety to policy and marketing. Students tie everything together in sophomore and senior level courses that explore local, regional, and global food systems. Many laboratory-based courses offer hands-on experience, and students may specialize in specific areas of the food system. Students gain hands-on experience through required practicum courses and internships and can put concepts taught in courses to work while operating the campus certified organic farm.

Degree offerings within SWS are designed to prepare students for a variety of rewarding career opportunities as well as graduate studies. Course work in all SWS programs includes hands-on learning opportunities and is designed around present and future employment opportunities. We offer students the opportunity to work closely with faculty in classroom and field situations. Our faculty members offer additional specialization through directed study, special topics, seminars, and other courses as needed. Internships are available to provide students with practical job experience and to open doors for career opportunities. Students are encouraged to participate in international exchanges offered through the College of Agricultural and Life Sciences.

We offer many opportunities to conduct advanced, in-depth studies with our important scientific collections and cutting-edge facilities. The Maynard A. Fosberg Monolith collection is one of the largest in the world with 232 soil monoliths. We have a state-of-the-art analytical laboratory facility to accommodate faculty, staff, and students. We also offer a greenhouse facility with controlled temperature and light-programmed rooms and growth chambers. The University has 1,145 acres located close to campus for field crops, orchards and livestock. Excellent field and laboratory facilities are also available at our research and extension centers at Aberdeen, Parma, Kimberly, and Twin Falls.

Majors

- Agricultural Systems Management (B.S.S.W.S.) (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/agricultural-systems-management-bssws/>)
- Environmental Soil Science (B.S.S.W.S.) (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/environmental-soil-science-bssws/>)
- Sustainable Food Systems (B.S.Ag.L.S.) (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/sustainable-food-systems-bsagls/>)
- Water Science and Management (B.S.S.W.S.) (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/water-science-management-bssws/>)

Minors

- Agricultural Systems Management Minor (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/agricultural-systems-management-minor/>)
- Soil Science Minor (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/soil-science-minor/>)
- Sustainable Food Systems Minor (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/sustainable-food-systems-minor/>)

- Water Science and Management Minor (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/water-science-management-minor/>)

Certificates

- Precision Agriculture Undergraduate Academic Certificate (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/precision-agriculture-certificate/>)

Soil and Water Systems Graduate Programs

- Soil and Land Resources (M.S.) (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/soil-and-land-resources-ms/>)
- Soil and Land Resources (Ph.D.) (<https://catalog.uidaho.edu/colleges-related-units/agricultural-life-sciences/soil-water-systems/soil-land-resources-phd/>)