

Leilani A. Arthurs

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

EDUCATION

- 2007 PhD: Civil Engineering and Geological Sciences; University of Notre Dame
 2007, 2005, Certificates: Excellence in Teaching; University of Notre Dame
 2004, 2003
 2002 B.S.: Geology; with High Honors; University of Hawai'i at Hilo
 1997 B.A.: Peace and Conflict Studies; University of California at Berkeley

SELECTED PROFESSIONAL APPOINTMENTS / EMPLOYMENT

- 2018-pres. 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 SEI Science Teaching Fellow
 Department of Geological Sciences; University of Colorado at Boulder
 1998-2002 Geophysics Science Aide
 Hawaiian Volcano Observatory; United States Geological Survey

SELECTED PUBLICATIONS

- 2019 **L. Arthurs**, "Undergraduate geoscience education research: Evolution of an emerging field of discipline-based education research," *Journal of Research in Science Teaching*, 56(2), 118-140.
 2018 **L. Arthurs**, "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.
 2018 **L. Arthurs**, "How explicit is the cognitive science foundation of geoscience education research? A study of syntactical units in JGE articles," *Journal of Geoscience Education*, 66(1), 77-91.
 2017 **L. Arthurs** and B. Kreager, "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
 2016 **L. Arthurs** and M. Van Den Broeke, "Novice explanations of hurricane formation offer insights into scientific literacy and the development of expert-like conceptions," *Journal of Astronomy and Earth Sciences Education*, vol. 3, no. 1, p. 1-26.
 2015 **L. Arthurs**, J. Hsia, and W. Schweinle, "The oceanography concept inventory: A semi-customizable assessment for measuring student understanding of oceanography," *Journal of Geoscience Education*, vol. 63, no. 4, p. 310-322.

SELECTED GRANTS

- 2018-2023 NSF: IUSE: EHR: Collaborative: Promoting Research-based Instructional Methods for Enhancing and Reforming STEM Education (Lead PI). University of Colorado at Boulder. \$2,364,890.
- 2015-2018 NSF: IUSE: GEOPATHS: Building a Comprehensive Geoscience Learning Experience (Co-PI). University of Nebraska-Lincoln (Lead PI: M. Searls). \$400,075.
- 2014-2017 NSF: WIDER: Adopting Research-Based Instructional Strategies for Enhancing STEM Education (Co-PI and lead writer). University of Nebraska-Lincoln (Lead PI: L. Perez). \$1,990,279.

SELECTED INVITED TALKS

- 2018 **L. Arthurs** “Mental Models of Groundwater Residence: A Deeper Understanding of Students' Preconceptions as a Resource for Teaching and Learning about Groundwater and Aquifers,” School of Teacher Education, University of Wyoming, 2018-12-03
- 2017 **L. Arthurs**, J. Caulkins, A. Awad, D. Steer, K. Viskupic, E. Iverson, and C. Manduca, “Lessons Learned from the InTeGrate Project: The Challenge of Integrating Systems Thinking into College STEM Curricula,” UNL Water for Food Global Conference; Lincoln, Nebraska, 2017-04-10
- 2016 **L. Arthurs**, “Course Design Principles and Tools that Promote Deep Learning,” UNL Teaching & Learning Symposium; Lincoln, Nebraska, 2016-10-07
- 2015 **L. Arthurs**, “Interactive Engagement and Research-Based Instructional Strategies for STEM Courses,” UNL Teaching Symposium; Lincoln, Nebraska, 2015-02-13
- 2014 **L. Arthurs**, “Interactive Engagement and Peer Instruction,” Trinity College Dublin, Ireland, 2014-06-12 and 2014-06-13

SELECTED CONFERENCE PRESENTATIONS

- 2018 Thomas Clifford and **L. Arthurs**, “Theories and Models in Scalar Thinking Research,” GSA Abstracts Vol. 50, No. 6, GSA Fall Meeting, Indianapolis, IN, 2018-11-05
- 2017 **L. Arthurs**, “Drawing on Students' Prior Knowledge or (Mis)Conceptions during Classroom Instruction to Facilitate Their Development of Deeper Understandings about Groundwater and Aquifers,” GSA Abstracts Vol. 49, No. 6, GSA Fall Meeting, Seattle, WA, 2017-10-22
- 2016 **L. Arthurs**, “Cognitive Science in Geoscience Education (or Not?),” GSA Abstracts Vol. 48, No. 7, GSA Fall Meeting, Denver, CO, 2016-09-28, (invited talk)
- 2015 B. Kreager and **L. Arthurs**, “Active Learning Strategies in Undergraduate STEM Courses,” GSA Abstracts Vol. 47, No. 7, GSA Fall Meeting, Baltimore, MA, 2015-11-02
- 2014 **L. Arthurs**, “Teaching and Learning about Petroleum and Sustainability,” Paper No. 265-7, GSA Fall Meeting, Vancouver, Canada, 2014-10-22

SELECTED COURSES TAUGHT

Undergrad-intro: Physical Geology, Environmental Justice and Human Rights in the Aftermath of Hurricane Katrina, Global Change, Environmental Geology, Exploring Earth for Scientists

Undergrad-upper/Graduate-level: Water-Rock Interactions, Chemistry of Natural Waters

Graduate-level: Teaching and Learning in Post-Secondary STEM Education