

KATHERINE DAMERON ALMQUIST RYKER

Associate Professor, Geoscience Education
School of the Earth, Ocean and Environment
Co-Director, Center for Science Education
University of South Carolina

E-mail: kryker@seoe.sc.edu
Address: 701 Sumter Street, EWS 617,
Columbia, SC 29208
Phone: (803) 777-9513

EMPLOYMENT

Associate Professor, School of the Earth, Ocean and Environment, University of South Carolina 2023 – Present
Assistant Professor, School of the Earth, Ocean and Environment, University of South Carolina 2018 – 2022
Assistant Professor, Department of Geography and Geology, Eastern Michigan University 2014 – 2017

EDUCATION

Ph.D. Marine, Earth and Atmospheric Sciences, NC State University May 2014
Geoscience Education
M.S. Marine, Earth and Atmospheric Sciences, NC State University May 2011
Sedimentology
B.S. Earth and Ocean Sciences, Duke University May 2007
Duke Program in Education: Secondary Teacher Licensure, Science

SELECTED AWARDS & HONORS

- Dorothy LaLonde Stout Lecture, American Geophysical Union (2023)
- Mungo Undergraduate Teaching Award, University of South Carolina (2023)
- Best Paper Award, Geoscience Information Society (GSIS) (2023)
- GER Early Career Award, National Association of Geoscience Teachers Geoscience Education Research Division (2022)
- Biggs Award, Geological Society of America (GSA) (2021)
- GSA Fellowship (2021)
- McCausland Fellowship, University of South Carolina (2021)
- Two Thumbs Up Award, Disability Resource Center, University of South Carolina (2021)
- Outstanding Paper Award, Journal of Geoscience Education (2018)
- Distinguished Lecturer, Association of Women Geoscientists (2017)

SELECTED EXTERNAL GRANTS

- Collaborative Research: Quantifying the extent of student learning and affect associated with observed levels of instructional reform, NSF, \$400,000
- JSHS Regional Science Fair 2024, DOD, \$34,150
- Research Experience for Undergraduates Supplement, NSF, \$15,670
- Quantifying the Extent of Student Learning and Affect Associated with Observed Levels of Instructional Reform, NSF, \$600,000
- RAPID: Teaching Field Geology Without Classes In The Field: Providing A Robust Educational Experience Through Digital Resources, NSF, \$89,945
- Response to COVID-19 Field Research and Education Disruptions: Creating Virtual Field Experiences in Coastal and Estuarine Science, NSF, \$97,450
- Exploring How Geoscience Inquiry Labs Influence Graduate Student Teaching Beliefs and Undergraduate Student Learning and Interest, NSF, \$299,999
- Effective Teaching Strategies Workshops and Sessions for the 2019 Earth Educators' Rendezvous, NSF, \$49,984

TEACHING EXPERIENCE

University of South Carolina (Columbia, SC), Spring 2018 – Present

- GEOL 101: Introduction to the Earth
- GEOL 103: Environment of the Earth
- GEOL 305: Earth Systems Through Time
- GEOL 542: Methods in Geoscience Education Research

Eastern Michigan University (Ypsilanti, MI), Fall 2014 – Fall 2017

- ESSC 110: The Dynamic Earth System
- ESSC 202: Earth Science for Elementary Teachers
- ESSC 312: The Geosphere for Elementary Teachers (online, face-to-face)
- ESSC 347: Secondary Methods for Earth Science Education
- ESSC 406: Nature of Science (online)
- ESSC 407: Nature of Science for Elementary Teachers (online)

North Carolina State University (Raleigh, NC), Fall 2008 – Spring 2014

- MEA 110: Physical Geology online and hybrid courses
- MEA 101: Physical Geology
- Exploring the Earth; camp for HS Juniors and Seniors
- MEA 592: Geology of North Carolina for Teachers; grad course
- Lab Coordinator, MEA 110: Physical Geology
- Teaching Assistant, MEA 110: Physical Geology lab (standard, honors)

Northern High School, Durham Public Schools (Durham, NC), Fall 2007 – Summer 2008

- District standardized testing material preparation consultant
- Teacher, AP Biology and Biology I (Standard, Honors, ESL)
- Long term substitute, Algebra I and Intro to High School Math
- Student teacher, Earth Sciences (ESL, Honors) and Astronomy

Other

- Author, McGraw-Hill LearnSmart projects (Summer 2012 – Winter 2014)
- Lead Tutor for CORRAL, a program for at-risk girls ages 11-18 (math, science) (Fall 2010 – Spring 2014)
- Part time staff, North Carolina Museum of Natural Sciences (Spring 2013 – Spring 2014)
- NC State Geoscience Education Outreach Coordinator (Fall 2010 – Spring 2014)
- Visiting geologist and science fair judge for grades K-12 (Fall 2010 – Spring 2014)

PUBLICATIONS

Underlined names are student co-authors.

31. Ryker, K., Teasdale, R., & Bitting, K. (2024). Using observation protocols to reliably measure teaching practice in the classroom and advance the GER Community Framework. *Journal of Geoscience Education*, 1-18.
30. Ryker, K., Lukes, L., Klyce, A., Cheek, K., LaDue, N., & McNeal, P. (2024). The geoscience education research (GER) community of practice: a brief history and implications from a needs assessment survey. *Journal of Geoscience Education*, 1-15.

29. Bitting, K. S., Ryker, K., & Teasdale, R. (2024). Patterns in student self-reported situational interest in online introductory geoscience labs during COVID. *Journal of Geoscience Education*, 1-18.
28. Klyce, A., & Ryker, K. (2024). Evaluating the effectiveness of spatial training for introductory geology students. *Geosphere*, 20(2), 350-366.
27. Piper, M., Frankle, J., Owens, S., Stubbins, B., Tully, L., & Ryker, K. (2024). A review of the inquiry and utility of mineral and rock labs for use in introductory geology courses. *Journal of Geoscience Education*, 1-11.
26. Klyce, A., & **Ryker, K.** (2023). What does a degree in geology actually mean? A systematic evaluation of courses required to earn a bachelor of science in geology in the United States. *Journal of Geoscience Education*, 71(1), 3-19.
25. Jolley, A., **Ryker, K.**, Kortz, K. M., & Riggs, E. M. (2023). The impact of COVID-19 on publishing and reviewing in the Journal of Geoscience Education community. *Journal of Geoscience Education*, 71(2), 129-144.
24. Egger, A., Crowder, M., Visaggi, C.C., Archer, R., Wenner, J.M., Viskupic, K., Egger, A.E., Arthurs, L., Hannula, K.A., Phillips, M.A., & **Ryker, K.** (2022). Can GSA stay relevant in the modern landscape of geoscience? *GSA Today*.
23. LaDue, N. D., McNeal, P. M., **Ryker, K.**, St. John, K., & van der Hoeven Kraft, K. J. (2022). Using an engagement lens to model active learning in the geosciences. *Journal of Geoscience Education*, 70(2), 144-160.
22. Klyce, A., & **Ryker, K.** (2022). What does a degree in geology actually mean? A systematic evaluation of courses required to earn a bachelor of science in geology in the United States. *Journal of Geoscience Education*, 1-16.
21. Jolley, A., **Ryker, K.**, Kortz, K. M., & Riggs, E. M. (2022). The impact of COVID-19 on publishing and reviewing in the Journal of Geoscience Education community. *Journal of Geoscience Education*, 1-16.
20. Egger, A., Atchison, C., Burmeister, K., Rademacher, L., **Ryker, K.**, & Tikoff, B. (2021). Teaching with Online Field Experiences: New resources by the community, for the community. *In the Trenches*, 11(1).
19. Lombardi, D., Shipley, T.F., LaDue, N.D., Bailey, J.M., Ballen, C.J., Docktor, J.L., Prince, M., Stowe, R.L., Atit, K., Bretones, P.S., Cooper, M.M., Knight, J.K., McNeal, P.M., Prather, E.E., **Ryker, K.**, Smith, M.K., St. John, K., van der Hoeven Kraft, K.J. & Uttal, D.H. (2021). The Curious Construct of Active Learning. *Psychological Science in the Public Interest*, 22(1), 8-43.
18. LaDue, N. D., McNeal, P. M., **Ryker, K.**, St. John, K., & van der Hoeven Kraft, K. J. (2021). Using an engagement lens to model active learning in the geosciences. *Journal of Geoscience Education*, 1-33.
17. Pilgrim, M. E., McDonald, K. K., Offerdahl, E. G., Shadle, S. E., **Ryker, K.**, Stone-Johnstone, A., & Walter, E. M. (2020). An exploratory study of what different theories can tell us about change. In C. Henderson & M. Stains (Section Eds). *Transforming Institutions: Accelerating Systemic Change in Higher Education. Accelerating Systemic Change in STEM Higher Education Network*. Pressbooks.
16. Teasdale, R., **Ryker, K.**, Viskupic, K., Czajka, C. D., & Manduca, C. (2020). Transforming education with community-developed teaching materials: evidence from direct observations of STEM college classrooms. *International Journal of STEM Education*, 7(1), 1-22.

15. St. John, K., McNeal, K. S., MacDonald, R. H., Kastens, K. A., Bitting, K. S., Cervato, C., McDaris, J.R., Petcovic, H.L., Pyle, E.J., Riggs, E.M., **Ryker, K.**, Semken, S. & Teasdale, R. (2020). A community framework for geoscience education research: Summary and recommendations for future research priorities. *Journal of Geoscience Education*, 1-12.
14. McNeal, K. S., **Ryker, K.**, Whitmeyer, S., Giorgis, S., Atkins, R., LaDue, N., Clark, C., Soltis, N. & Pingel, T. (2020). A multi-institutional study of inquiry-based lab activities using the Augmented Reality Sandbox: impacts on undergraduate student learning. *Journal of Geography in Higher Education*, 44(1), 85-107.
13. St. John, K., Bitting, K., Cervato, C., Kastens, K.A., Macdonald, R.H., McDaris, J., McNeal, K.S., Petcovic, H., Pyle, E., Riggs, E., **Ryker, K.**, Semken, S. & Teasdale, R. (October, 2019). An Evolutionary Leap in How We Teach Geosciences. *EOS*.
12. Lukes, L.A., **Ryker, K.**, Millsaps, C., Lockwood, R., Uhen, M., George, C., Bentley, C., & Berquist, P. (2019). Leveraging A Large Database to Increase Access to Undergraduate Research Experiences. *Scholarship and Practice of Undergraduate Research (SPUR)*, 4-13.
11. Viskupic, K., **Ryker, K.**, Teasdale, R., Manduca, C., Iverson, E., Farthing, D., Bruckner, M., & McFadden, R. (2019). Classroom observations indicate the positive impacts of discipline-based professional development. *Journal for STEM Education Research*, 1-28.
10. Teasdale, R., **Ryker, K.**, & Bitting, K. (2019). Training graduate teaching assistants in the geosciences: Our practices vs. perceived needs. *Journal of Geoscience Education*, 1-19.
9. Lockwood, R., Cohen, P.A., Uhen, M.D. & **Ryker, K.** (2018). Utilizing the Paleobiology Database to provide educational opportunities for undergraduates. In P. Cohen, L. Park Boush, and R. Lockwood, eds., *Pedagogy and Technology in the Modern Paleontology Classroom. Elements of Paleobiology*, 1. [Refereed.]
8. McConnell, D. A., Chapman, L., Czajka, C. D., Jones, J. P., **Ryker, K. D.**, & Wiggen, J. (2017). Instructional utility and learning efficacy of common active learning strategies. *Journal of Geoscience Education*, 65(4), 604-625.
7. Bitting, K. S., Teasdale, R., & **Ryker, K.** (2017). Applying the Geoscience Education Research Strength of Evidence Pyramid: Developing a Rubric to Characterize Existing Geoscience Teaching Assistant Training Studies. *Journal of Geoscience Education*, 65(4), 519-530.
6. **Ryker, K. D.**, & McConnell, D. A. (2017). Assessing inquiry in physical geology laboratory manuals. *Journal of Geoscience Education*, 65(1), 35-47.
5. **Ryker, K.**, McNeal, K., Atkins, R., LaDue, N. & Clark, C. (2016). Facilitating Spatial Thinking with Augmented Reality Sandboxes. In the Trenches, October, 2016.
4. Lukes, L.A., LaDue, N.D., Cheek, K.A., **Ryker, K.**, & St. John, K. (2015). Creating a Community of Practice Around Geoscience Education Research: NAGT-GER. *Journal of Geoscience Education*, 63(1), 1-6.
3. **Ryker, K.** & D. McConnell (September/October, 2014). Can Graduate Teaching Assistants Teach Inquiry-based Geology Labs Effectively? *Journal of College Science Teaching*, 44(1), 56-63.
2. McConnell, D., Bedward, J., Lukes, L., **Ryker, K.**, 2012, "Making student thinking about learning visible," *In the Trenches*, 2 (1).
1. **Almquist, K.**, 2011. The Weathering of Volcanic Ash and Resultant Clay Minerals in a Terrestrial and Marine Environment: North Island, New Zealand. Thesis. North Carolina State University.

INVITED PRESENTATIONS

7. **Ryker, K.** (2023). “Advancing Active Learning in College STEM Courses with a Community of Practice Model.” (**Invited Presentation: Dorothy LaLonde Stout Education Lecture**). In *American Geophysical Union Annual Meeting in San Francisco, CA*.
6. Rademacher, L.K., Burmeister, K.C., **Ryker, K.**, Atchison, C.L., Egger, A.E., Shipley, T., & Tikoff, B. (2021). The Lasting Impacts Of Teaching And Learning Without The Field During The Covid Pandemic (**Invited Presentation**). In *GSA Annual Meeting in Portland, Oregon, USA-2021*. GSA.
5. Atchison, C.L., Burmeister, K.C., Tikoff, B., **Ryker, K.**, Rademacher, L.K., & Egger, A.E. (2020, December). COVID-19: Kick-starting a community-driven effort to build inclusive and accessible field experiences (**Invited Presentation**). In *AGU Fall Meeting Abstracts*.
4. McNeal, P., LaDue, N.D., Ryker, K., St. John, K., van der Hoeven Kraft, K.J. (2020, October). Active Learning In The Geosciences Through An Engagement Theory Lens. (**Invited Presentation.**) In *GSA Annual Meeting online, USA-2020*. GSA.
3. **Ryker, K.**, Teasdale, R. & Bitting, K. (2018). Training Graduate Teaching Assistants in the Geosciences: Where are We and What Do We Need to Know? (**Invited Presentation**). GSA Annual Meeting, Session No. 274.
2. Teasdale, R., **Ryker, K.**, Viskupic, K., & Manduca, C. (2018). Active Learning Practices in the Geosciences: Learning from 300+ Classroom Observations. (**Invited Presentation**). GSA Annual Meeting, Session No. 210.
1. McConnell, D.A., **Ryker, K.**, Czajka, C.D., Chapman, L.Y., Jones, J.P., & Wiggen, J. (2017) Assessing The Instructional Utility And Learning Efficacy Of Common Active Learning Strategies. (**Invited Presentation**). In *GSA Annual Meeting in Seattle, Washington, USA-2017*. GSA.

CONTRIBUTED PRESENTATIONS

Underlined names are student co-authors.

108. Yee, S., **Ryker, K.**, Schumpert, C.A., Levina, E., Portwood, C., Myers, E., Hogan, K., Sanders, R. & Palomares, M. (2023). Lesson Study as a Teaching Professional Development Opportunity for Professional Track Faculty. Paper presented at X-DBER 2023, Online.
107. **Ryker, K.**, McNeal, P., LaDue, N., Sabatini, S., Kreager, B.Z., Klyce, A., & Lukes, L. (2023). Spatial Thinking Across STEM: Measurement, Improvement, and Paths Forward. Paper presented at X-DBER 2023, Online.
106. **Ryker, K.**, Teasdale, R., & Bitting, K. (2023). Features and Uses of Observation Protocols in Post-Secondary STEM Classrooms. Paper presented at X-DBER 2023, Online.
105. Chilton, C. & **Ryker, K.** (2023). Anyone Can Be a Geoscientist: The Impact of Diverse Representation from Draw-An-Earth-Scientist Tests (DAEST). Paper presented at the *Earth Educators' Rendezvous*, Pasadena, CA.
104. Egger, A., Viskupic, K., Pratt-Sitaula, B., **Ryker, K.**, & Walker, B. (2023). Preparing Future Geoscience Faculty to be Inclusive Teachers. Paper presented at *GSA Connects 2023, Pittsburgh, PA*.
103. Johanesen, K., **Ryker, K.**, & Poole, T. (2023). Spatial Skill Building in Geoscience Using VR: Measuring Strike and Dip. Paper presented at *GSA Connects 2023, Pittsburgh, PA*.

102. Klyce, A. & **Ryker, K.** (2023). Lessons from the Field: Best Practices for Collecting and Analyzing Longitudinal Data from Human Subjects. Paper presented at the *Earth Educators' Rendezvous*, Pasadena, CA.
101. Menser, E., Williams, M., Bitting, K., Teasdale, R., & **Ryker, K.** (2023). Relevance in Introductory Geoscience Laboratory Courses. Paper presented at *GSA Connects 2023, Pittsburgh, PA*.
100. Piper, M. & **Ryker, K.** (2023). How Gamification in Geoscience Laboratories Influences Undergraduate Student Learning and Interest. Paper presented at *GSA Connects 2023, Pittsburgh, PA*.
99. Rademacher, L., **Ryker, K.**, Burmeister, K., Atchison, C.L., Egger, A., Shipley, T., & Tikoff, B. (2023). Impact of Online Learning on Student Outcomes in a Field-Based, Geoscience Capstone Course. Paper presented at *GSA Connects 2023, Pittsburgh, PA*.
98. **Ryker, K.**, Braden, E., Shalin, V.L., Fender, D., Tang, H., Jain, N., Wijesiriwardene, T. & Sheth, A. (2023). Incorporating Analogical Reasoning into Earth Science: A Content-Agnostic Lesson Plan. Paper presented at the *Earth Educators' Rendezvous*, Pasadena, CA.
97. Smalls, P. & **Ryker, K.** (2023). Students Ability to Relate to Scientists: Impacts of Geoscientist Spotlights. Paper presented at the *Earth Educators' Rendezvous*, Pasadena, CA.
96. Smalls, P. & **Ryker, K.** (2023). Scientists as Relatable Humans: Impacts of Diversity and Reflection. Paper presented at *Discover USC*, Columbia, SC.
95. Williams, M., Menser, E., Bitting, K., **Ryker, K.**, & Teasdale, R. (2023). Game-Based Learning in Introductory Earth & Environmental Science Labs. Paper presented at *GSA Connects 2023, Pittsburgh, PA*.
94. Piper, M., **Ryker, K.**, Bitting, K. & Teasdale, R. (2022). Engaging students in the scientific process: A case study of inquiry within five introductory geology courses. Paper presented at the Earth Educators' Rendezvous, Twin Cities, MN.
93. Teasdale, R., **Ryker, K.**, & Bitting, K. (2022). Characteristics of student interest in online introductory geology labs. Paper presented at the Earth Educators' Rendezvous, Twin Cities, MN.
92. Tully, L., **Ryker, K.**, & Barbeau, D. (2022). Assessing students' perceived skill acquisition and growth in a face-to-face geology field camp. Paper presented at the Earth Educators' Rendezvous, Twin Cities, MN.
91. Anderson, G., **Ryker, K.**, Hardee, M., & Kathrein, K. (2022). Understanding the complex teaching-related characteristics of graduate teaching assistants to provide a personalized teaching assistant orientation. Paper presented at the Earth Educators' Rendezvous, Twin Cities, MN.
90. Smalls, P., Todd, S., & **Ryker, K.** (2022). The Influence of Geoscientist Spotlights on the Perceived Identities of Scientists. Paper presented at the Earth Educators' Rendezvous, Twin Cities, MN.
89. Klyce, A., **Ryker, K.**, Lukes, L., Cheek, K., LaDue, N., McNeal, P., & St. John, K. (2022). Results of the 2021/2022 GER Needs Assessment Survey: A Snapshot of the Community. Paper presented at the Earth Educators' Rendezvous, Twin Cities, MN.
88. Torres, S., Teasdale, R., Bitting, K. & **Ryker, K.** (2022). Do students learn science best with hands-on activities in introductory geology labs? Paper presented at the Earth Educators' Rendezvous, Twin Cities, MN.
87. **Ryker, K.**, Lukes, L., Klyce, A., St. John, K., McNeal, P., LaDue, N. & Cheek, K. (2022). Advancing ICON and FAIR in GER: A Community of Practice Needs Assessment. In *GSA Annual Meeting in Portland, Oregon, USA-2022. GSA*.

86. Teasdale, R., Bitting, K., & **Ryker, K.** (2022). Characteristics of High And Low Levels of Inquiry in Introductory Geoscience Labs: A Case Study Of Activities Used In Common Lab Topics. In *GSA Annual Meeting in Portland, Oregon, USA-2022*. GSA.
85. Torres, S., Teasdale, R., **Ryker, K.**, & Bitting, K. (2022). Impact of Hands-On Learning in Inquiry-Based Lab Activities in Introductory Geoscience Labs. In *GSA Annual Meeting in Portland, Oregon, USA-2022*. GSA.
84. Piper, M., **Ryker, K.**, Teasdale, R. & Bitting, K. (2022). Assessing Inquiry in Instructor-Generated Introductory Geoscience Laboratory Activities. In *GSA Annual Meeting in Portland, Oregon, USA-2022*. GSA.
83. Klyce, A. & **Ryker, K.** (2022). Impacts Of Explicit Spatial Training to Increase Efficacy, Value And Success in Introductory Geology Courses. In *GSA Annual Meeting in Portland, Oregon, USA-2022*. GSA.
82. Davis, A., Bitting, K., Plenge, M., Cornette, K., Teasdale, R. & **Ryker, K.** (2022). Motivational factors that support women’s interest in introductory geoscience labs. National Council on Undergraduate Research Annual Conference (virtual). In *GSA’s Cordilleran Section Meeting*.
81. Teasdale, R., Czajka, C.D., Viskupic, K. & **Ryker, K.** (2022). Do our syllabi accurately represent classroom practices in geoscience undergraduate courses? In *GSA Annual Meeting in Portland, Oregon, USA-2022*. GSA.
80. Teasdale, R., Bitting, K., & **Ryker, K.** (2021). Student and Teaching Assistants’ Perspectives On Increasing Student Interest For Learning In Introductory Geology Courses. In *GSA Annual Meeting in Portland, Oregon, USA-2021*. GSA.
79. Klyce, A. & **Ryker, K.** (2021). Looking through the Lens of Expectancy Value Theory: How Training Spatial Skills Affects the Student Experience. In *GSA Annual Meeting in Portland, Oregon, USA-2021*. GSA.
78. Czajka, D., Chapman, L. & **Ryker, K.** (2021, July). Revising the Teacher Beliefs Interview for Post-Secondary Instructors. Paper presented at the Earth Educators’ Rendezvous, Virtual.
77. **Ryker, K.**, Teasdale, R. & Bitting, K. (2021, July). Making Sense of Interest and Learning in Introductory Geology Courses: Teaching Assistant and Student Perspectives. Paper presented at the Earth Educators’ Rendezvous, Virtual.
76. Donat, B., Teasdale, R., Bitting, K., & **Ryker, K.** (2021, July). Changes in TA Beliefs from Teaching Inquiry-Based Activities in Introductory Geology Labs. Paper presented at the Earth Educators’ Rendezvous, Virtual.
75. Piper, M., Frankle, J., Sanders, S., Stubbins, B., Tully, L., & **Ryker, K.** (2021, July). How are minerals and rocks taught in introductory college geology labs? An evaluation of levels of utility and inquiry, with suggestions for improvement aligned with primary literature. Paper presented at the Earth Educators’ Rendezvous, Virtual.
74. Klyce, A. & **Ryker, K.** (2021, July). The effects of training spatial skills on student success, efficacy and value in introductory geology students. Paper presented at the Earth Educators’ Rendezvous, Virtual.
73. Tully, L. & **Ryker, K.** (2021, July). Building Community and Comprehension with Collaborative Reading Assignments. Paper presented at the Earth Educators’ Rendezvous, Virtual.

72. Anderson, G., Hardee, M. & **Ryker, K.** (2021, July). Characterizing the concerns of new graduate teaching assistants at a large, research-focused university. Paper presented at the Earth Educators' Rendezvous, Virtual.
71. McNeal, P., LaDue, N., **Ryker, K.**, St. John, K. & van der Hoeven Kraft, K. (2021). A Model of Active Learning in the Geosciences through the Lens of Engagement Theory. X-DBER Conference.
70. Bitting, K., **Ryker, K.**, & Teasdale, R. (2021). TA Teaching Beliefs, Undergraduate Interest, and Learning in Introductory Geology Courses: Preliminary Results from the Pandemic. X-DBER Conference.
69. **Ryker, K.**, Jackson, D., Klyce, A., Hurler, K., & High, J. (2021). Developing a Survey to Understand Beliefs of Introductory STEM Students: A Case Study from Geology. X-DBER Conference.
68. Offerdahl, E., Pilgrim, M., Walter, E., & **Ryker, K.** (2021). University systems in the time of punctuated equilibrium: Understanding adaptations to rapid and unpredictable change. In Transforming Institutions Conference.
67. Glovins, M. & **Ryker, K.** (2021). Understanding undergraduate perceptions of learning in the geosciences the Student Perceptions of Earth Sciences Survey (SPESS). Discover USC.
66. Piper, M. & **Ryker, K.** (2021). Introductory geology in a hybrid world: A case study of inquiry levels used at 5 institutions. Discover USC.
65. **Ryker, K.**, Jackson, D.O., Hurler, K., High, J., & Klyce, A. (2020, October). Beliefs About Enrolling In Introductory Geology: An Application Of The Theory Of Planned Behavior. In *GSA Annual Meeting online, USA-2020*. GSA.
64. Burmeister, K.C., Atchison, C.L., Egger, A.E., Rademacher, L.K., **Ryker, K.**, & Tikoff, B. (2020, October). Meeting The Challenge – How The Geoscience Community Provided Robust Online Capstone Experiences In Response To The Covid-19 Pandemic. In *GSA Annual Meeting online, USA-2020*. GSA.
63. Rademacher, L.K., **Ryker, K.**, Shipley, T., Burmeister, K., Atchison, C., Tikoff, B., & Egger, A.E. (2020, October). How Well Did It Work? The Transition To Online Field Camps In The Summer Of Covid-19. In *GSA Annual Meeting online, USA-2020*. GSA.
62. Teasdale, R., **Ryker, K.**, & Bitting, K. (2020, October). Increasing The Level Of Inquiry Laboratory Activities For Introductory Geology Courses. In *GSA Annual Meeting online, USA-2020*. GSA.
61. Hurler, K. & **Ryker, K.** (2020, October). Student Performance With Virtual Reality In Introductory Geology Labs. In *GSA Annual Meeting online, USA-2020*. GSA.
60. Klyce, A. & **Ryker, K.** (2020, October). Using An Inductive Content Analysis To Determine Commonly Required Courses In U.S. Geology Programs. In *GSA Annual Meeting online, USA-2020*. GSA.
59. **Ryker, K.**, Viskupic, K., Czajka, C., & Teasdale, R. (2020, July). Evidence for Reformed Teaching in Undergraduate Geoscience Course Syllabi. Paper presented at the Earth Educators' Rendezvous, Virtual.
58. Hurler, K. & **Ryker, K.** (2020, July). The Role of Virtual Reality in Science Education: A Literature Review. Paper presented at the Earth Educators' Rendezvous, Virtual.
57. Klyce, A. & **Ryker, K.** (2020, July). Communicating Beyond Visuals: Materials to Support Blind and Visually-Impaired Students in an Introductory Geology Course. Paper presented at the Earth Educators' Rendezvous, Virtual.

56. Klyce, A. & **Ryker, K.** (2020, July). So what does a degree in geology actually mean? A review of commonly required courses. Paper presented at the Earth Educators' Rendezvous, Virtual.
55. Jackson, D. & **Ryker, K.** (2019, September). Eliciting Student Beliefs About Taking A Physical Geology Course. In *GSA Annual Meeting in Phoenix, Arizona, USA-2019*. GSA.
54. Scherer, H. H., Callahan, C. N., McConnell, D. A., **Ryker, K.**, & Egger, A. E. (2019, September). How To Write A Literature Review Article For JGE: Key Strategies For A Successful Publication. In *GSA Annual Meeting in Phoenix, Arizona, USA-2019*. GSA.
53. Hurler, K., & **Ryker, K.** (2019, September). Developing A Framework For The Effective Use Of Virtual Reality In Geoscience Classrooms. In *GSA Annual Meeting in Phoenix, Arizona, USA-2019*. GSA.
52. Michael, A., Clark, C. & **Ryker, K.** (2019, July). Analysis of Critical Features of Informal Science Learning Environments in Michigan. Paper presented at the Earth Educators' Rendezvous, Nashville, TN.
51. Hurler, K., **Ryker, K.** & White, S. (2019, July). The Role of Virtual Reality in Developing Spatial Visualization Skills in Geoscience Students. Paper presented at the Earth Educators' Rendezvous, Nashville, TN.
50. Jackson, D. & **Ryker, K.** (2019, July). The Use of Augmented Reality in Informal Learning Environments. Paper presented at the Earth Educators' Rendezvous, Nashville, TN.
49. **Ryker, K.**, Jackson, D., Hurler, K. & High, J. (2019, July). An Elicitation Study of Introductory Geoscience Student Beliefs About Continuing in the Discipline. Paper presented at the Earth Educators' Rendezvous, Nashville, TN.
48. **Ryker, K.**, Johnson, A.F., Ward, T., Koolage, W.J., Dority, E. & Clevenger, D. (2018). Student Perceptions of an Interdisciplinary Pop-Up Learning Community on Climate Change. GSA Annual Meeting, Session No. 100-Booth #126.
47. Viskupic, K., **Ryker, K.**, Teasdale, R., & Manduca, C. (2018). Evidence that Teaching with InTeGrate Results in Active Learning Practices. GSA Annual Meeting, Session No. 210.
46. **Ryker, K.** & Kortz, K. Implementing the Geoscience Education Research Project as a Poster in Intro Courses (2018). Earth Educators' Rendezvous, Share-a-Thon.
45. Viskupic, K., Teasdale, R., **Ryker, K.**, Manduca, C. & Iverson, E. (2018). Quantifying the Effects of Discipline-Based Professional Development Programs on Undergraduate Geoscience Teaching. Earth Educators' Rendezvous, Oral.
44. **Ryker, K.**, Clevenger, D., Dority, E., Johnson, A.F., Koolage, W.J. & Ward, T. (2018). Using an Interdisciplinary Pop-Up Learning Community to Respond to Climate Change Misinformation in News and Social Media. American Geophysical Union, Poster.
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21. **Ryker, K.** (2015). Connecting teaching beliefs and practices in post-secondary geoscience classrooms. *GSA Abstracts with Programs*, Vol. 47, No. 7.
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13. **Ryker, K.** & McConnell, D. (2013). The Impact of Inquiry-Based Labs on Geoscience GTA Teaching Beliefs Over Time. Mid-Atlantic Association of Science Teacher Education Regional Meeting. Abstract not available online.
12. Grissom, A., McConnell, D., & **Ryker, K.** (2013). Measuring the Level of Inquiry and its Impact on Student Performance, Perception of Relevance, and Situational Interest in Introductory Rock and Mineral Labs, *GSA Abstracts with Programs*, Vol. 45, No. 7.

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5. McConnell, D., Stempien, J. & **Ryker, K.** (2011). Building successful self-regulated learners: What 2000+ students have to tell us. *GSA Abstracts with Programs*, Vol. 43, No. 5.
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GEOSCIENCE EDUCATION RESEARCH INTERESTS

Geoscience Education: Professional development of faculty members, graduate teaching assistants, pre-service and in-service teachers; inquiry-based learning; student learning strategies and engagement in large introductory courses; teaching beliefs, motivation and practices; development and assessing the impact of video-based resources in online, face-to-face and blended geoscience classrooms; lab design; improving K-16 partnerships; the role of the affective domain in student learning; spatial skill development

PROFESSIONAL MEMBERSHIPS

- Geological Society of America (GSA)
- National Association of Geoscience Teachers (NAGT)
- American Geophysical Union (AGU)
- International Association for Geoscience Diversity (IAGD)