

CURRICULUM VITAE**Daniel K. Capps**

Department of Mathematics and Science Education
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Education:

Cornell University, Ithaca, New York
Ph.D. Learning, Teaching, & Social Policy
Dissertation: *Supporting teachers in learning about inquiry, nature of science, and in teaching through inquiry*
August 2011

Indiana University, Bloomington, Indiana
Teaching License/M.S. Education
Thesis: *A student centered project focused on obtaining clean drinking water for the community*
Certification Areas: Elementary Education, General Science 7-12, Earth Science 7-12
Dec 2001-License/Dec 2008-M.S.

Indiana University, Bloomington, Indiana
M.S. Geology
Thesis: *A post-Calumet shoreline in southern Lake Michigan*
May 2002

Hope College, Holland, Michigan
B.S. Geology
Minor: Spanish
May 1998

Positions:

2018-present: **Associate Professor of Science Education**, University of Georgia
2018-present: **Graduate Coordinator for Science Education**, University of Georgia
2015-2018: **Assistant Professor of Science Education**, University of Georgia
2011-2015: **Assistant Professor of Science Education**, University of Maine
2008-2011: **Graduate Research Assistant**, NSF Award # DRL-0733223, Cornell University
2008-2011: **Graduate Teaching Assistant**, Cornell University
2008-2010: **Teacher Professional Developer**, Fossil Finders, Cornell University (Summer)
2008: **Science Instructor**, Myers Institute, Georgetown University (Summer)
2007-2008: **Graduate Instructor/Lecturer**, EDUC 240, Cornell University
2005-2007: **Physical Science Teacher**, Newfield Central School District, Newfield, NY
2005: **Science Instructor**, Astrocamp, Idyllwild, CA
2002-2004: **United States Peace Corps Volunteer**, Honduras, Central America
1999-2002: **Associate Instructor**, GEOL 103, 171, & 429, Indiana University, Bloomington, IN
2001: **Student Teacher**, 1st & 2nd grade and middle school science, Bloomington, IN
1998-1999: **Substitute Teacher**, Downers Grove, IL
1998-1999: **Tutor**, Downers Grove, IL
1996-1998: **Teaching Assistant**, GEM 101, Hope College, Holland, MI

Publications:

Sauer, K., **Capps, D.K.**, Jackson, D.F., & Capps, K.A. (accepted with revisions). Six minutes to promote change: people, not facts alter students' perceptions on climate change. *Ecology and Evolution*.

Capps, D.K., & Shemwell, J.T. (2020). Moving beyond the model as copy problem: Investigating the utility of teaching about structure-preserving transformations in the model-referent relationship. *International Journal of Science Education*, 42(12), 2008-2031.

Capps, D.K., Shemwell, J.T., Young, A.M. (2016). Over reported and misunderstood? A study of teachers' reported enactment and understandings of inquiry-based science teaching. *International Journal of Science Education*, 38(6), 934-959.

Keigher, N., **Capps, D.K.**, Ross, R.M., & Crawford, B.A. (2016). Using alternative conceptions to elevate students' interest in deep time, *Science Scope*. 39(6), 56-61.

Barth-Cohen, L.A., Smith, M.K., **Capps, D.K.**, Lewin, J., Shemwell, J.T., & Stetzer, M.R. (2016). What are they talking about? Characterizing classroom conversations during classroom response systems "clicker" questions. *Journal of Science Education and Technology*, 25(1), 50-61.

Shemwell, J.T., Avargil, S., **Capps, D.K.** (2015). Grappling with long-term learning in science: A qualitative study of teachers' views of developmentally oriented instruction. *Journal of Research in Science Teaching*, 52(8), 1163-1187.

Shemwell, J.T., Gwarjanski, K.R., **Capps, D.K.**, Avargil, S.A., & Meyer, J.A. (2015) Taking a more critical stance toward theory in science classroom argumentation. *International Journal of Science Education*, 37(4), 599-628.

Goldfisher, D., Crawford, B.A., **Capps, D.K.**, & Ross, R.M. (2015). Fossils, inquiry, and the English language learner. *Science Scope*, 38(9), 78-82.

Capps, D.K., & Crawford, B.A. (2013). Inquiry-based professional development: What does it take to support teachers in learning about inquiry and nature of science? *International Journal of Science Education*, 35(12), 1947-1978.

Capps, D.K., & Crawford, B.A. (2013). Inquiry-based instruction and teaching about nature of science: Are they happening? *Journal of Science Teacher Education*, 24(3), 497-526.

Capps, D.K., McAllister, M., & Boone, W. (2013). Alternative conceptions concerning the Earth's interior exhibited by Honduran students. *Journal of Geoscience Education*, 61(2), 231-239.

Conner, T., **Capps, D.K.**, Crawford, B.A., & Ross, R.M. (2013). Engage all of your students using project based learning. *Science Scope*, 36(7), 62-67.

Meyer, X., **Capps, D.K.**, Crawford, B.A., & Ross, R.M. (2012). Enhancing student knowledge of geology and nature of science through an authentic geological investigation in a dual language classroom. *Journal of Geoscience Education*, 60(3), 212-219.

Capps, D.K., Crawford, B.A., & Constan, M.A. (2012). A review of empirical literature on inquiry professional development: Alignment with best practices and a critique of the findings. *Journal of Science Teacher Education*, 23(3), 291-318.

Capps, D.K. (2012). A simple lesson that engages students in scientific practices and mathematics. *Science Scope*, 36(1), 26-29.

Capps, D.K., Capps, K.A., & Crawford, B.A. (2008). A student centered project focused on obtaining clean drinking water for the community. *Science Scope*, 32(4), 57-59.

Capps, D.K., Thompson, T.A. & Booth, R.K. (2007). A post-Calumet shoreline along southern Lake Michigan. *Journal of Paleolimnology*, 37(3), 395-409.

Capps, D.K., Capps, K.A., & Fajardo, C.J. (2004). Guía interpretativa de los senderos del Parque Eco Arqueológico Las Cuevas de Talgua. Tegucigalpa: Instituto Hondureño de Antropología e Historia.

Book Chapters:

Shemwell, J.T., & **Capps, D.K.** (2019). Learning Abstraction as a Modeling Competence. In D. Kruger, J. van Driel, & A. Upmeyer zu Belzen (Eds.), *Towards a Competence-Based View on Models and Modeling in Science Education* (pp. 291-307). Springer, Cham.

Crawford, B.A. & **Capps, D.K.** (in press). What knowledge do teachers need for engaging children in science practices? Cognition, Metacognition, and Culture in STEM Education. In J. Dori, Z. Mevarech, & D. Baker (Eds.), *Innovations in Science Education and Technology*. Netherlands: Springer.

Crawford, B.A., **Capps, D.K.**, van Driel, J., Lederman, N., Lederman, J., Luft, J., Wong, S., Tan, A.L., Lim, S.L., Loughran, J., and Smith, K. (2014). Learning to Teach Science as Inquiry: Developing an Evidence-Based Framework for Effective Teacher Professional Development. In C. Bruguière, A. Tiberghien & P. Clément (Eds.), *Topics and Trends in Current Science Education* (Vol. 1, pp. 193-211): Springer: Netherlands.

Manuscripts in Review:

Shemwell, J.T., **Capps, D.K.**, Coogler, C., Fackler, A.K. (in review). How modeling instruction can make big ideas tools for understanding: The case of energy in cellular respiration. *Journal of Research in Science Teaching*.

Shemwell, J.T., **Capps, D.K.**, Le, T., Silver, E., Daigle-Thompson, M. & Voyer, C. (in review). Making scientific observation meaningful: How perceptual learning can make influence students' reasoning about what they observe. *Science Education*.

Refereed Conference Papers & Abstracts:

Fackler, A.K., Coogler, C., **Capps, D.K.**, & Shemwell, J. (2021). Learning Cellular Respiration Through Models and Modeling: A Case of and for Constructing Gapless Explanations. Paper to be presented at the annual meeting of the American Educational Research Association. [virtual]

Fackler, A.K., **Capps, D.K.**, & Shemwell, J. (2021). Using Rasch to Explore Students' Understanding of Energy: A Modeling-Based Intervention Study. Paper to be presented at the annual meeting of the American Educational Research Association. [virtual]

Tran, H, & Capps, D.K. (2021). Learning from contrasts: Productive reflection by a preservice science teacher inspired by multiple field placements. Paper to be presented at the annual meeting of the Association for Science Teacher Education. [virtual]

Shemwell, J.T., **Capps, D.K.**, Coogler, C., Fackler, A.K. (2020). How modeling can help students condense meaning within language. Paper to be presented at the National Association for Research in Science Teaching. Portland, OR. [conference cancelled, COVID-19]

Fackler, A.K., Coogler, C., **Capps, D.K.**, & Shemwell, J.T. (2020). The affordances of integrating crosscutting concepts and modeling: Improving science learning with a connective structure. Paper to be presented at the National Association for Research in Science Teaching. Portland, OR. [conference cancelled, COVID-19]

Coogler, C., Fackler, A. K., Shemwell, J., & **Capps, D.K.** (2019). How modeling instruction can promote learning, understanding, and transfer in science. Paper to be presented at the annual meeting of the American Association for Teaching and Curriculum. Birmingham, AL.

Capps, D.K., Shemwell, J.T., Fackler, A.K., Leary, E., Coogler, C., & Kirk, E. (2019). Escaping the narrative: Helping teachers understand how models can bring structure to complex science explanations. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.

Jeong, S.K., King, G.P., Pauli, D.L., Sell, C.W., Steele, D.P., **Capps, D.K.**, Jackson, D.F., Leslie, L.M., Oliver, J.S., & Tippins, D.J. (2018). Creating a polyphonic and dialogic process to address the issue of science mistrust and misunderstanding. Symposium at the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.

Capps, D.K., Shemwell, J.T., Lindsey, E., Gagnon, L., & Owen, J. (2016). Synthesis modeling as a way of learning through model revision. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.

Idsardi, R., Crawford, B.A., Romero, M., **Capps, D.K.**, Murray, J., & Ammons, J. (2016). Prospective science teachers' knowledge of the enactment of science practices, Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.

Barth-Cohen, L., Shemwell, J.T., & **Capps, D.K.** (2016). Evidence Construction: The constructive process of collecting and interpreting scientific evidence and associated learning processes. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.

Barth-Cohen, L., Shemwell, J.T., & **Capps, D.K.** (2015). The importance of evidence construction in argumentation. 2nd International Argument-Based Inquiry Conference, Washington State University, Spokane, WA.

Barth-Cohen, L., Shemwell, J.T., & **Capps, D.K.** (2015). The process of generating an argument at a mechanistic knowledge level. 2nd International Argument-Based Inquiry Conference, Washington State University, Spokane, WA.

Crawford, B.A., Murray, J.K. & **Capps, D.K.** (2015). Developing a matrix to track teachers translating science practices in their classrooms. Roundtable Session at the annual meeting of the American Educational Research Association, Chicago, IL.

Shemwell, J.T., **Capps, D.K.**, Le, T., Silver, E., Voyer, C., & Thompson, M. (2015). Shedding light on the struggle to make reasoning explicit in scientific argumentation. Roundtable Session at the annual meeting of the American Educational Research Association, Chicago, IL.

Crawford, B.A., Murray, J.K., Mazur, A., **Capps, D.K.**, Zhang, D., Ammons, J., & Idsardi, R. (2015). Evidence of teachers enacting science practices in their classrooms following an authentic science professional development. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.

Le, T. Silver, E.J., Shemwell, J.T., **Capps, D.K.**, Voyer, C., Daigle Thompson, M. (2015). How learning during scientific observation can influence students' reasoning with evidence. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.

Crawford, B.A., Murray, J., Mazur, A., **Capps, D.K.**, Idsardi, R., Ammons, J., Ross, R.M., Nixon, R. (2015). Tracking teachers' engaging their students in science practices following an authentic science

professional development, Paper presented at the annual meeting of the Association for Science Teacher Education, Portland, OR.

Roy, S., Koons, P., Gerbi, C., **Capps, D.K.**, Tucker, G., Rogers, Z. (2014). Building models in the classroom: Taking advantage of sophisticated geomorphic numerical tools using a simple graphical user interface. American Geophysical Union, Abstracts with Program.

Barth-Cohen, L. **Capps, D.K.**, & Shemwell, J.T. (2014). Modeling the construction of evidence through prior knowledge and observations from the real world. Proceedings of the 11th International Conference of the Learning Sciences, Boulder.

Capps, D.K., Shemwell, J.T., Barth-Cohen, L., Avargil, S. (2014). From using models to developing models: Professional development that pushes on teacher thinking. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.

Shemwell, J.T., **Capps, D.K.**, Gibson, D. (2014). From contrasting cases to contrasting models: Supporting generalization in model development. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.

Michaud, K. **Capps, D.K.**, (2014). Using self-determination theory to understand students' experiences at an informal science learning center. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.

Stevens, J., Barth-Cohen, L., **Capps, D.K.**, (2014). Capturing teachers' engagement with scientific modeling. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.

Le, T. Shemwell, J.T., **Capps, D.K.**, Kirn, S., Voyer, C. (2014). Obstacles and supports for effective reasoning with evidence in authentic science investigations. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.

Schneider, L., Crawford, B., Baram-Tsabari, A., **Capps, D.K.**, Murray, J., Xhang, D. (2014). Investigating student interest in the context of engaging in authentic science practices. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.

Millette, P.M., & **Capps, D.K.** (2014). Digging up the real deal: Using authentic multi-year field geology investigations to make an impression on high school students' understanding of the nature of science. Northeastern Section of the Geological Society of America, Abstracts with Program.

Capps, D.K., Shemwell, J.T., Hoover, S., Barth-Cohen, L. (2013). Using the scientific practice of modeling to support teachers in reasoning analogically and generalizing. Geological Society of America, Abstracts with Program, vol. 45, n. 7.

Barth-Cohen, L., Shemwell, J.T., **Capps, D.K.** (2013). Using the knowledge in pieces framework to understand teachers' productive knowledge in field. Geological Society of America, Abstracts with Program, vol. 45, n. 7.

Crawford, B.A., **Capps, D.K.**, & Meyer, X.S. (2013). A model to support teachers engaging diverse students in authentic science practices. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Gurschick, K.R., Shemwell, J.T., **Capps, D.K.**, Avargil, S., & Meyer, J. (2013). Taking a more critical stance toward theory in science classroom argumentation. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Avargil, S., Shemwell, **Capps, D.K.**, & Zoellick, B. (2013). Teachers' experiences with reform-based instructional resources: Coming to terms with new priorities for science learning. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.

Capps, D.K., Avargil, S., Shemwell, J.T., Mason, T., Stetzer, M.R., & Smith, M. (2013). Reflecting on contrasts: Productive reflection by a pre-service teacher inspired by multiple field placements. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.

Young, A.M., **Capps, D.K.**, & Mason, C.A. (2013). Teachers' understanding of inquiry and use of scientific practices: A survey of NSTA conference attendees. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.

Zoellick, B., Shemwell, **Capps, D.K.**, & Avargil, S. (2013). Use of social network analysis to study teacher communities in design-based implementation research. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.

Young, A.M., Le, T., Shemwell, J.T., & **Capps, D.K.** (2013). Assessing critical thinking in Vital Signs. Presentation at the 1st International Teacher-Scientist Partnership Conference. Boston, MA.

Capps, D.K., & Crawford, B.A. (2012). Tracking teachers' change in teaching science as inquiry: Different teachers, different journeys. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.

Crawford, B.A., **Capps, D.K.**, Patel, M.R., Meyer, X.S., & Ross, R.M. (2012). A Teacher Professional Development Model Focused on Science Practices in the Classroom. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.

Capps, D.K., Crawford, B.A., Patel, M.R., Ross, R.M., & Smrecak, T.A. (2011). Combining innovative curriculum with professional development to support teachers in teaching earth science through inquiry. Geological Society of America, Abstracts with Program, vol. 43, n. 5, p. 536.

Crawford, B.A., **Capps, D.K.**, Patel, M., Ross, R.M., 2011, Developing inservice teachers' views of NOS and inquiry: Immersion in authentic and relevant paleontological research. National Association for Research on Science Teaching Annual Conference Presentation Abstracts, vol. 43, n. 5, p. 229.

Smrecak, T.A., Ross, R.M., **Capps, D.K.**, & Crawford, B.A. (2011). Assessing pre-college student Devonian marine paleontological data from a teacher professional development project. Geological Society of America, Abstracts with Program, vol. 43, n. 5, p. 523.

Capps, D.K., Crawford, B.A., & Patel, M.R. (2011). Inquiry-based professional development: What does it take to change teachers' actual practice? Paper presented at the bi-annual meeting of European Science Education Research Association, Lyon, France.

Patel, M.R., **Capps, D.K.**, Baram-Tasbari, A., & Crawford, B.A. (2011). Promoting students' interest in science: Inquiry-based instruction and an authentic investigation. Paper presented at the bi-annual meeting of European Science Education Research Association, Lyon, France.

Crawford, B.A. & **Capps, D.K.** (2011). What is the evidence for effective professional development for

teaching science as inquiry? Symposium at the bi-annual meeting of the European Science Education Research Association, Lyon, France.

Capps, D.K., & Crawford, B.A. (2011). Inquiry-based instruction in science classrooms: Is it happening? Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

Crawford, B.A. **Capps, D.K.**, Patel, M., Ross, R.M. (2011). Developing inservice teachers' views of nature of science and inquiry: Immersion in authentic and relevant paleontological research. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

Crawford, B.A. & **Capps, D.K.**, (2011). Supporting teachers in teaching science as inquiry: What is the evidence for effective professional development? Symposium at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

Capps, D.K., Crawford, B.A., Patel, M.R., Ross, R.M., & Smrecak, T.A. (2010). Bringing research into the classroom: Professional development that engages teachers and their students in paleontological research. Geological Society of America, Abstracts with Program, vol. 42, n. 5, p. 531.

Ross, R.M., Smrecak, T.A., **Capps, D.K.**, & Crawford, B.A. (2010). Fossil finders: Invertebrate paleontological research carried out in partnership with 5th to 9th grade teachers and their students. Geological Society of America, Abstracts with Program, vol. 42, n. 5, p. 408.

Capps, D.K., Crawford, B.A., & Ross, R.M. (2010). Using the past to discuss present environmental change. Paper presented at the annual meeting of the North American Association for Environmental Education, Buffalo, NY.

Crawford, B.A. **Capps, D.K.**, Meyer, X., Patel, M., & Ross, R.M. (2010). Supporting teachers in complex situations: Learning to teach evolution, nature of science, and scientific inquiry. Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.

Capps, D.K., & Crawford, B.A. (2010). Teachers translating inquiry-based curriculum to the classroom following professional development: A pilot study. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.

Crawford, B.A. **Capps, D.K.**, & Meyer, X. (2010). The influence of an authentic context on enhancing teachers' understandings of nature of science. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.

Capps, D.K., Meyer, X., & Crawford, B.A. (2009). Investigating fossils to bridge understandings about the past and present environment. Paper presented at the annual meeting of the North American Association for Environmental Education, Portland, OR.

Capps, D.K., Crawford, B.A., & Meyer, X. (2009). Developing teachers' knowledge of inquiry, nature of science, and evolutionary concepts in an authentic context. Paper presented at the annual meeting of the European Science Education Research Association, Istanbul, Turkey.

Capps, D.K. & Crawford, B.A. (2009). Is science inquiry professional development effective? A critical review of empirical research. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.

Capps, D.K. & Thompson, T.A., (2002). An Algonquin shoreline in southern Lake Michigan; part 2. Geological Society of America, Southeastern Section, 51st annual meeting; Geological Society of America, North-Central Section, 36th annual meeting; Abstracts and Programs, vol. 34, no.2.

Capps, D.K., Thompson, T.A., Johnston, J.W., & Jock, S.R., (2001). An Algonquin shoreline in southern Lake Michigan. Geological Society of America, Abstracts with Program, vol. 33, n. 4, p. A-47.

Refereed Posters:

Capps, D.K. (2018). Abstraction in modeling through synthesis (AiMS): Research on the utility of abstraction as a guiding principle for learning about the nature of models. Poster presented at the Principal Investigators Meeting of the DRK12 Program, Washington, DC.

Karaşahinoğlu, A., & **Capps, D.K.** (2018). Learning that models are abstract: A description of the learning processes within synthesis modeling. Poster presented at the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.

Capps, K.A., Bledsoe, B. **Capps, D.K.**, Fowler, L. Molina, M, McKay, S.K., Pippin, S., Rice, J., Rosemond, A., & Wengner, S. (2017). Integrating stoichiometric thinking into socio-ecological systems: Relationships among ecology, wastewater infrastructure, environmental regulations, and human well-being. Conference of the Programme on Ecosystem Change and Society. Oaxaca, Oaxaca, Mexico.

Barth-Cohen, L., Shemwell, J.T., & **Capps, D.K.** (2014). Learners' intuitions about geology. Proceedings of the 11th International Conference of the Learning Sciences, Boulder.

Barth-Cohen, L. Shemwell, J.T., **Capps, D.K.** (2014). Profiles in Learning by Argumentation. Poster presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.

Capps, D.K., & Crawford, B.A. (2011). Teaching science as inquiry: Documenting the journey. Poster presented at the bi-annual meeting of the European Science Education Research Association, Lyon, France.

Crawford, B.A., **Capps, D.K.**, McCullough, D.O., Meyer, X., & Ross, R.M. (2009). Traversing a rocky road: Partnering with geologists in curriculum design. Poster presented at the annual meeting of the North American Association for Environmental Education, Portland, OR.

Crawford, B.A., **Capps, D.K.**, McCullough, D.O., Meyer, X., & Ross, R.M. (2009). Closing the circle of authentic scientific research and inquiry-based pedagogy: Teachers, scientists, and science educators in a community of learners. Poster presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.

Invited Oral Presentations:

Capps, D.K. (2018). Moving classrooms out of the silo: A science educator's argument for the value of interdisciplinary learning. Colloquium on Practical and Theoretical Impact of Interdisciplinary Cooperation, Central Connecticut State University.

Capps, D.K. (2017). Teaching the Nature of Scientific Models. Georgia Science Supervisors Association Meeting, Conyers, GA.

Capps, D.K. (2017). Working with teachers to make sense of reform-based science instruction. Superintendent's Education Policy Advisory Group, University of Georgia, Athens, GA.

Capps, D.K. (2014). Grappling with reform in science education: Challenges to engaging students in scientific practice. Invited Speaker, University of Georgia, Athens, GA.

Capps, D.K. (2014). Grappling with the NGSS: Supporting teachers in enacting high-quality science instruction. Invited Speaker, Florida State University, Tallahassee, FL.

Capps, D.K. (2014). Zeroing in on reform-based science teaching: Engaging teachers and students in scientific practices. Invited Speaker, University of Minnesota, Minneapolis, MN.

Capps, D.K. (2013). Learning under the *Next Generation Science Standards*: Using the scientific practice of modeling to support deeper learning. Invited Speaker, Elmira College, Elmira, NY.

Capps, D.K. (2013). Inquiry-based instruction and the Next Generation Science Standards. Invited Speaker, Lewis & Clark College, Portland, OR.

Capps, D.K. (2013). Is it really going to be different? Supporting teachers under the Next Generation Science Standards. Invited Speaker, Washington State University, Pullman, WA.

Capps, D.K. (2013). Supporting teachers in enacting reform-based science instruction. Invited Speaker, Arizona State University, Tempe, AZ.

Capps, D.K. (2012). Outreach or research? The evolving role of science education research in the geosciences. Invited Speaker, School of Earth and Climate Sciences Guest Lecture Series.

Avargil, S., **Capps, D.K.**, Dorko, A., Shemwell, J., & Zoellick, B. (2012). On the ground with the next generation science standards: How teachers grapple with the re-prioritization. Invited Presentation at the 6th Biennial National Education Research Conference, University of Maine, Orono, ME.

Zoellick, B., Avargil, S., **Capps, D.K.**, Shemwell, J. (2012). Who do you turn to? Teachers connecting with teachers in the MainePSP project. Invited Presentation at the 6th Biennial National Education Research Conference, University of Maine, Orono, ME.

Capps, D.K. (2012). Developing a research-based model for inquiry-based professional development. Invited Speaker, Kansas State University, Manhattan, KS.

Capps, D.K. (2011). Does engaging students in an authentic investigation promote student interest in science? Invited Speaker, Research in STEM Education Center Colloquium, University of Maine, Orono, ME.

Capps, D.K. (2011). Teaching about nature of science using an inquiry-based approach. Invited Speaker, Math, Science, and Technology Institute, Corning Community College, Corning, NY.

Capps, D.K. (2011). Inquiry-based instruction: Can we support teachers in teaching science as it is practiced? Invited Speaker, University of Maine, Orono, Maine.

Capps, D.K. (2011). An introduction to inquiry-based science teaching & nature of science. Invited Speaker, Drew University, Madison, New Jersey.

Other Presentations & Seminars:

Capps, D.K., Fackler, A.K., Leary, E., Kirk, E.A., May, M.M., Yauck, J. (2019). How Modeling Can Revolutionize Your Teaching of Cellular Respiration. In Georgia Science Teachers Association. Columbus, GA.

Tippins, D., Jeong, S., & **Capps, D.K.** (2016). Making science relevant through practical activities. The 2016 International Forum on Elementary Science Education Reform in the New Media Era, NanJing, China.

Capps, D.K. (2016) Engaging students in inquiry through virtual fieldwork experiences. Presentation at the Innovation in Teaching Conference, Athens, GA.

Mazur, A.L., Crawford, B.A., Murray, J., & Capps, **D.K.** (2014). Tracking teachers' engaging their student in inquiry/science practices following authentic science professional development. Presentation at the Undergraduate Biology Education Research Symposium, Athens, GA.

Crawford, B.A., **Capps, D.K.**, Patel, M.R. (2012). NARST Session: An effective teacher professional development model focused on authentic science practices in the classroom. Presentation at the National Science Teachers Association Area Conference, Atlanta, GA.

Dimatteo, J., Crawford, B.A. **Capps, D.K.**, Ross, R.M., & Patel, M.R. (2012). Virtual field experiences: Brining the field into the classroom. Presentation at the National Science Teachers Association Annual Conference, Indianapolis, IN.

Crawford, B.A. **Capps, D.K.**, Ross, R.M., & Patel, M.R. (2012). Teaching geology and evolutionary conceptions with fossil evidence. Presentation at the National Science Teachers Association Annual Conference, Indianapolis, IN.

Keigher, N., Crawford, B.A. **Capps, D.K.**, Ross, R.M., & Patel, M.R. Understanding deep time: "Wait, you mean diosaurs lived before the ice age?" Presentation at the National Science Teachers Association Annual Conference, Indianapolis, IN.

Capps, D.K., Crawford, B.A., Ross, R.M., & Smrecak, T.A. Developing teachers' science content and pedagogy through an authentic fossil investigation. Presentation at the National Science Teachers Association Annual Conference, Philadelphia, PA.

Valenciano, M., Meyer, X., Crawford, B.A. **Capps, D.K.**, & Ross, R.M. (2010). Investigating fossils using inquiry for English language learners. Presentation at the National Science Teachers Association Annual Conference, Philadelphia, PA.

Dimatteo, J., Crawford, B.A. **Capps, D.K.**, Ross, R.M., & Smrecak, T.A. (2010). Using Devonian fossils to connect science content across the curriculum. Presentation at the National Science Teachers Association Annual Conference, Philadelphia, PA.

Capps, D.K. (2008). A student centered project focused on obtaining clean drinking water for the community. ECGP Inquiry Conference, Indiana University, Bloomington, IN.

Capps, D.K. (2007). Environmental education and kids: A force to be reckoned with. CES Graduate Student Colloquim Ithaca, NY

Capps, D.K. (2003) El desarrollo de la infraestructura en parques nacionales, Honduran Institute of Anthropology and History, Tegucigalpa, Honduras

Capps, D.K. (2002) La ecología y geología de cuevas. Guide Association of the Caves of Talgua National Park, Catacamas, Olancho, Honduras

Capps, D.K. (2002). Las ventajas de ecoturismo en las municipalidades. Municipal Governments of Catacamas and Juticalpa, Olancho, Honduras

Grants:

2020-2024: Principal Investigator, Collaborative Research: How Deep Structural Modeling Supports Learning with Big Ideas in Biology. National Science Foundation DRK12 Program, Award #2010223 (\$549,688)

2017-2020: Principal Investigator, Abstraction in Modeling through Synthesis to Learn the Nature of Models. National Science Foundation DRK12 Program, Award #1720966 (\$449,849)

2017: Co-Principal Investigator, EcoSTEM: Integration of STEM, 3-D Science, and Project-based

- Learning. Georgia's Improving Teacher Quality Program (\$57,838)
- 2016: Early Career Faculty Grant, Athens, GA (\$4,988)
- 2016: Co-Principal Investigator, EcoSTEM: Supporting 3D science teaching with kits and professional development. Georgia's Improving Teacher Quality Program (\$61,232)
- 2013: Co-Principal Investigator, Labventure, National Science Foundation Coupled Natural and Human Systems (\$21,322)
- 2013: Pretenure Research and Creative Activity Fellowship, Orono, ME (\$45,000)
- 2013: Collaborative Mini-Grant "Assessing Critical Thinking in an Authentic Science Experience" Orono, ME (\$2,000)
- 2013: Collaborative Mini-Grant "Developing an Instructional Approach to Computational Modeling in Earth Science" Orono, ME (\$2,000)
- 2013: Bangor Savings Bank/LoRusso Faculty Development Grant, Orono, ME (\$1,500)

Awards and Scholarships:

- 2020: Ocie T. Dekle Excellence in Teaching Award, University of Georgia
- 2012: Hope College Young Alumni Award, Hope College, Holland, MI
- 2011: Golton-Novak Award for Research in Education, Cornell University (\$2,000)
- 2010: Golton-Novak Award for Research in Education, Cornell University (\$1,100)
- 2010: Graduate Student Conference Grant, Cornell University
- 2009: Palmer Award for Outstanding Promise in Environmental Education, Cornell University (\$1,500)
- 2009: Golton-Novak Award for Research in Education, Cornell University (\$1,100)
- 2009: Graduate Student Conference Grant, Cornell University
- 2008: Graduate Student Conference Grant, Cornell University
- 2008: Palmer Award for Outstanding Promise in Environmental Education, Cornell University (\$1,500)
- 2006: Newfield Educational Fund Award, Family Science Night, Newfield, NY (\$1,500)
- 2004: Small Project Assistance Grant, United States Peace Corps (\$9,900)
- 2003: Infrastructure Development Grant, the Honduran Institute of Anthropology and History (\$9,900)
- 2002: Department of Geological Sciences, Student Presentation Award, Indiana, University
- 2001: Professional Geologists of Indiana Student Grant, Indiana Geological Survey (\$600)
- 1998: cum Laude, Hope College
- 1994: Alumni Honors Scholarship, Hope College

Graduate Student Thesis Committees:

- Kodiak Sauer, MA*, UGA
- Chase Parks, EdS*, UGA
- Joanna Schneider, PhD, UGA
- Michael Leary, PhD*, UGA
- Ayça Karasahinoğlu Fackler, PhD*, MA*, UGA
- Libby Myers, EdS, UGA
- Allison Zoino, EdS, UGA
- Ming Guan, MA, UGA
- Dongjo Shin, PhD, UGA
- David Myers, MA, UGA
- Derek LaBarron, MST*, UMaine
- Ethan Geheb, MST, UMaine
- Grace Gonella, MST, UMaine
- Jonathan Dumont, MST, UMaine
- Patricia Millette, iPhD, UMaine
- Kalee Gurshick, MST, UMaine
- Kendra Michaud, MST*, UMaine
- Daniel Bragdon, MST, UMaine
- Ashley Young MST*, UMaine

*Denotes Chair or Co-Chair

Other Languages:

Spanish (fluent)

Professional Societies:

American Educational Research Association
National Association for Research in Science Teaching
Geological Society of America
National Science Teachers Association
European Science Education Research Association

Manuscript Editing & Service Activities:

2017-Present: Reviewer for Educational Researcher
2016: NSF Reviewer, Division of Research on Learning
2015: NSF Reviewer, Division of Research on Learning
2015-2018: NARST Outstanding Doctoral Research Award
2013-2016: Editorial Review Board, Journal of Science Teacher Education (USA)
2012-Present: Reviewer for Science Education (USA)
2012-Present: Reviewer for International Journal of Science Education (UK)
2012-Present: Reviewer for Journal of Geoscience Education (USA)
2012-Present: Reviewer for Research in Science and Technological Education (UK)
2012-2015: Journal of Research in Science Teaching Award Committee
2011-Present: Reviewer for Journal of Research in Science Teaching (USA)
2011-2015: Reviewer for Pedagogies (Singapore)
2010-Present: Reviewer for School Science & Mathematics (USA)
2009-Present: Strand Reviewer for the National Association for Research in Science Teaching
2011: Session Presider at the European Science Education Research Association
2011: Session Presider at the National Association for Research in Science Teaching
2010: Session Chair of Professional Development and Resources for the Geological Society of America
2009-2011: Undergraduate Research Supervisor at Cornell University
2008-2010: Cornell University Department of Education Committee on Teaching

Other Activities:

2016-present: Innovation in Teaching and Technology Conference Planning Committee
2016-present: Watershed UGA Advisory Board
2012-2015: Advisory Board Member, Project Reach, University of Maine
2011: Cornell Adult University: Brazil, Faculty Leader
2008: Cornell Adult University: Wild Lands of Patagonia, Youth Instructor
2007: Fundraiser bike ride, Ithaca, NY to Chicago, IL
2007-2010: Founder and Board Member, Enrich the World (<http://www.enrichtheworld.org>)
2006: Board of Directors, Bridge of Peace, Honduras, Central America
2006: Designed and taught an energy curriculum at 17 schools in La Montaña de la Botija, Honduras
2006: Biological field assistant, Huntington Wildlife Forest, Newcomb, NY
1999: Appalachian Trail Thru-Hiker (Georgia to Maine, 3/99-7/99)