

SEPTEMBER 2019



THE GER EXCHANGE

Promoting high-quality scholarly research in geoscience education.

Featured article: The Role of Introductory Geoscience Courses in Preparing Teachers - And All Students - For the Future: Are We Making the Grade?

Abstract

Introductory geoscience courses enroll hundreds of thousands of students a year, most of whom do not major in the geosciences. For many, including future K–12 teachers, an introductory course is the only place they will encounter Earth science at the college level. New standards for K–12 science education have profound implications for teacher preparation, particularly in Earth science. The new standards call for taking a systems approach, highlighting how humans interact with Earth, making use of science and engineering practices, and engaging students in discourse. Analysis of responses to the National Geoscience Faculty Survey ($n = 813$ in 2004; $n = 994$ in 2009; $n = 972$ in 2012; and $n = 1074$ in 2016) and data from 152 syllabi

suggest that a systems approach is not widespread and human interactions with Earth are not emphasized, and that most instructors engage students in mostly low cognitive-level practices. While the use of discourse practices has increased over time, these and other active learning components are not yet widely included in students' grades. These results suggest that courses are not currently well-aligned with teacher needs. However, instructors have access to many research-based instructional resources to support them in making changes that will help *all* students—including future teachers.

Egger, A.E., 2019, [The Role of Introductory Geoscience Courses in Preparing Teachers—And All Students—For the Future: Are We Making the Grade?:](https://doi.org/10.1130/GSATG393A.1) , *GSA Today*, v. 29, <https://doi.org/10.1130/GSATG393A.1>.

GER Division Events at GSA 2019

Please join us Sunday evening for the NAGT Geoscience Education Research Division (GER) Business Meeting 6:00 – 6:45pm in the Sheraton Grand Phoenix, ROOM: Encanto B. All are welcome to attend!

Geoscience Educator's Reception will be held from 7:00-8:30 pm at the Copper Blues Restaurant located at 50 W. Jefferson St, Phoenix.

GER-Sponsored GSA Sessions

230 - T190. [Making Sense of Methodologies and Theoretical Frameworks in Geoscience Education Research](#) **(Talks)** Tuesday, Sept. 24 from 1:30-5:30pm in Phoenix Convention Center - Room 101AB, West Building.

264 - T190. [Making Sense of Methodologies and Theoretical Frameworks in Geoscience Education Research](#) **(Posters)** Wednesday, Sept. 25 from 9:00am-6:30pm in Phoenix Convention Center - Hall AB, North Building

Advocates: Katherine Ryker, Karen McNeal, Leilani Arthurs, Emily M. Geraghty Ward

National Association of Geoscience Teachers; National Association of Geoscience Teachers Geoscience Education Research Division: GSA Geoscience Education Division

Methods and theoretical frameworks can come from within and outside of GER to shape our field. Presenters are encouraged to highlight their decision-making process in research studies that advance the field. New approaches and applications of established methods/frameworks are welcomed.

Get to know the NAGT GER invited speakers for GSA T190

The invited speakers for T190 are [Stephanie Pfirman](#), [Daniel Reinholz](#), [Kathy Quardokus-Fisher](#). If you are interested in joining them for dinner or drinks on Monday night, please e-mail Katherine Ryker (kryker@seoe.sc.edu) by the end of the day on **Tuesday, Sept. 15th** so she can make reservations for the group.

GET-Spatial research GSA Luncheon Announcement:

Connecting your geoscience education research to cognitive science: A networking and learning lunch for students and post-docs

GET-Spatial research is hosting a luncheon during the GSA Annual Meeting to provide a venue for students conducting geoscience education research to meet and discuss their work with cognitive scientists, to help build an interdisciplinary community. You will have opportunities to hear from cognitive scientists who have collaborated with education researchers, discuss how to use ideas from cognitive science in your own work, and network with like-minded colleagues.

Where: Chico Malo, 50 W Jefferson St, Phoenix, AZ 85003 (6 min walk from convention center)

When: Monday Sept 23rd, 12:30-1:30

Who: Lunch is open to postdoctoral fellows, graduate students, and undergrads currently working in and/or planning to apply to work in geoscience education research.

Please contact Elisabeth Boyce-Jacino (eboycejacino@temple.edu) if you have questions about this event. For more information about GETSpatial, please visit: <https://serc.carleton.edu/getspatial/index.html>

Results from the NAGT GER Division Elections

The positions will begin at the GER Division Business Meeting held Sunday Evening at the Geological Society of America Annual Meeting. The NAGT Geoscience Education Research Div.(GER) Business Meeting held from 6:00 – 6:45 pm Sheraton Grand Phoenix, [ROOM: Encanto B]

Past President: Katherine Ryker

President: Kelsey Bitting

Vice President: Emily Geraghty Ward

Treasurer: Corey Forbes

Graduate Student Representative: Bailey Zo Kreager

We also welcome **Lauren Neitzke Adamo as the new Media Director**. We look forward to another productive year in the division!

AGI Webinar: The latest from the Summit Series on Undergraduate and Graduate Geoscience Education

Join Sharon Mosher (University of Texas) and Jeff Ryan (University of South Florida) about the work being currently done relative to a summit series on graduate geoscience education, and an update on the next steps from the summit series on undergraduate education.

<https://www.americangeosciences.org/webinars>

Friday, September 13, 2019 1:00 PM EDT | 1 hour

Series: AGU/AGI Heads and Chairs

Call for submissions for NAGT GER Spotlight!

The GER Division highlights the career and research of one professional in our field in the **GER Spotlight**, and asks that person to share articles to read and advice for new and early career researchers in geoscience education. **Do you or does someone you know have a researcher profile to share with the community?** Download the [template](#) and [upload](#) your profile to be featured in a future edition of the newsletter!

Check out our former Spotlights on our [webpage](#)!

Job and Internship Opportunities

● Drs. Emily Holt at the University of Northern Colorado, Julie Sexton at University of Colorado Boulder and Dr. Krystal Hinerman at Lamar University are currently seeking a [discipline-based science education research postdoc](#) to join them this Fall for a two-year position. A description and a link to the application is below. Inquiries can be

directed to **Dr. Emily Holt** at emily.holt@unco.edu. The position will be based at the University of Northern Colorado.

Seeking applications for a postdoctoral researcher to work on a NSF-funded mixed methods study investigating novice and expert conceptions of the biotic impacts of climate change. While abundant literature describes student knowledge of the causes and abiotic consequences of climate change, little work describes conceptions of how the living component of ecosystems is affected by climate change. The first phase of this project is to describe these conceptions in novice and expert populations. The latter phases of the project aim to leverage this information to develop a concept inventory to quantify accurate and alternate conceptions of introductory biology and 200/300-level ecology undergraduate students. This is a twelve-month appointment at about 35 hours/week, renewable for the second year. The postdoctoral researcher will work with a highly collaborative team. **The position is currently open until filled.**

- The [First-Year Innovation & Research Experience \(FIRE\)](#) is a hybrid research and education initiative at the University of Maryland, College Park (UMD) is seeking a number of individuals (multiple positions available) to serve as [Research Educators](#) (formal title: Assistant Clinical Professor) for new undergraduate research groups to begin in January 2020. New Research Educator positions will be supported from January 2020 through December 2022 (3 years) contingent on positive annual reviews and available funding. The position will report directly to the Director of Discovery-Based Learning in the Office of the Senior Vice President and Provost.

- The [Department of Engineering and Science Education at Clemson University](#) invites applicants for a **tenure-track** faculty position for an **assistant or associate professor** of STEM education research. Applicants should submit their curriculum vita with names of three references with full contact information along with a statement of research interests, diversity, and teaching philosophy (maximum two pages each) via Interfolio. Applications open in **August 2019** and any received by **November 15, 2019**, will be given full consideration; however, the search will continue until the position is filled.

- [Assistant Professor Geoscience Education - California State University Fullerton](#) (deadline **November 8, 2019**)

Grant, Award, and Scholarship Deadlines

- The American Educational Research Association (AERA) announces its 2020–2021 [AERA Minority Dissertation Fellowship in Education Research](#) competition for graduate students. This program provides mentoring and funding support to develop research skills and conduct studies in education related fields and topics. **Application deadline is Friday, November 1, 2019.**
- NSF [Improving Undergraduate STEM Education: Education and Human Resources](#) (Exploration and Design Tier for Engaged Student Learning & Institution and Community Transformation) (submission window **October 01, 2018 - September 30, 2019**)
- NaEd/Spencer [Dissertation Fellowship Program](#) (deadline **October 3, 2019**)
- NaEd/Spencer [Postdoctoral Fellowship Program](#) (deadline **November 20, 2019**)
- Spencer Foundation [Small Research Grants](#) (deadline **November 1, 2019**)
- NSF [ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions \(ADVANCE\)](#) (letter of intent deadline **November 1, 2019** for January 2020 Adaptation and Partnership competition)
- NSF [Alliances for Graduate Education and the Professoriate \(AGEP\)](#) (full proposal deadline **December 13, 2019**)

Submit to the GER Exchange

NAGT-GER provides monthly updates on professional opportunities, funding, articles of note, researcher profiles, and other content of interest to our membership. Please consider [contributing items](#) of interest for inclusion in future editions of the Exchange!

For questions, or to join the GER Communications Committee, contact Media Director, [Emily Ward](#).

