Learning By Doing: Preparing Students Through Experiential Learning

Impact Statement

INVESTIGATORS
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SUMMARY
One of the most dynamic ways SENR prepares students for careers and graduate study is to engage them in experiential learning activities that help students integrate the concepts and skills they have gained in the classroom. Our main venues for experiential learning are capstone courses, internships, and field-based studies, all of which have seen notable success in 2017. These programs simultaneously fulfill the teaching, research, and outreach missions of the School.

SITUATION
A growing body of research demonstrates that hands-on experiences in which students apply theoretical ideas to real world puzzles is important to the learning process. Employers indicate that they want college graduates to have more practical experience in collaborative, multi-disciplinary teams addressing real-world problems as a way to transition students from their formal studies into successful careers, and research shows that the first job of over 50 percent of students after graduation is a direct result of an internship. Historically, environment and natural resources curricula have capitalized on opportunities to use outdoor settings to expose students to natural landscapes and systems, and to interact with professional natural resource managers. The complexity of contemporary sustainability challenges also invites integrative, experiential study which benefits from the immersive, real-world experiences provided by capstone courses, internships, and field study courses.
RESPONSE

Each of the five SENR majors includes experiential learning options designed to solidify ideas, concepts and tools learned in the classroom. These include:

Capstone courses where student teams tackled real-world problems:
- EEDS (Environment, Economy, Development, and Sustainability) students collaborated with Ohio State and municipal leaders to analyze sustainability priorities and recommend best practices.
- FFW (Forestry, Fisheries, and Wildlife) and NRM (Natural Resource Management) students provided resource management plans for the Ohio State Mansfield campus as well as Columbus Metro Parks.
- ES (Environmental Science) and EPDM (Environmental Policy and Decision Making) students designed a restoration management plan for the Ohio State- Columbus campus.

Field studies courses that enhance learning:
- Forest Ecosystems students performed ecological assessments as part of an iterative, intensive learning cycle.
- Avian Wildlife Biology and Management students did a field project with hands-on radio-tracking experience at the Olentangy River Wetland Research Park.

The Agronomic Crop Research Experience (ACRE) internship program provided hands-on training with county Extension educators and state specialists.

IMPACT

- EEDS capstone projects influenced Ohio State, Worthington, and Smart Columbus decision-makers (video); the “Campus as a Living Laboratory Archive” generated 6,000+ project report downloads in 2017.

- FFW/NRM capstone projects expanded a campus management plan for Ohio State-Mansfield’s Ecolab, established long-term forest monitoring plots, and partnered with Extension to plan silvicultural demonstration areas and estimate a sugar maple stand’s sugaring potential.

- ES capstone students designed a restoration management plan for the Mirror Lake landscape. The project built on existing restoration work; results were pitched to University managers and Ohio State Facilities Operations and Development staff.

- The ACRE internship program achieved goals of training the next-generation of agronomists, empowering locally-directed on-farm research, and identifying solutions to critical agronomic issues in Ohio, as highlighted in a summary program report.

- Forest Ecosystems students gained fundamental understanding and indispensable field skills; instructors presented papers at national and international meetings about their instructional approach.

- Avian Wildlife Biology students gathered and analyzed data on wild birds at the Olentangy Wetlands to estimate overwinter survival. Several students commented the practical experience assisted in obtaining wildlife field internships.

- The impact of capstone courses, internships, and field-based studies on student career outcomes is evidenced by graduate data.