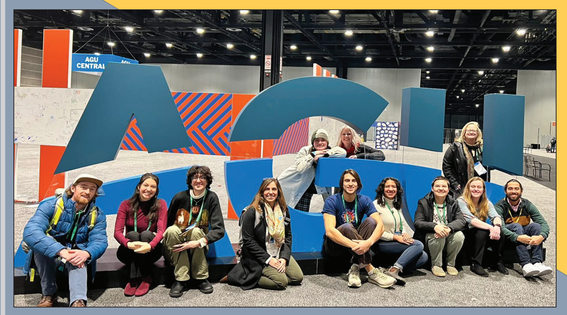
Innovative Approaches to Undergraduate Training in Integrative Ecosystem Biology

M. Florencia Fahnestock[1,2] & Ruth K. Varner[1,3]

[1]Department of Earth Sciences, University of New Hampshire, Durham, NH, USA
[2]The Joan and James Leitzel Center for Mathematics, Science and Engineering Education, University of New Hampshire, Durham, NH, USA
[3]Institute for the Study of Earth, Ocean and Space, University of New Hampshire, Durham, NH, USA



- Program is evaluated each year to build resiliency and fine tune to student and mentor needs
- Both REU participants & Mentors participate post-programming survey

- AGU Fall Meeting '21, '22, '23
- SACNAS National Diversity in STEM Conference '22, '23
- Sharing materials with network of Minority Serving Institutions
- Earth Sciences Jobs E-mail List
- Twitter/Bluesky

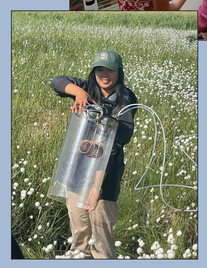






- Students present drafts of their research at the Summer STEM Research Symposium at UNH
- Students submit abstracts to attend the AGU Fall Meeting ('22, '23)





- Final 2 weeks at UNH
- Final data collection
- Final data processing
- Work with mentor team on interpreting findings



- 4-5 weeks at Abisko, Sweden
- Project topics related to Ecosystem Response to Change
- Students learn about problem solving, field sampling protocols, experimental design
- Develop resiliency and build confidence



- ~2 months prior to in-person programming
- Mentor Roles & Responsibilities Agreement
- UNH Mentorship Academy Training
- Mentors discuss projects & meet students at pre-program webinars
- Students paired to project topics, associated mentoring teams & co-develop collaborative agreement
- Students receive information & guidance on how to prepare for the summer







- ~2-weeks at University of New Hampshire
- Field Safety Training/ WFA Certification
- Develop Community Agreement
- FISST training/Bystander training
- EMERGE Summer Program (1st week)
- Co-develop field & project plan with mentor team

- 6-member committee
- No transcript requirement
- Selection criteria:
  - Relevant coursework
  - Leadership/ teamwork experience
  - Ability to define & incorporate diversity, equity, justice and inclusion (DEJI) principles
  - Alignment of research interests with EMERGE research

Evaluation → Inclusive Recruiting → DEI Informed Application Process → Mentor Training & Pre-program Webinars → Foundational Knowledge & Training → Research & Field Work → Synthesis & Analysis → Science Communication Opportunities

EMERGE REU

Mentor Expectations

- Outlined in the Mentor Role & Responsibilities Agreement found here:

Mentor Support

- Mentorship Academy Traning
- Summer program Science of Team Science Training
- Co-develop project with mentoring team
- REU program Co-Directors to guide you through the program & mentoring experience

Mentor Rewards

- Opportunity to develop mentoring skills & build your CV
- Opportunity to engage students in your research interests & carry out pilot studies
- Opprotunity to recruit mentees for Graduate School
- Funding support to attend Summer Program (meet with Mentee(s) prior to fieldwork
- Travel, food & lodging included
- Funding support to attend AGU or similar conference.

Interested in Being a Mentor?
Add your project idea here:

Acknowledgements:

Thank you to the Abisko Scientific Research Station staff , Diana Lo at the Joan and James Leitzel Center for Mathematics, Science, and Engineering Education and NSF Grant: NSF-DBI 2022070. A very special thank you to the 2022 and 2023 mentors! We would also like to thank the Swedish Polar Research Secretariat and SITES for the support of the work done at the Abisko Scientific Research Station. SITES is supported by the Swedish Research Council. We would like to acknowledge that this research took place on indigenous lands in Sápmi where Sámi people have lived since time immemorial.