

Summer, 2020

National Collaborative for Research on Food, Energy, & Water Education (NC-FEW)

2020 VIRTUAL SHOWCASE

One of the goals of NC-FEW is to highlight your work within the community. In that spirit, we are excited to announce the 2020 NC-FEW Virtual Showcase and encourage you to submit your work to be included in this event. The virtual showcase will provide a platform for both contributing to and learning about the FEW-Nexus-focused educational programs and research findings from work of fellow NC-FEW participants. Work submitted to this event should illustrate some aspect(s) of educational programming in K-12, postsecondary, or informal/nonformal settings, as well as findings from education research, even if preliminary, in the context of your program. To contribute to the 2020 Virtual Showcase, we ask that you [complete an online submission form](#). This information will be made publicly-available as part of the [2020 Virtual Showcase on the NC-FEW website](#). We anticipate hosting the Virtual Showcase annually as part of a broader set of NC-FEW community events and hope this will provide a valued forum for disseminating your work.

NC-FEW AT GSA 2020

We are excited to share with you details about an upcoming NC-FEW sponsored session - T241. *Geoscience Education in the Food-Energy-Water-Nexus: Transdisciplinary Capacity-Building through Networked Improvement Communities* - at the [2020 meeting](#) of the Geological Society of America (GSA). Since GSA 2020 will be 100% virtual, we hope you may consider submitting an abstract to the session, even if you are not typically GSA attendees. We look forward to an engaging set of presentations and discussion at the intersection of the geoscience education and NC-FEW communities. Abstract submissions are open and the deadline is August 4. If you are unfamiliar with the GSA submission process, please check out the [tips for preparing your abstract](#).

NC-FEW LEADERSHIP OPPORTUNITY

We are deeply committed to increasing concrete opportunities for NC-FEW community members to contribute directly to community activities. Toward that end, we will be forming a number of committees, each of which will provide leadership and help direct and coordinate NC-FEW activities focused on specific community outcomes and products. These include best practices in FEW-focused education, best practices in FEW-focused education research, grant proposal development, and other critical community components. Each committee is expected to be comprised of 3-5 individuals representing the educational contexts reflected in the working groups (K-12, informal/nonformal, postsecondary), with individual committee members serving as liaisons to the working groups. Our goal is for the working groups and committees to work synergistically toward [NC-FEW goals](#). If you are interested in serving on a NC-FEW committee, please complete a brief [online interest form](#).

INFORMAL/NONFORMAL WORKING GROUP

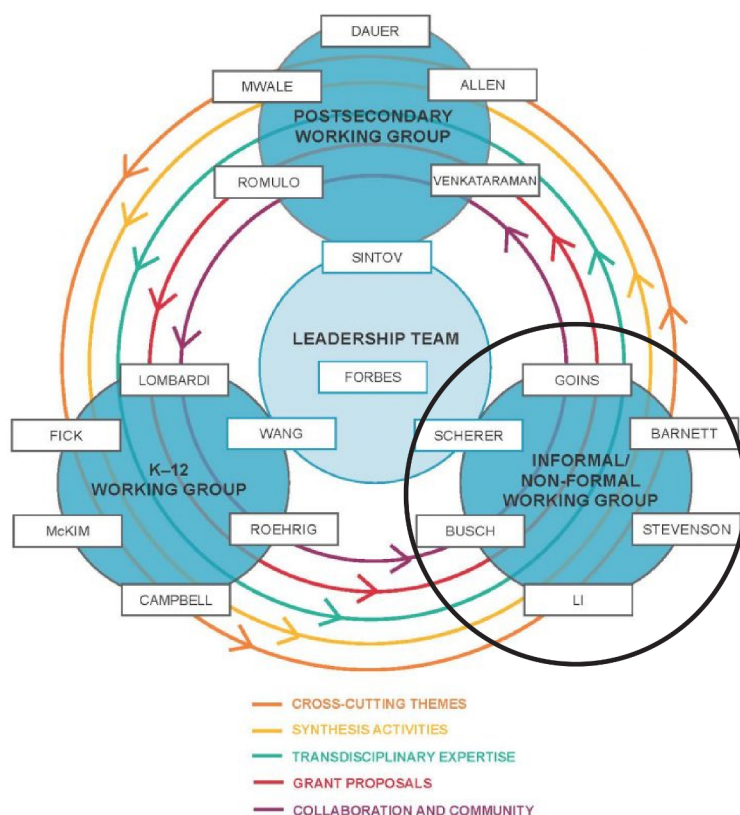
OVERVIEW AND GOALS

The purview of the in/non-formal education working group is vast, encompassing the constellation of contexts outside of and intersecting with formal K-12 and higher education settings in which learning occurs. Broadly, non-formal education and communication tend to have more structured educational activities and trained educators (e.g. Extension education and camps) whereas informal education and communication may be less structured and free-choice (e.g. science centers and media). Educational opportunities may target specific age groups or foster intergenerational learning. When youth audiences are served, there can be overlap between in/non-formal and K-12 education through school day programming (e.g. field trips). These spaces can provide unique opportunities for addressing real-world FEW-Nexus

related issues that affect learners and their communities.

The goal of the in/non-formal education working group is to identify and share emerging possibilities for FEW-Nexus education and communication in informal and nonformal settings in service to science learning, environmental justice, and sustainability. Over the coming years, we aim to develop a

framework for in/non-formal FEW-nexus education, communication, and equitable stakeholder engagement within which we can (1) describe innovative cases where this work is already happening, (2) investigate new possibilities, and (3) share methods and models with the broader community.



As an example of the possibilities, consider that lack of access to clean, usable, water disproportionately affects communities of color, particularly Black and Indigenous communities in the US. Furthermore, formal education settings often do not support education in service to addressing these issues. As a form of resistance, communities have created their own educational spaces and movements(1) to work toward environmental justice. Science learning in these spaces occurs as communities work together to address real-world issues that are locally relevant. It is in this work that the complexity of interdependent food, energy, and water systems and the social, economic, and environmental implications of management decisions cannot be ignored.

See this volume for recent examples: Eagle Shield, A., Paris, D., Paris, R., & San Pedro, T. (Eds.). (2020). *Education in Movement Spaces: Standing Rock to Chicago Freedom Square*. New York: Routledge.

"THE GOAL OF THE IN/NON-FORMAL WORKING GROUP IS TO IDENTIFY AND SHARE EMERGING POSSIBILITIES FOR FEW-NEXUS EDUCATION AND COMMUNICATION IN INFORMAL AND NONFORMAL SETTING"

INFORMAL/ NONFORMAL WORKING GROUP

MEET THE TEAM

K.C. BUSCH

College of Education, NC State University

K.C. Busch is an Assistant Professor of STEM Education and faculty in the Leadership in Public Science interdisciplinary cluster at North Carolina State University. Her work has, thus far, focused on how youth make sense of climate change. Her current work is moving towards understanding how communities learn about climate change and use that information to make adaptation decisions. Climate change, as a complex scientific and social issue, rests within the FEW nexus. K.C. is anticipating learning from others who are approaching this topic from multiple disciplines.

ANIL KUMAR CHAUDHARY

Department of Agricultural Economics, Sociology, and Education, Penn State

Anil Kumar Chaudhary's research focuses on human dimensions of natural resource management (HDNRM) and application of program evaluation and assessment principles to formal and non-formal educational settings. He studies HDNRM in the context of improving water quality in working agricultural landscapes with farmers and natural resource professionals. Engagement with the NC-FEW team not only expands his professional network but allows him to share his perspective on the integration of the FEW principles while educating non-formal stakeholders.

GREGORY D. GOINS

Department of Natural Resources and Environmental Design, NC A&T State University

Dr. Goins uses socio-environmental systems to positively impact quantitative skills in STEM across socio-economic divides. His recent NSF-funded project entails longitudinal studies of the development of aspiring teachers' beliefs and practices about teaching and learning science as they progressed through a reform-based Next-Generation Science Standards science curriculum. He continues to work extensively with national organizations to re-focus learning outcomes of the traditional methods of science instruction using active, collaborative learning strategies and the creation of problem-based learning problems and materials.

CHRISTINE LI

Assistant Professor in the School of Natural Resources, University of Missouri-Columbia

Christine Jie Li's research is in the field of environmental education and civic engagement. She has been investigating the effectiveness of using innovative pedagogical tools to engage diverse youth and college students in the learning of complex socio-environmental issues, such as climate change. She is the lead investigator of the Climate Youth Engagement project with North American Association for Environmental Education's Environmental Issues Forums (EIF). NC-FEW allows her to explore more how to use science-based deliberation framework to design more FEW-Nexus issue guides and foster students' critical thinking skills and sense of hope and agency to take community-based actions.

JAMIE LOIZZO

Department of Agricultural Education and Communication, University of Florida

Dr. Jamie Loizzo teaching and research align well with the NC-FEW informal/non-formal initiative, as she teaches and researches science communication and engagement for a variety of public and PK-12 audiences. Her classes and research are focused in the agricultural communication specialization. Loizzo founded Streaming Science, a project-based learning and mobile electronic field trip program for 21st Century science communication education, and works with a team of researchers and developers to create the MOOCocracy platform – an online, learner-centered, social democracy for engaging in global social issues.

MARY VAN DE KERKHOF

Educational Research and Evaluation, Two Roads Consulting

Mary van de Kerkhof provides research and evaluation of science education programs in the formal and informal sectors. Mary's research interests are primarily situated at the intersection of, and connections among, formal and informal science learning environments. This includes researching instructional tools to support youth as they connect science ideas they are learning with their real-world experiences, and utilization of outdoor experiences that students can engage in to enrich formal learning environments. Mary's work encompasses program and curriculum design and development, research and evaluation of the programs and curricula, and supporting (in)formal science educators.

NEW NSF GRANT AWARDED TO NC-FEW'S ROMULO

Two University of Northern Colorado faculty members were awarded a \$1 million grant by the National Science Foundation to improve teaching in college-level environmental science courses. The focus of this particular project is to develop, validate, and test an assessment tool for students' understanding of the connections among food-energy-water concepts in their classes. Assistant Professor Chelsie Romulo, NC-FEW Affiliate, and Professor Steven Anderson will spend the next three years working on this project.

"All of my research focuses on what works and why. And so before we can get to answering the question of what works and why for teaching and learning, we have to have the tools to do that research. So this is basically the first step of a long-term project," said Romulo, the Principal Investigator of the project.

First, they will need to build this assessment tool, make sure that it is a valid tool for measuring teaching and learning, and then they can implement it at universities across the nation to understand how students learn and how they might learn differently with different teaching methods. There is a long history and very established research using what's called concept inventories, which test whether a student understands a topic. Concept inventories tend to be discipline specific, like physics and geology. However, the Food-Energy-Water-Nexus requires students to connect ideas and concepts across disciplines. There are currently no good tools to assess how students make those connections and understand complex FEW-Nexus ideas.

"So that's so my contribution, is making sure that we have good assessment tools so that we're not just testing, you know, did you memorize these facts? But can you put them together? And can you explain how they're connected? Can you solve problems?" Romulo said.

The Department of Geography, GIS, and Sustainability and Earth and Atmospheric Sciences of the University of Northern Colorado seeks a candidate to fill a Postdoctoral Research Assistant position on this project. For more information, see the following link <https://careers.unco.edu/postings/3482>.

NC-FEW ON TWITTER

NC-FEW now has an official Twitter handle [@nc_few](https://twitter.com/nc_few). If you are a Twitter user, please consider following [@nc_few](https://twitter.com/nc_few) as another way to stay engaged with the community, receive important updates, and connect with your fellow community members!



GET INVOLVED!

Do you study or evaluate FEW-Nexus-focused educational programs in K-12, postsecondary, and/or informal/nonformal settings? If so, consider [joining us!](#)

There is no cost to you and NC-FEW participation affords you access to community activities, including travel support to invited meetings, webinars and NC-FEW communications, and designation as an NC-FEW Affiliate.

<http://ncfew.org/get-involved/>

