

Undergraduate Field Experiences Research Network (UFERN)

Overview:

The UFERN project aims to build a sustainable and interdisciplinary network of researchers that fosters effective undergraduate field experiences by:

- 1) Identifying and sharing **evidence-based models and practices** for engaging a diverse range of undergraduates in effective field and marine learning experiences.
- 2) Identifying, modifying, developing, and sharing **assessment tools** for understanding the impact of field and marine learning experiences on undergraduate student learning, STEM identity, and career trajectories.
- 3) Investigating how undergraduate field experiences **can be more inclusive and attract and serve students** from different ethnic and racial groups and with physical disabilities who are currently underrepresented in field-based sciences such as marine science, ecology and geosciences.
- 4) Harnessing the power of a network of programs that provide undergraduate learning experiences to **do research on student learning** and contribute our findings to the broader body of evidence about undergraduate STEM learning

U-FERN will build upon the capacity of field station and marine labs (FSMLs) and others including undergraduates in field experiences while engaging new collaborators from the social and learning sciences in program assessment and research into student learning, effective practices, and broad engagement. The wide diversity of practices implemented at field stations and marine labs creates a unique opportunity to test models of effective training in order to generate insights that can inform educational practices beyond the FSML community. The National Science Foundation Research Coordination Networks (RCN)–Undergraduate Biology Education program is funding this project for Biological Sciences (BIO), Division of Biological Infrastructure, and the Directorate for Education and Human Resources (EHR), Division of Undergraduate Education as part of their efforts to address the challenges posed in Vision and Change in Undergraduate Biology Education: A Call to Action (<http://visionandchange.org/finalreport/>). This project is also co-funded by the Division of Environmental Biology (DEB) in the BIO directorate.

Scope of Work:

Over the course of four years, OSU will work with Co-PIs from The Cary Institute of Ecosystem Studies, the University of Wisconsin-Madison, Rocky Mountain Biological Lab, and Colorado State University to build a vibrant and sustainable network that will effectively accomplish the objectives of the network. The UFERN project team has identified the following activities towards this goal:

- Establish a structure to support the network (steering committee, project coordinator, participants, working groups, website)
- Conduct a baseline landscape analysis that describes the current state of the field
- Conduct an initial investigation of undergraduate outcomes from REU sites at field stations and marine labs
- Host interdisciplinary network meetings and webinars that bring undergraduate field

educators, education researchers, and scholars in broadening participation in STEM together

- Establish and maintain working groups that will collaboratively work on topics of interest to the network and produce network products
- Nurture, grow, and sustain a community of practice of undergraduate field educators
- Share findings from the network effort
- Plan for network sustainability

Broader Impacts:

Understanding the impact of undergraduate field experiences for students and the field has been identified as a priority to not only the field, including the 450 institutions associated with the National Association of Marine Laboratories and the Organization of Biological Field Stations. This project will have benefits for the field experience community as well as for participating professors, instructors, undergraduates, and researchers at marine and geoscience labs. The project will provide a network for researchers to advance the field of undergraduate field experiences by collaborating within working groups to identify research questions of interest and following up with possible products (e.g., collaborative proposals, conference presentations, case studies, webinars).