

# BIOLOGICAL AND ECOLOGICAL ENGINEERING GRADUATE MINOR

---

The Biological and Ecological Engineering program serves at the interface of life sciences and engineering. Bioresource engineering is the application of engineering and life science principles and problem-solving techniques to the optimum use and sustainability of biological resources. The curriculum is engineering-based with a strong emphasis on the life sciences. Courses focus on biological systems modeling, bioprocess engineering, thermophysical and molecular properties of biological materials, regional hydrologic analysis, groundwater systems, irrigation and water resource optimization. The department concentrates its research effort on two major thrusts: bioprocess engineering and water resources engineering. Specific research topics include biosensors, molecular-level biosystems analysis, nanosensors, microbial fuel cells, biological hydrogen production, and bio-based products and fuels. Research topics in water resources engineering include constructed wetland treatment systems, crop growth modeling, optimum irrigation management, crop-water requirements, groundwater and subsurface contaminant transport, hydrologic modeling, agricultural and ecological systems analysis, geographical information systems, artificial intelligence technologies, livestock production odor control, livestock waste treatment, and non-point source water pollution control.

For more information contact: Biological and Ecological Engineering Graduate Program, [info-bee@oregonstate.edu](mailto:info-bee@oregonstate.edu), 541-737-2041.

## **Minor Code: 4500**

A graduate minor must be in an academic area that clearly supports the major. On a MS or PhD program, a minor may be:

1. An academic area available only as a minor
2. The same major with a different area of concentration
3. An approved major at another institution in the Oregon University System
4. An integrated minor

An integrated minor consists of a series of cognate courses from two or more areas. These courses must be outside the major area of concentration, with most of the courses being outside the major department. The graduate faculty member representing the integrated minor must be from outside the major department. Graduate minors are listed on the student's transcript.

If a minor is declared, approximately two-thirds of the work must be in the major field and one-third in the minor field. The student's advisory committee must include a member from the minor department.

A MS Graduate minor requires a minimum of 15 credits. A PhD Graduate minor requires a minimum of 18 credits.

## **Minor Code: 4500**