

## Kathleen Quardokus Fisher

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Department of Earth & Environment	Office: AHC5 395
STEM Transformation Institute	Phone: 305.348.1693
Florida International University	E-mail: kquardok@fiu.edu

### EDUCATION

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Ph.D. in Science Education, Western Michigan University	2014
Advisor: Dr. Charles Henderson	
Dissertation: Instructional change in academic departments: An analysis from the perspective of two environment-focused change strategies	
M.S. in Atmospheric Science, Purdue University,	2010
Co - Advisors: Dr. Sonia Lasher-Trapp, Dr. Eric Riggs	
Thesis: Design and evaluation of an undergraduate laboratory course in atmospheric science research	
M.Ed., Valparaiso University	2007
Concentration: Mathematics	
B.S. in Meteorology, Mathematics (Magna Cum Laude), Valparaiso University	2005

### PROFESSIONAL EXPERIENCE

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Assistant Professor, Discipline-Based Education Research in Meteorology	
Department of Earth & Environment, STEM Transformation Institute	
Florida International University	2016-present
Postdoctoral Scholar, Organizational Change Regarding Instructional Practices	
Mentors: Milo Koretsky and Jana Bouwma-Gearhart	
Oregon State University	2014-2016
Research Assistant, Instructional Change	
Western Michigan University	2011-2014
Research Assistant, Authentic Research Experience for Undergraduates	
Purdue University	2008-2010

### TEACHING EXPERIENCE

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Supervisor, Secondary Pre-Internship	
Western Michigan University	2012-2013
Instructor of Record, Earth Science: Atmosphere & Space	
Western Michigan University	2013
Teaching Assistant, Exploring Earth Science: The Atmosphere	
Western Michigan University	2013

K. Quardokus Fisher

Teaching Assistant, Introduction to Research in Atmospheric Science  
Purdue University 2008-2010

Mathematics Teacher, Geometry, Algebra, Pre-Calculus  
Benton Harbor High School, Benton Harbor, MI 2007-2008

Science and Mathematics Teacher, Physics, Chemistry, Physical Science, Algebra,  
Pre-Calculus, Calculus  
Luther High School South, Chicago, IL 2005-2007

#### CERTIFICATION

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Michigan Provisional Secondary Education, Mathematics Received 2008

#### PUBLICATIONS

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- *Journal Articles*

**Quardokus Fisher, K.**, Kaufman, E., Calagna, O., Myles, L., Brinkworth, C., Simmons, D. R., & Dixon, P. G. (Submitted). Developing Scientists as Champions of Diversity to Transform the Geosciences.

**Quardokus Fisher, K.**, Sitomer, A., Bouwma-Gearhart, J., & Koretsky, M. (Submitted). Using social network analysis to develop relational expertise for an educational change initiative.

**Quardokus Fisher, K.** & Henderson, C. (2018). Department-Level Instructional Change: Comparing Prescribed vs. Emergent Strategies. *CBE-Life Sciences Education*, 17(4).

Barlow, A. J., Lutz, B., Perova-Mello, N., **Quardokus Fisher, K.**, & Brown, S. (2018). Factors of Sensemaking Affecting Engineering Faculty's Decision to Use the In-Class Cognitive Engagement Survey. *International Journal of Engineering Education*, 34(5). 1658-1670.

Knaub, A. V., Henderson, C., & **Quardokus Fisher, K.** (2018). Finding the leaders: An examination of social network analysis and leadership identification in STEM education change. *International Journal of STEM Education*, 5(1), 26.

**Quardokus, K.** & Henderson, C. (2015). Promoting Instructional Change: Using Social Network Analysis to Understand the Hidden Structure of Academic Departments. *Higher Education*, 70 (3), 315-355.

Addis, E. A., **K. M. Quardokus.**, D. C. Bassham, N. M. Boury, C. R. Coffman, & J. Powell-Coffman. (In press). Implementing pedagogical change in introductory biology courses through faculty learning communities. *Journal of College and Science Teaching*

**Quardokus, K.,** Lasher-Trapp, S., & Riggs, E. M. (2012). A Successful Introduction of Authentic Research Early in an Undergraduate Atmospheric Science Program. *Bulletin of the American Meteorological Society*, 93(11), 1641–1649. doi:10.1175/BAMS-D-11-00061.1

- *Books/Book Chapters*

Henderson, C., Rasmussen, C., Knaub, A., Apkarian, N., **Quardokus Fisher, K.,** & Daly, A. (Eds.). (2018). *Researching and Enacting Change in Postsecondary Education: Leveraging Instructors' Social Networks*. New York: Routledge.

- Henderson, C., **Quardokus Fisher, K.,** & Beach, A. (2018). Change in Higher Education. In *Researching and Enacting Change. In Postsecondary Education: Leveraging Instructors' Social Networks*. New York: Routledge.
- **Quardokus Fisher, K.,** & Apkarian, N. (2018). Instructor Discussion Networks Across 22 STEM Departments. In *Researching and Enacting Change in Postsecondary Education: Leveraging Instructors' Social Networks*. New York: Routledge.

- *Conference Proceedings*

Ironsides, A., Pitterson, N., Brown, S., **Quardokus Fisher, K.,** Gestson, S., Simmons, D., & Adesope, O. (2017). Incorporating Faculty Sense Making in the Implementation and Modification of an Instrument to Measure Social and Cognitive Engagement. *American Society of Engineering Education (ASEE) Annual Conference and Exposition*.

**Quardokus Fisher, K.,** Apkarian, N., & Walters, E. (2017). Let's Talk About Teaching: Investigating Instructors' Social Networks (pp. 1214–1218). *20th Annual Conference on Research in Undergraduate Mathematics Education*.

Pitterson, N. P., Brown, S., Pascoe, J., & **Quardokus Fisher, K.** (2016). Measuring cognitive engagement through interactive, constructive, active and passive learning activities. *2016 IEEE Frontiers in Education Conference (FIE)*.

**Quardokus Fisher, K.,** Hirshfield, L., Seibert-Evenstone, A., Arastoopour, G., & M. Koretsky. (2016). Network Analysis of Interactions between Students and an Instructor During Design Meetings. *American Society of Engineering Education (ASEE) Annual Conference and Exposition*.

Bouwma-Gearhart, J., Sitomer, A., **Quardokus Fisher, K.,** Smith, C., and M. Koretsky. (2016). Studying Organizational Change: Rigorous Attention To Complex Systems Via A Multi-theoretical Research Model. *American Society of Engineering Education (ASEE) Annual Conference and Exposition*.

**Quardokus Fisher, K.**, Smith, C., Sitomer, A., Ivanovitch, J., Bouwma-Gearhart, J., and M. Koretsky. (2016) Identifying Features of Engineering Academic Units that Influence Teaching and Learning Improvement. *American Society of Engineering Education (ASEE) Annual Conference and Exposition*.

Koretsky, M., Bouwma-Gearhart, J., Brown, S., Dick, T., Brubaker-Cole, S., Sitomer, A., **Quardokus Fisher, K.**, Smith, C., Ivanovitch, J., Risien, J., Kayes, L., & Quick, D. (2016, June). Enhancing STEM Education at Oregon State University — Year 2. *American Society for Engineering Education (ASEE) Annual Conference and Exposition*.

Little, D., **Quardokus Fisher, K.**, Brown, S., Koretsky, M., & Bouwma-Gearhart, J. (2015). Measuring Student Perceptions of Engineering Classroom Activities and the Use of Such Measures by Engineering Faculty, *Proceedings of the 2015 American Society for Engineering Education Annual Conference & Exposition*

Koretsky, M. D., Bouwma-Gearhart, J., Brown, S., Dick, T., Brubaker-Cole, S., Sitomer, A., **Quardokus Fisher, K.**, Risien, J., Little, D., Smith, C., & Ivanovitch, J., (2015). Enhancing STEM Education at Oregon State University – Year 1, *American Society for Engineering Education (ASEE) Annual Conference and Exposition*

Henderson, C., & **Quardokus, K.** (2013). Department-level change: Using social network analysis to map the hidden structure of academic departments, *AIP Conf. Proc. 1513, 170* doi: 10.1063/1.4789679 1

**Quardokus, K.**, S. Lasher-Trapp and E. M. Riggs (2010) “Bringing authentic science practice to the undergraduate classroom”, *Extended abstract, 19<sup>th</sup> Symposium on Education, American Meteorological Society*

## PRESENTATIONS

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Breit-Goodwin, M., Sitomer, A., **Quardokus Fisher, K.**, & Dewar, J. (2019). Scholarly Leaders Originating as Practicing Educators in Two-Year College Mathematics (Project SLOPE). *Presentation at Joint Mathematics Meetings*.

Dixon, P. G., **Quardokus Fisher, K.**, Myles, L., Brinkworth, C., Kaufman, E., & Simmons, D. R. (2019) Creating and Connecting Champions for Diversity in the Geosciences: Hearts of GOLD. *Presentation at 28th Symposium on Education, American Meteorological Society Annual Meeting*.

Myles, L., Dixon, P. G., Brinkworth, C., Kaufman, E., **Quardokus Fisher, K.**, & Simmons, D. R. (2018). Creating and Connecting Champions for Diversity in the Geosciences: Hearts of GOLD. *Presentation at American Geophysical Union Fall Meeting*.

**Quardokus Fisher, K.**, Dixon, P. G., Kaufman, E. K., Calagna, O., Simmons, D. R., Brinkworth, C., & Myles, L. (2018). Preparing Geoscientists to Lead Diversity, Equity, and Inclusion Cultural Changes in the Geological Sciences: Hearts of GOLD. *Presentation at Geological Society of America.*

Breit-Goodwin, M., Sitomer, A., **Quardokus Fisher, K.**, & Dewar, J. (2018). Engaging Two-Year College Mathematics Faculty in SoTL. *Presentation at Mathematical Association of America North Central Section Fall Meeting.*

**Quardokus Fisher, K.** (2018). Geoscience postsecondary education: A complicated and complex system. *Presentation at FIU Earth & Environment Graduate Seminar Speaker Series.*

Wilton, M., **Quardokus Fisher, K.**, & Eddy, S. L. (2018). Implementing Active Learning Techniques: Pathways to Diversification or Doubling Down. *Presentation at Howard Hughes Medical Institute Research Group Meeting at FIU.*

**Quardokus Fisher, K.**, & Saucer, L., (2018). Student Knowledge Structures: Considering a Fluid Parcel. *Presentation at American Meteorological Society Annual Meeting.*

Myles, L., Brinkworth, C., Dixon, P. G., Kaufman, E., **Quardokus Fisher, K.**, & Simmons, D. R. (2017). Geo Opportunities for Leadership in Diversity (GOLD): Hearts of GOLD. *Presentation at the Geological Society of America.*

Koretsky, M., Bouwma-Gearhart, J., Brown, S., Dick, T., Brubaker-Cole, S., Sitomer, A., **Quardokus Fisher, K.**, Risien, J., Smith, C., Pitterson, N., & Ivanovitch, J. (2016). Enhancing STEM Education at Oregon State University (ESTEME@OSU). *Presentation at AAAS Envisioning the Future of Undergraduate STEM Education: Research and Practice Symposium.*

Bouwma-Gearhart, J., Sitomer, A., **Quardokus Fisher, K.**, Smith, C., & Ivanovitch, J. (2016, April). Studying Organizational Change and Learning: Rigorous Attention to Complex Systems via a Multi-theoretical Research Model. *Presentation at NARST 2016 Annual International Conference.*

**Quardokus Fisher, K.**, Sitomer, A., & Bouwma-Gearhart, J. (2016). Institution-based instructional improvement: Establishing relational expertise through disciplinary unit social network analysis. *Presentation at NARST 2016 Annual International Conference.*

Bouwma-Gearhart, J., **Quardokus Fisher, K.**, Sitomer, A., Little, D. L., II, Ivanovitch, J., Smith, C., & Koretsky, M. (2015). Design-Based Implementation Research to Study and Drive an Undergraduate STEM Education Improvement Project at Oregon State. *Presentation at Science and Math Teaching Initiatives National Conference.*

Bouwma-Gearhart, J. & **Quardokus Fisher, K.** (2015). Building Understanding and Collaboration On The Study of Organizational Change Associated With Undergraduate STEM. *Presentation at APLU Science and Mathematics Teaching Imperative 2015 National Conference.*

**Quardokus, K.,** & Henderson, C. (2014). Using department-level social networks to inform instructional change initiatives. *Presentation of the NARST 2014 Annual International Meeting.*

**Quardokus K.,** & Henderson, C. (2014). Using measures of the social structure of science departments to shape emergent change strategies. *Presentation at the 23rd Symposium on Education, American Meteorological Society.*

**Quardokus, K.,** & Henderson, C. (2013). Using Social Network Analysis to Inform Education Reform Efforts in Atmospheric Science Departments. *Presentation at the 22nd Symposium on Education, American Meteorological Society.*

**Quardokus, K.,** S. Lasher-Trapp and E. M. Riggs. (2011). Student experiences in a research-based laboratory. *Presentation at 20th Symposium on Education, American Meteorological Society.*

**Quardokus K.,** S. M. Blakely, P. R. Brandt, K. E. Fischer, K. K. Gleason, B. J. Harvey, A. S. Keller, T. M. Lucko, R. M. Meizberg, C. A. Miller, J. M. Palac, J. C. Rogers, C. K. Simpson, K. J. Snow, K. W. van Leer, T. C. Ward, B. S. Westfall, C. M. Woodward, J. M. Woznicki, & S. Lasher-Trapp. (2010). An Introductory Study of Warm Rain Productivity in Convective Clouds Influenced by Regional Climate Change. *Presentation at the American Meteorological Society 9th Annual Student Conference.*

**Quardokus K.,** S. M. Blakely, P. R. Brandt, K. E. Fischer, K. K. Gleason, B. J. Harvey, A. S. Keller, T. M. Lucko, R. M. Meizberg, C. A. Miller, J. M. Palac, J. C. Rogers, C. K. Simpson, K. J. Snow, K. W. Van Leer, T. C. Ward, B. S. Westfall, C. M. Woodward, J. M. Woznicki, & R. J. Trapp. (2010). Thunderstorm Identification and Geospatial Distribution Study. *Presentation at the American Meteorological Society 9th Annual Student Conference.*

Trapp, R. J., J. Carley, J. Damjanovic, A. Eggink, J. Gebhard, K. Hoogewind, E. Jones, O. Kellner, B. Kraemer, M. Laureano, L. Little, R. Miller, D. Pittman, **K. Quardokus,** E. D. Robinson, B. Schwedler, D. Sheehan, D. Pittman, D. Solomon, and M. Toth. (2010). The DOW Radar Observations at Purdue study (DROPs). *Presentation at the American Meteorological Society 9th Annual Student Conference.*

**Quardokus, K.,** T. Bals-Elsholz, and K. Luther. (2004). Height Tendency and Omega Equations. *Presentation at Valparaiso University Mathematics Colloquium*

## FUNDED RESEARCH

Price, R. (PI), Whitman, D. (Co-PI), Collins, L. (Co-PI), Quardokus Fisher, K. (Co-PI). Scholarships for a Future Generation of Geoscience Professionals. National Science Foundation

Breit-Goodwin, M. (PI), Quardokus Fisher, K. (Co-PI), and Sitomer A. (Co-PI). Scholarly Leaders Originating as Practicing Educators in Two-Year College Mathematics (Project SLOPE). National Science Foundation.

Dixon, P. G. (PI), Simmons, D. R. (Co-PI), Kaufman, E. (Co-PI), Myles, L. (Co-PI), Quardokus Fisher, K., (Co-PI). GEO Opportunities for Leadership in Diversity (GOLD): Hearts of GOLD. National Science Foundation.

Brown, S. (PI), Quardokus Fisher, K. (Co-PI), Little, D. II. (Co-PI). Collaborative Research: Took of EngAgement Measurement to Propel Academic Success of Students (TEAM PASS). National Science Foundation.

Rasmussen, C. (PI), Quardokus Fisher, K. (Co-PI), Knaub, A. (Co-PI), Henderson, C. (Co-PI). Exploring the Role of Instructors' Social Networks in Undergraduate STEM Instructional Improvement. National Science Foundation.

## RESEARCH TOOLS

ORA Social Network Software  
UCINET Social Network Software  
Nvivo Qualitative Research Software  
Teaching Dimensions Observation Protocol (TDOP)

## PROFESSIONAL ORGANIZATIONS

American Meteorological Society  
Geological Society of America  
National Association for Research in Science Teaching  
National Association of Geoscience Teachers