

DECEMBER 2018



THE GER EXCHANGE

Promoting high-quality scholarly research in geoscience education.

GER Division Announces 2018 Award Winners

Transformation Award: Julie Libarkin



Julie Libarkin is the 2018 NAGT-GER Division Collaboration Awardee. Julie is a geocognition researcher at Michigan State University who studies how people perceive, understand, and make decisions about the Earth. Julie has transformed the geoscience education research community in three main ways: 1) through her research productivity that cross-cuts disciplines, bringing new methodologies and approaches to GER; 2) leading the GER community in increased rigor in the both the execution of research and publication of findings and; 3) her work as a researcher, mentor, colleague has supported and provided new findings in diversity in the geosciences. She is an esteemed researcher that is nationally and internationally known

and she has worked across disciplines has been an important change maker in GER establishing the foundation for the respected research community that we in GER now enjoy. She had been Chairman of the Geoscience Education Division of the Geological Society of America and the Editor-in-Chief of the Journal of Geoscience Education and she was elected Fellow of the Geological Society of America in 2016 in recognition for her distinguished contributions to the geoscience community.

Since her graduate student years, Julie saw that there was a need in GER to conduct more rigorous qualitative and quantitative research. She worked to learn from other related fields studying their techniques and methodologies to approach social science research and then went a step further to share what she found with others in the geoscience education community through series of JGE articles and conference workshops. She went on to eventually become Editor-in-Chief of the Journal of Geoscience Education (JGE). It is in this capacity that she continued to move the needle forward in GER where she established distinctions between "Research" and "Curriculum & Instruction" submissions where she also created new metrics for both types of submissions, increasing the quality of submission for both types of manuscripts while highlighting the importance of both contributions to advance the state of the field.

Julie been PI or Co-PI on numerous federally funded research projects with over \$10M in secured grants and she has published over 60 peer-reviewed research articles in a range of publication outlets including: Journal of Geoscience Education, Science, Climatic Change, Journal of Geophysical Research, Journal of College Science Teaching, Tectonophysics, GSA Today, Computers and Geosciences, Astronomy Education Reviews, the Journal of Research in Science Teaching, CBE-Life Sciences, Bulletin of the American Meteorological Society, International Journal of Science Education, Geosphere, Journal of Women and Minorities in Science and Engineering, Journal of Engineering Education, among many others. Julie's funding and publishing accomplishments illustrate her ability to work across disciplinary fields as well as her ability to disseminate her research to a broad range of communities.

Finally, Julie has been an advocate and supporter of women, as well as those from diverse and marginalized communities, working to not only improve their situations in the geosciences, and academia more broadly, but to improve the geosciences by having them be an essential part of the community.

In summary, Julie's work has been described as "promoting the importance of enhancing access and inclusion in the geoscience disciplines for students from underrepresented groups in order to foster more diverse and innovative perspectives of scientific process." And it has been stated that she has "substantially changed the research culture in GER from qualitative case studies and action research (research centering on a single classroom) to quantitative and semi-quantitative studies using valid and reliable assessment instrument. She has been described as "a pioneer in investigating students' conceptions and in developing assessments that are still widely used today." In all, she has transformed the geoscience education research

culture as "work conducted by geoscience educators today is much different than it was in 2000. Today, it is not possible to page through journals that publish geoscience education research without noticing the abundance of quantitative and semi-quantitative studies that were not present 15 years ago. There is no other researcher in our community who has done so much to guide us towards a new model for research as Julie has."

Collaboration Award: Tim Shipley



Thomas (Tim) F. Shipley is the 2018 NAGT-GER Division Collaboration Awardee. Tim is a cognitive psychologist at Temple University who studies spatial cognition and learning. As a core investigator on the NSF-funded Spatial Intelligence and Learning Center (SILC), Tim led the effort to investigate the intriguing spatial thinking challenges associated with the geosciences. In the decade since SILC was first funded, Tim's work is an example of true transdisciplinary research. As one nomination letter describes, "rather than stay in the comfortable confines of his own discipline, he pushed into the unknown territory of interdisciplinary/transdisciplinary research. Effectively, he trained himself as a geologist in order to understand the problems in cognitive science that the geologists were facing."

Tim has collaborated with and mentored several geoscientists and GER researchers, yielding numerous publications in geoscience-related venues (e.g. Journal of Geoscience Education (9 publications!), Aeolian Research, Nature: Climate Change, Journal of Astronomy and Earth Science Education, Journal of Structural Geology) and highly-regarded psychology journals. This demonstrates to the psychology community the complexity of discipline-based tasks, and raises the value of geoscience education research (GER). Tim's colleagues describe the qualities that make Tim an ideal collaborator. "Tim creates an environment where one is open to say anything", "he gives so generously of his knowledge", and "we co-create knowledge

together, knowledge that neither of us could create on our own." "He is always genuinely interested to hear and listen to ideas and concerns. I think this is also why his publications are easily understood in both the psychology and geology domains." The consequence of Tim's collaborations is a shift in how geoscientists and GERs view the discipline. "Dr. Shipley has fundamentally changed the way I think about the world, which includes how I do geoscience research."

GER updates from the GSA Meeting

● New GER bylaws approved at GSA

The GER Division revisions to the bylaws were passed at the annual GER Division business meeting held on Sunday November 4, 2018. According to the bylaw language, the approved bylaw amendments shall go into effect ninety (90) days after adoption unless the President receives written objections from a quorum of twenty (20) percent of the voting membership of the Division. If a quorum objects in writing to an amendment, then the amendment shall be held in abeyance until the next annual election of officers, at which time a majority vote of the eligible members shall be required for its adoption and for it to become immediately operational. Please contact GER President Katherine Ryker with any questions.

● Presentations from NAGT-GER session entitled *Making Sense of Methodologies and Theoretical Frameworks in Geoscience Education Research* now available on the GER website

On Monday, November 5th, 2018, the NAGT GER officers (Katherine Ryker, Karen S. McNeal, Anne Gold, and Leilani Arthurs) chaired a GSA session titled [Making Sense of Methodologies and Theoretical Frameworks in Geoscience Education Research](#). In an effort to disseminate the information shared more widely, we have posted the session schedule and shared slides to the website: <https://nagt.org/nagt/divisions/geoed/methods>. The NAGT GER officers were very pleased with the number of strong submissions to this methods-based GER session. Thank you to all the presenters!

Featured Article

Declawing the dinosaurs in the science classroom: Reducing Christian teachers' anxiety and increasing their efficacy for teaching evolution

"America's rank among the lowest of developed countries in evolution acceptance rates is due, at least in part, to religious and political opposition. The negative correlations among religiosity, political ideology, and evolution acceptance in the United States have been documented repeatedly, and comfort with evolution varies by region with reception being especially cool in the south and southwest. Teachers are on the frontlines of the tensions between science and faith and often avoid the topic even if such avoidance violates state laws. Even non-creationist teachers in regions with creationist norms are pressured to conform to regional curricula preferences. The present study describes the outcomes of a professional development workshop that explicitly considers motivational and identity features of largely conservative, religious science teachers residing in West Texas. Our goal was to reduce the perceived conflict between faith and science such that Christian teachers would feel less negative and more positive about the theory and teaching it, and thus more efficacious in the classroom such that they would be more willing to teach according to the standards. In a retrospective pretest-posttest design, teachers reported reductions in misconceptions and negative emotions in response to the workshop, and gains in positive emotions and self-efficacy. Change scores were particularly marked for female teachers. Moreover, the relationships between community support for teaching evolution and teacher emotions and self-efficacy were reduced post-workshop indicating that teachers became independent from the norms of their schools. Though not the first intervention to support teacher instruction of evolution, the present workshop is the first to our knowledge that seeks to integrate biological content, cognitive change, and motivational/identity models."

Hawley PH, Sinatra GM. Declawing the dinosaurs in the science classroom: Reducing Christian teachers' anxiety and increasing their efficacy for teaching evolution. *J Res Sci Teach*. 2018;1–27. <https://doi.org/10.1002/tea.21479>

Job and Graduate School Opportunities

● Director of the Center for Transformative Teaching at University of Nebraska-Lincoln

The University of Nebraska-Lincoln has launched a national search for an inaugural director of its Center for Transformative Teaching. Interested candidates can view the the ad here: <https://executivevc.unl.edu/searches-appointments/ctt> to find out more about the position, the required qualifications, and information about the university and the Lincoln community. The Search Committee will begin reviewing candidates January 2, 2019.

● University of Texas at Austin-Director of Freshman Research

The University of Texas at Austin is currently looking for a Director of Freshman Research in the College of Natural Sciences. This director leads all operational functions, student experience functions, external relations and communications activities for the Freshman Research Initiative (FRI) and related undergraduate research efforts. The FRI program serves approximately 1,000 freshmen science students each year and has over 25 dedicated faculty who run the course-based undergraduate research groups. Position is security sensitive. The University of Texas at Austin is an Equal Opportunity/Affirmative Action Employer committed to diversity.

The successful candidate will have experience managing programs or developing initiatives related to undergraduate education. A PhD in STEM-related field is required. For further information and to apply, please go to <https://utaustin.wd1.myworkdayjobs.com/UTstaff> for complete description and to apply for job requisition number R_00000459.

Sarah Eichhorn, Executive Director of the Texas Institute for Discovery Education in Science - The University of Texas at Austin | College of Natural Sciences | 512-232-9029 | s.eichhorn@utexas.edu

● Teaching professor in Environmental Earth Science at Tulane

Tulane University's Department of Earth & Environmental Sciences seeks to fill a Professor of Practice teaching position to begin in July 2019, with the expectation that the first courses will be taught in Fall 2019. The position is a non-tenured, full-time academic year (nine month) teaching position with renewable 3-year appointments. The responsibilities of this position include teaching undergraduate lecture and laboratory

courses, possibly graduate level courses, and service to the educational mission of the department and university. Opportunities exist for advising undergraduate research and development of service--learning courses. A doctoral degree in an environmental science or related field is required. Applicants should be able to teach introductory courses in environmental geosciences and advanced courses in their area of expertise.

Applications are due December 31 and review will continue until the position is filled. Applicants should submit a cover letter, CV, statement of teaching philosophy, any previous teaching evaluations or other evidence of teaching excellence, and contact information for three references familiar with the applicant's teaching abilities. Please submit applications to apply.interfolio.com/56346. Questions regarding the position can be addressed to Dr. Nancye Dawers (ndawers@tulane.edu).

Tulane University is a member of the Association of American Universities (AAU). Tulane is an Equal Opportunity/Affirmative Action/ADA Employer and encourages minority applicants to apply.

Geoscience Assistant Professor In Residence – University of Nevada Las Vegas

● **Geoscience Assistant Professor In Residence – University of Nevada Las Vegas**

The Department of Geoscience (<http://geoscience.unlv.edu/>) at UNLV invites applications for a full time, 9-month, non-tenure track teaching faculty member (Assistant Professor in Residence) to begin Fall 2019. The primary responsibility for this position is instruction of introductory level courses for science and non-science majors (e.g., Physical Geology, Historical Geology, Physical Geography, Natural Disasters). The successful candidate will also have the opportunity to develop upper-division undergraduate and/or graduate courses in their specialty. The ability to teach courses in Geomorphology and/or Geographic Information Systems is desirable. Career advancement is available with evidence of continued professional development. The Department seeks a dynamic and enthusiastic individual with a commitment to undergraduate education. A Ph.D. in Geology, Physical Geography, or related discipline is required. Salary is commensurate with qualifications and experience.

The department has, undergraduate, M.S. and Ph.D. degree programs, state of the art laboratory facilities (including stable isotope, argon geochronology, XRD, LA-ICP-MS, and electron microprobe/SEM labs.) and an enthusiastic faculty of 21.

Application materials must include a cover letter, curriculum vitae, statement of teaching

philosophy and interests, and contact information for five referees. To receive full consideration, application materials should be received by January 4, 2019. Materials should be addressed to Dr. Brenda Buck (buckb@unlv.nevada.edu), search committee chair, and are to be submitted via on-line application at <https://hrsearch.unlv.edu>. For assistance with UNLV's on-line applicant portal, contact UNLV Employment Services at (702) 895-2894 or hrsearch@unlv.edu.

Salary is competitive with those at similarly situated institutions. Position is contingent upon funding. UNLV is an Equal Opportunity/Affirmative Action educator and employer committed to achieving excellence through diversity.

● **GER Graduate Research Assistant at Northern Illinois University**

The GRA will be guaranteed **five years** of funding to: lead mentoring meetings for STEM students, learn qualitative and mixed-methods research methodologies, and investigate the personal and contextual factors associated with students' persistence in STEM majors. This project is funded, in part, by NSF #1834076. The GRA will earn a graduate degree from the NIU Department of Geology & Environmental Geosciences and be a part of the Geoscience Education Laboratory. The project will begin Summer 2018. Application review for this position will begin in **January 2018**. Preference will be given to students intending to pursue a Ph.D. and/or applicants with experience mentoring underrepresented students. NIU offers several opportunities for graduate student travel and research funding, a growing DBER community, and opportunities to take methods courses in College of Education. For additional information please contact Nicole LaDue (nladue@niu.edu)

● **GER Graduate Student Positions at University of Colorado at Boulder**

The Department of Geological Sciences at the University of Colorado at Boulder (CUB) seeks to fill two graduate student positions in the area of Geoscience Education Research (GER). Graduate-support is available for 5 years. PhD degree-seeking students and Master's degree-seeking students are encouraged to apply.

The application deadline for CUB's Office of Graduate Admissions is *December 1, 2018 for international students and January 10, 2019 for domestic students*. More information about applying to CUB is at: <https://www.colorado.edu/graduateschool/admissions/apply>

Contact Dr. Leilani Arthurs (Leilani.Arthurs@Colorado.EDU) for information about the

two graduate student positions. Contact the Office of Graduate Admissions (gradadm@colorado.edu) for information about applying to CUB.

Conference Talks on the Community Framework for GER

Interested in learning more about the [Community Framework for GER](#)? Attend an upcoming talk at one of these conferences!

AGU (December):

- [Grand Challenges for Future Research on Diverse Instructional Strategies to Improve Geoscience Learning Instructional Strategies](#) (Steve Semken, Prajukti Bhattacharyya, Don Duggan-Haas, Amy Pallant, Jennifer L Dickson, and Kristen K St John) Research Theme: [Instructional Strategies](#)
- [Research on Teaching about Earth in the Context of Societal Problems](#) (Lauren Holder, Rebecca Boger, Hannah Scherer, Cory Forbes, Rachel Teasdale). Research Theme: [Teaching with Societal Issues](#)

AMS (January):

- Atmospheric Sciences Education Research: Professional society support to an emerging community (Donna J Charlevoix, Cathy Manduca, Wendy Abshire). Research Theme: [Conceptual Understanding - Environmental, Ocean, Atmosphere and Climate Science Content](#). Direct link not yet available. Keep an eye out for the Symposium on Education program going live [here](#)!

2019 PKAL STEM Leadership Institute

[The Project Kaleidoscope \(PKAL\) STEM Leadership Institute](#) is designed for STEM faculty at the early to middle stages of their careers as educators, researchers, program directors, principal investigators, or department/college-level administrators. The multi-day intensive professional development experience empowers individuals in fully understanding and implementing the theory and practice of navigating the politics of change, addressing inter- and intra-personal conflicts, and re-structuring the institutional systems that limit the capacity for global competitiveness in science and technology. Location: The Claggett Center, Adamstown, Maryland Institute I: July 9-14, 2019, Institute II: July 16-21, 2019 Intent to apply deadline: January 15, 2019

Grant, Award, and Scholarship Deadlines

● NSF [Alliances for Graduate Education and the Professoriate \(AGEP\)](#) Full Proposal Deadline **December 14, 2018**

● NSF [Improving Undergraduate STEM Education: Education and Human Resources](#) (Development and Implementation Tier) Full Proposal Deadline **December 11, 2018**

● NSF [Alliances for Graduate Education and the Professoriate \(AGEP\)](#) (full proposal deadline **December 14, 2018**)

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 Geraghty Ward](#).



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This monthly email goes out to all GER Division members to share opportunities and ideas relevant to the community.

Our mailing address is:

NAGT Geoscience Education Research Division
NAGT, c/o Carleton College W-SERC
One North College Street
Northfield, MN 55057

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