

**Leilani A. Arthurs**

Curriculum Vitae

Department of Geological Sciences, University of Colorado at Boulder  
Leilani.Arthurs@Colorado.EDU

**PROFESSIONAL APPOINTMENTS / EMPLOYMENT**

- 2021-pres. Associate Professor of Geological Sciences  
Department of Geological Sciences  
University of Colorado at Boulder
- 2018-2021 Assistant Professor of Geological Sciences  
Department of Geological Sciences  
University of Colorado at Boulder
- 2011-2017 Assistant Professor of Earth and Atmospheric Sciences  
Department of Earth and Atmospheric Sciences  
University of Nebraska-Lincoln
- 2010-2011 Assistant Professor of Geology  
Department of Geology and Geography  
Georgia Southern University
- 2007-2010 Science Teaching Fellow  
Department of Geological Sciences, Science Education Initiative  
University of Colorado at Boulder
- 2006-2007 Instructor  
Center for Social Concerns  
University of Notre Dame
- 2002 Instructor of Geology  
Department of Geology  
University of Hawai'i at Hilo

**EDUCATION**

- 2007 PhD: Civil Engineering and Geological Sciences; Specialty: Environmental Aqueous Geochemistry; University of Notre Dame
- 2007, 2005, 2004, 2003 Certificates: Excellence in Teaching; University of Notre Dame
- 2002 B.S.: Geology; with High Honors; University of Hawai'i at Hilo
- 1997 B.A.: Peace and Conflict Studies; Emphasis: Conflict & Conflict Resolution, with special interest in Environmental Justice; University of California at Berkeley
- 1996 Certificate: Japan in Today's World; Kyushu University in Japan

**SELECTED PUBLICATIONS**

Note: \* undergraduate student, \*\* graduate student, \*\*\* postdoc/researcher

- 2023 Bonner\*\*, H., **Arthurs, L. A.** Roth, Ellen K., & Hagadorn, James W. "Paleogeographic Maps: Audience Insights on Portrayal of Ancient Terrain and Climate," *GSA Today*, v. 33, p. 4–10, <https://doi.org/10.1130/GSATG544A>

- 2022 **Arthurs, L. A. & Kowalski<sup>\*\*\*</sup>**, C. (2022). “Engaging students’ prior knowledge during instruction improves their learning of groundwater and aquifers,” *Journal of Geoscience Education*, 70(1), 114-129. <https://doi.org/10.1080/10899995.2021.2004536>
- 2021b **Arthurs, L. A.**, Bauman<sup>\*\*</sup>, S., Rice<sup>\*</sup>, J. & Litton<sup>\*</sup>, S. (2021). “The development of individuals’ map-reading skill: What research and theory tell us,” *International Journal of Cartography*. 1-26. [10.1080/23729333.2021.1950318](https://doi.org/10.1080/23729333.2021.1950318)
- 2021a **Arthurs, L.A.**, Elwonger, J., & Kowalski<sup>\*</sup>, C. M. (2021). “Facilitating conceptual change by engaging students’ preconceptions during college science classroom instruction,” *Journal of College Science Teaching*, Jan/Feb 2021, 50(3), 28-35. <https://www.jstor.org/stable/27133096>
- 2019 **Arthurs, L. A.** (2019). “Undergraduate geoscience education research: Evolution of an emerging field of discipline-based education research,” *Journal of Research in Science Teaching*, 56(2), 118-140. <https://doi.org/10.1002/tea.21471>
- 2018 **Arthurs, L. A. & Elwonger<sup>\*</sup>**, J. M. (2018). “Mental models of groundwater residence: A deeper understanding of students’ preconceptions as a resource for teaching and learning about groundwater and aquifers,” *Journal of Astronomy and Earth Science Education*, 5(1), 53-66. <https://doi.org/10.19030/jaese.v5i1.10192>
- 2017 **Arthurs, L. A. & Kreager, B.<sup>\*\*</sup>** (2017). “An integrative review of in-class activities that enable active learning in college science classroom settings,” *International Journal of Science Education*, 39(15), 2073-2091. <https://doi.org/10.1080/09500693.2017.1363925>
- 2016 **Arthurs, L.** (2016). “Assessing student learning of oceanography concepts,” *Oceanography*, 29(3), 18-21. <https://www.jstor.org/stable/24862701>
- 2015 **Arthurs, L.**, Hsia<sup>\*\*</sup>, J. & Schweinle, W. (2015). “The oceanography concept inventory: A semi-customizable assessment for measuring student understanding of oceanography,” *Journal of Geoscience Education*, 63(4), 310-322. <https://doi.org/10.5408/14-061.1>

### SELECTED AWARDS & GRANTS

- 02/15/23 – 07/31/25. PI, Planning Grant: Connecting Our Unit through Relationships and Allyships in Geoscience (COURAGE). NSF-CTGC; \$271,731.00; University of Colorado at Boulder. (1-mo salary/year)
- 09/01/22 – 08/31/27. Co-PI., Collaborative Research: Human Infrastructure for a National Geochronology Consortium: Growing a community and enabling grassroots ideas for inclusive and collaborative science. NSF-FRES; \$528,702.00; University of Colorado at Boulder. Rebecca Flowers (PI), University of Colorado at Boulder.
- 10/01/19 – 09/30/21. Co-PI, Cybertraining for Earth Surface Process Modelers. NSF-CyberTraining; \$904,694; Irina Overeem (PI), University of Colorado at Boulder. (0.5-mo salary/year)
- 10/01/18 – 09/30/23. PI, Promoting Research-based Instructional Methods for Enhancing and Reforming STEM Education (PRIMERS). NSF-IUSE; \$2,364,890; University of Colorado at Boulder (2-mo salary/year) NCE1 10/01/23 – 09/30/24

### SELECTED INVITED TALKS AND WORKSHOPS

- 2023 **L. Arthurs** “Promote Student Learning Using Class Assessments,” Department of Mathematics, University of Colorado at Boulder; CO 2023-10-17 (workshop)
- 2022 **L. Arthurs** “Students’ preconceptions about groundwater are tools for teaching and learning about aquifers,” Northern Illinois University; Online/Virtual, IN 2022-09-16 (talk)

- 2021 **L. Arthurs** “Engaging students’ preconceptions about groundwater facilitates their learning about aquifers,” Purdue University; Online/Virtual, IN 2021-11-04 (talk)
- 2021 **L. Arthurs**, C.-L. Cheng, C. Flaagan, P. Lu, and P. Shabram, “Pedagogical professional development for STEM faculty: From individual change to community empowerment,” AAAS-IUSE Initiative; Online/Virtual, FL 2021-06-15to16 (day 1 workshop, day 2 working session)
- 2021 **L. Arthurs** “Drawing on student misconceptions to improve STEM education,” Florida International University; Online/Virtual, FL 2021-03-23 (talk)

### SELECTED CONFERENCE PRESENTATIONS

Note: \*undergraduate, \*\*graduate, \*\*\*postdoc/researcher

- 2023 **L. Arthurs**, “Impact of unwelcome student behaviors on STEM instructors and instructional decision making,” GSA Abstracts with Programs Vol. 55, No. 6, doi: 10.1130/abs/2023AM-393166, GSA Fall Meeting; Pittsburgh, PA, and online everywhere; 2023-10-16
- 2023 H. Fortener\*\* and **L. Arthurs**, “A model for effective teaching-focused professional development at US public institutions of higher education,” GSA Abstracts with Programs Vol. 55, No. 6, doi: 10.1130/abs/2023AM-391084, GSA Fall Meeting; Pittsburgh, PA, and online everywhere; 2023-10-16
- 2023 C. Wilfong\*\* and **L. Arthurs**, “The impact of teaching-focused professional development on instructional methods relative to geoscience faculty career stage,” GSA Abstracts with Programs Vol. 55, No. 6, doi: 10.1130/abs/2023AM-391071, GSA Fall Meeting; Pittsburgh, PA, and online everywhere; 2023-10-16
- 2023 C. Wilfong\*\* and **L. Arthurs**, “Barriers and catalysts to implementing evidence-based instructional methods in higher education geoscience classrooms after professional development participation,” Earth Educators’ Rendezvous; Pasadena, CA; 2023-07-10
- 2023 H. Fortener\*\* and **L. Arthurs**, “Professional development program design and potential for higher education transformation at three types of institutions of higher education,” Earth Educators’ Rendezvous; Pasadena, CA; 2023-07-10

### SELECTED COURSES TAUGHT

*Undergraduate Lower-Division:* Physical Geology; Environmental Justice and Human Rights in the Aftermath of Hurricane Katrina; Global Change; Environmental Geology; Exploring Earth for Scientists; Water, Energy, and the Environment

*Undergraduate Upper-Division:* Water-Rock Interactions, Chemistry of Natural Waters, Teaching and Learning Earth Science

*Graduate Level:* Water-Rock Interactions, Teaching and Learning in Post-secondary STEM Education, Communicating Earth Science with the Public

### SELECTED AWARDS & RECOGNITIONS

- 2021 Iris Moreno Totten Award, GSA Geoscience Education Division
- 2015 Certificate of Recognition for Contributions to Students, the Parents Association and the Teaching Council of the University of Nebraska-Lincoln