

Curriculum Vitae

Brett Allen Criswell

2213 Sunningdale Drive

Lexington, KY 40509

(859) 257 – 8974 (Office phone)

(570) 854 – 9900 (Cell phone)

brett.criswell@uky.edu (University e-mail)

brett.criswell@gmail.com (Personal e-mail)

Education

- Completed a Ph.D. in Curriculum and Instruction August 2009
with an emphasis in Science Education at the
Pennsylvania State University, University Park, PA 16802
- Completed an M.S in Science Education at the May 2003
University of Pittsburgh, Pittsburgh, PA 15260
- Completed a B.S. in Chemistry Education at May 1988
Indiana University of Pennsylvania, Indiana, PA 15705

Other Educational Experiences

- UK Online Teaching Boot Camp 2017
- Rocks & Minerals PD presented by KY Crushed Stone Assoc. 2017
- Modeling & Model-Based Reasoning in STEM 2016
- Engineering Inspired by Nature Training 2015
- Learning & the Brain Conference 2012
- USG Teaching & Learning Conference 2012
- NVIVO Basic & Advanced Training 2011
- BSCS Workshop on Inquiry Module 2011
- Learning & the Brain Conference 2010
- Atlas for Science Literacy Training 2010

College Pedagogical Experiences

- Clinical Assistant Professor of Science Education in the STEM Education Department at the University of Kentucky; responsible for methods courses at all three certification levels; Program Co-Chair of the MAT in Secondary STEM Education program; Program Co-Chair of the STEM PLUS Undergraduate Program; Co-Director of UK's STEMx Initiative August 2013 – Present
- Assistant Professor of Science Education in the Department of Middle-Secondary Education and Instructional Technology at Georgia State University; responsible for middle and secondary level science methods courses, doctoral level courses, mentoring doctoral students, research and grant projects May 2011 – August 2013
- Limited term Clinical Assistant Professor in the Department of Middle-Secondary Education and Instructional Technology at Georgia State University; Coordinator of the MAT Middle Childhood Education Math & Science and the MAT Secondary Childhood Education Science programs; responsible for teaching Middle-school Science methods course, supervising practicum students, and teaching doctoral courses August 2010 – May 2011
- Tenure-track faculty in the Department of Chemistry & Biochemistry at Kennesaw State University with teaching responsibilities in both education and chemistry; courses included SCED 4416 / 6416 (methods class), SCED 4475 / 6475 (student teaching field experience and seminar), SCED 7750 (Contemporary Issues in Science Education), SCI 7725 (Chemistry for MEd and MAT students) June 2009 – July 2010

- Graduate Assistant Position at Penn State University as Instructor for SciEd 411 and SciEd 412 (science education methods courses) Fall 2007, Spring 2008, and Fall 2008
- Graduate Assistant Position at Penn State University as Supervisor of Field Studies Students in Science Education for 495C Course (Pre-Student Teaching) Fall 2004 and Spring 2005

K – 12 Pedagogical Experience

- Chemistry Teacher at Central Columbia High School August 1988 – 2007 (except 1994 – 1995 during which I was on a Leave of Absence to pursue my M.S. degree and 2004 – 2005 during which I am on a sabbatical to pursue my Ph.D.)
 - 4777 Old Berwick Road
 - Bloomsburg, PA 17815
 - Phone (570) 752 – 0535
 - www.centralcolumbia.k12.pa.us/

My duties there included teaching

 - ◆ Chemistry I (introductory course)
 - ◆ Organic Chemistry (advanced elective course)
 - ◆ Chemistry II (advanced elective course)
 - ◆ Independent Study Chemistry (project work)

Other Pedagogical Experiences

- Graduate Assistant at the University of Pittsburgh working on their Chemistry Van Program (involved performing demonstration programs and conducting professional development for science teachers in the Pittsburgh area) Fall 1994 through Summer 1995
- Research Assistant in the laboratory of Dr. Harold Pinnick at Bucknell University working on a project to complete the total synthesis of an organic compound having potential as a pharmaceutical Summer 1993

Honors / Awards

- Recipient of GRT assistantship in Science Education 2008 – 2009
- Recipient of the Vince Lunetta Scholarship for the Outstanding Doctoral Student in Science Education 2007 – 2008

Publications Accepted

- Gul, T., **Criswell, B.**, & Demir, K. Constructing teacher leadership through mentoring: Functionality of mentoring practices in evolving teacher leadership. Accepted by *Journal of Science Teacher Education* on 12/10/18.
- **Criswell, B.** (2018). *The Invention of Air* – and the connection of concepts. KSTA Newsletter, August 2018, pp. 6 – 7.
- Testa, S.M., Selegue, J.P., French, A. & **Criswell, B.** Permanganate oxidation of DNA nucleotides: An introductory redox laboratory framed as a murder mystery. *Journal of Chemical Education*, 95(10), 1840 – 1847.
- Alemdar, M., Cappelli, C., **Criswell, B.**, Rushton, G. Evaluation of a Noyce program: Development of teacher leaders in STEM Education. *Evaluation and Program Planning*, 71, 1 – 11.
- **Criswell, B.**, Rushton, G., Nachtigall, D., Staggs, S., Alemdar, M. & Cappelli, C. (2018). Strengthening the vision: Examining the internalization of a framework for teacher leadership development by experienced science teachers. *Science Education*, DOI: 10.1002/sce.21472.
- **Criswell, B.**, Rushton, G., McDonald, S. & Gul, T. (2018). A clearer vision: Creating and evolving a model to support the development of science teacher leaders. *Research in Science Education*, 48(4), 811 – 837.
- **Criswell, B.** & McNall, R. (2017). Commentary: Professional noticing across various grade bands and contexts. In E. Schack, M. Fisher & J. Wilhelm (Eds.) *Teacher noticing: A hidden skill of teaching*. New York: Springer.
- Rushton, GT, Dewar, A., Ray, HE, **Criswell, BA**, Shah, L. (2016). Setting a standard for chemistry education in the next generation: A retrosynthetic analysis. *ACS Central Science*. DOI: 10.1021/acscentsci.6b00216.

- **Criswell, B.**, Calandra, B., Puvirajah, A., & Brantley-Dias, L. (2015). A new lens for supporting and studying science teacher reflections: Situating the self in the [activity] system. *Cultural Studies of Science Education*, 10 (4), 891-919.
- Rushton, G. & **Criswell, B.** (2015). Plugging the 'leaky bucket' of early career science teacher attrition through the development of professional vision. In J.A Luft & S.L. Dubois, *Newly hired teachers of science: A better beginning* (pp. 87 – 98). Rotterdam, the Netherlands: Sense Publishers.
- Adams, A., Jessup, W., **Criswell, B.**, Weaver-High, C., & Rushton, G. (2015). Using inquiry to break the language barrier in chemistry classrooms. *Journal of Chemical Education*, 92 (12), 2062–2066.
- **Criswell, B.** (2015). Discourse leads to greater understanding. *Science Connections*, 2 (1), p. 1.
- Rushton, G.T., Ray, H.E., **Criswell, B.A.**, Bearss, C., Levelsmeir, N., & Chhita, H. (2014). Stemming the diffusion of responsibility: A longitudinal case study of America's chemistry teachers. *Educational Researcher*, 43 (8), 390 – 403.
- Hernandez, G.E., **Criswell, B.A.**, Kirk, N.J., Sauder, D.G., & Rushton, G.T. (2014). Pushing for particulate level models of adiabatic and isothermal processes in upper-level chemistry courses: A qualitative study. *Chemistry Education Research & Practice*, 15, 354 – 365.
- **Criswell, B.** & Rushton, G. (2014). Activity structures and the unfolding of problem-solving actions in high-school chemistry classrooms. *Research in Science Education*, 44 (1), 155 – 188.
- Rushton, G., **Criswell, B.**, LaMoore, L.A., McAllister, N.D., & Pierre, M.S. (2014). Charting an alternate pathway to reaction orders and rate laws in introductory chemistry courses. *Journal of Chemical Education*, 91 (1), 66 – 73.
- Rushton, G., **Criswell, B.** (2013). Response to Johannsen, Rump, & Linder's Penetrating a Wall of Introspection: A Critical Attrition Analysis. *Cultural Studies of Science Education*, 8 (1), 117-126.
- Stoll, W., Demir, K., & **Criswell, B.** (2012). Promoting conceptual change through course design: Supporting the physics CK and PCK development of pre-service

teachers. *National Study of Education in Undergraduate Science, Background Research Paper 28*, published online December, 2012. (Accessible at http://nseus.org/?page_id=20).

- **Criswell, B.** & Rushton, G. (2012). Conceptual change, productive practices, and themata: Supporting chemistry classroom talk. *Journal of Chemical Education*, 89 (10), 1236 – 1242.
- Rushton, G. & **Criswell, B.** (2012). Cutting-edge and cross-cutting: Connecting the dots between nanotechnology and high school chemistry. *Journal of Chemical Education*, 89 (10), 217 – 219. (Invited co-editorial)
- **Criswell, B.** (2012). Reducing the degrees of freedom in chemistry classroom conversations. *Chemistry Education Research & Practice*, 13 (1), 17 – 29.
- **Criswell, B.** (2012). Framing inquiry in high-school chemistry: Helping students see the bigger picture. *Journal of Chemical Education*, 89 (2), 199 – 205.
- **Criswell, B.** (2011). Do you see what I see? – Lessons about the use of models in high school chemistry classes. *Journal of Chemical Education*, 88 (4), 415 – 419.
- **Criswell, B.** (2008). Teaching Avogadro's hypothesis and helping students to see the world differently. *Journal of Chemical Education*, 85 (10), 1372 – 1376.
- McDonald, S., **Criswell, B.** & Dreon, O. (2007). Inquiry in the chemistry classroom: Perplexity, model testing, and synthesis. In J. Luft, R.L. Bell, & J. Gess-Newsome (Eds.) *Science as Inquiry in the Secondary Setting* (pp. 41 – 51). Washington, DC: NSTA Press.
- **Criswell, B.** (2007). Connecting acids and bases with encapsulation . . . and chemistry with nanotechnology. *Journal of Chemical Education*, 84 (7), 1136 – 1139.
- **Criswell, B.** (2007). Mistake of having students be Mendeleev for just a day, *Journal of Chemical Education*, 84 (7), 1140 – 1144.
- **Criswell, B.** (2006). The extraction and isolation of saltpeter from nitred soil. A curriculum alignment project for a first-year high school chemistry course. *Journal of Chemical Education*, 83 (2), 241 – 242.
- **Criswell, B.** (2006). Ions or molecules? Polymer gels can tell. *Journal of Chemical Education*, 83 (4), 576A – 576B.

- **Criswell, B.** (2006). A diaper a day and what's going on with Gaviscon?: Two lab activities focusing on chemical bonding concepts. *Journal of Chemical Education*, 83 (4), 574 – 576.
- **Criswell, B.** (2006). Two "gas-in-a-bag" reactions to show the predictive power of the relative acid–base strength chart. *Journal of Chemical Education*, 83 (8), 1167 – 1169.

Submitted Scholarly Writings

- Criswell, B., Hanley, C., Hodgson, T. & Yates, K. Crossing borders and stretching boundaries: A look at community-education partnerships and their impact on K-12 STEM education. A chapter to appear in A. Sahin & M. J. Mohr-Schroeder, (Eds), *STEM education 2.0. Myths and truths: What did 10 years of STEM education research in K12 teach us?* Brill Publishing. (In preparation – due out 2019).

Presentations

- Sharp, K., Criswell, B., Hutchinson, A. (2019, February 14). Investigating the persistence and trajectories of Noyce master teaching fellows. Poster presentation given at the annual Tennessee STEM Education Conference. Murfreesboro, TN.
- Gul, T., Demir, K., & Criswell, B. (2019, January 4). Reconstruction of teacher leadership trajectory through outreach activities. Presentation given at the annual conference of the Association for Science Teacher Education. Savannah, GA.
- Criswell, B. (2018, November 8). A cornucopia of CCCs. Presentation given at the annual conference of the Kentucky State Teachers Association. Lexington, KY.
- Rosengrant, D., Polizzi, S., Rushton, G., Criswell, B. & Head, M. (2018, July 31). Preparing your Noyce grant for continued success upon official completion. Presentation given at the annual summer conference of the American Association of Physics Teachers. Washington, DC.
- Smith, W., Rushton, G., Criswell, B., Yow, J. & Lotter C. (2018, July 17). Teacher Leadership (T-LEAD): Investigating the persistence and trajectories of Noyce Master Teaching Fellows. Research presentation at the annual Noyce Principal Investigator Summit. Washington, DC.

- Criswell, B. Scaffolding the CCCs and SEPs to support science literacy. Presentation to 60 middle-school and high-school teachers at the UK STEMcats Teacher Outreach day on 6/8/18.
- Criswell, B., Ellis, J., Forsythe, M., Liang, L., Maker, J., Thamocharan, V. (2018, January 4). Development and application of a video case analysis framework in science teacher preparation: A guide for science teacher educators. Interactive session at the annual conference of the Association for Science Teacher Education (ASTE). Baltimore, MD.
- Criswell, B. (2017, June 3). Framing the conversation. Introductory session for the Southeast Regional Noyce Dialogue. Kennesaw, GA. (I served as the co-organizer for this event.)
- Johnson, H. Criswell, B. (2017, March, April, May). Using ATLAS in teacher education. Invited webinar series supported by National Board for Professional Teaching Standards. Held online on March 16th, April 20th, & May 18th, 2017.
- Nachtigall, D., Rushton, G., & Criswell, B. (2017, April). Realizing the vision: Evidence for STEM teacher leadership identity development. Stand-alone research presentation at the annual conference of the National Association of Research in Science Teaching (NARST). San Antonio, TX.
- Criswell, B. (2017, January 11). Seeing as and seeing differently: Using the ATLAS video library in science teacher preparation. Invited presentation at the first convening of the ATLAS Science Teacher Preparation Collaborative. Des Moines, IA.
- Criswell, B. (2016, December 7). Understanding science standards. Presentation to the 4-H Annual Series Conference. Lexington, KY.
- Santillan-Jimenez, E., Criswell, B., Krall, R., Mohr-Schroeder, M., Hanley, C., Radner, J., Fehr, K., Underwood, A. & Bernhardt, M. (2016, November 12). Energy Is Elementary: The Center for Applied Energy Research and Energy Outreach. Presentation at the Kentucky Science Teacher Association (KSTA) conference. Lexington, KY.
- Criswell, B. & Rushton, G. (2016, April 16). Tempering Our Understanding: Determining and Increasing the Strength of a Framework for STEM Teacher

Leadership. Presentation at the National Association of Research in Science Teaching (NARST) conference. Baltimore, MD.

- Olexa, F., Corrigan, K., LeVaughn, J., Krall, R. & Criswell, B. (2016, April). *Professional noticing of middle and secondary science teachers*. Paper presented at the National Conference on Undergraduate Research, Asheville, North Carolina.
- Criswell, B. (2015, November 6). The Invention of Air – and the Connection of Concepts. Presentation at the Kentucky Science Teacher Association (KSTA) conference. Lexington, KY.
- Criswell, B. & Mortensen, R. (2015, August 1). The Invention of Air – and the Connection of Concepts. Presentation at the ChemEd conference. Kennesaw, GA.
- Rushton, G. & Criswell, B. (2015, April 13). Supporting Science Teachers in Seeing Themselves and the System from a Leadership Perspective. Presentation at the National Association of Research in Science Teaching (NARST) annual conference. Chicago, IL.
- Criswell, B. & Rushton, C. (2015, January 8). Plugging the ‘leaky bucket’ of early career science teacher attrition through the development of professional vision. Poster presentation at a pre-conference workshop for the Association of Science Teacher Educators (ASTE) annual meeting, Portland, OR.
- Stoll, W. A., Thoms, B. D., Criswell, B., Demir, K., & Doluweera, S., (2015, January 3-6). Developing PCK in physics teachers: Collaboration between scientist and educator. Paper presented at the 2015 AAPT Winter Meeting, San Diego, CA.
- Demir, K., Stoll, W., & Criswell, B. (2014, October-November). Teaching physics for conceptual understanding: A collaborative approach to preparation of preservice science teachers. Paper presented at the annual conference of the International Society of Educational Research, Cappadocia, Turkey.
- Criswell, B. & Curless, M. (2014, November). Sharing Our Work on a State STEMx Performance Guide. Presentation at the annual conference of the Kentucky Science Teachers Association (KSTA), Lexington, KY.
- Criswell, B. & Diamond, S. (2014, October). Partnering with Research & Industry to Develop [STEM] Educators for College and Career Readiness. Presentation made at the Bluegrass Higher Education Consortium, President Business Leaders

Summit, Lexington, KY.

- Mohr-Schroeder, M. & Criswell, B. (2014, September). Preparing the Next Generation STEM Teachers. Presentation at the annual conference of the Kentucky Association of Teacher Educators (KATE), Erlanger, KY.
- Criswell, B. & Zoss, M. (2014, April). Exploring the Conceptual Trajectory of a Proposal in a Chemistry Class through Frame Analysis. Paper presented at the annual conference of the American Educational Research Association (AERA), Philadelphia, PA.
- Stoll, W., Demir, K., & Criswell, B. (2014, March). Conceptual Change in Science Teacher Preparation: Collaboration Between Scientist and Educator. Paper presented at the annual conference of the National Association for Research in Science Teaching (NARST), Pittsburgh, PA.
- Rosengrant, D., Rushton, G., & Criswell, B. (2014, January). Developing High School Physics Teacher Leaders Through a Framework of Professional Vision and Professional Identity. Presentation at the winter meeting of the American Association of Physics Teachers (AAPT), Orlando, FL.
- Diem, J., Elliot, W.C., & Criswell, B. (2013, December). Climate Literacy Laboratory Exercises for Undergraduate Students in an Introductory Weather and Climate Course. Poster presentation at the fall meeting of the American Geological Union, San Francisco, CA.
- Criswell, B., Calandra, B., & Puvirajah, A. (2013, April). Our View through a New Lens on Understanding Pre-Service Teacher Reflection. Paper presented at the annual conference of the American Educational Research Association (AERA), San Francisco, CA.
- Criswell, B. (2013, April). Preparing Teachers for Urban Schools: Understanding the Development and Retention of Educators Who Are Positioned as Agents of Change. Interactive poster presented at the annual conference of the American Educational Research Association (AERA), San Francisco, CA.
- Puvirajah, A. & Criswell, B. (2013, April). Activity System as a Lens to Understand Pre-service Science Teacher Reflection. Paper presented at the annual conference

of the National Association for Research in Science Teaching (NARST), Rio Grande, Puerto Rico.

- Criswell, B. & Rushton, G. (2013, April). A Clearer Vision: Findings from the First Year of a Project Designed to Develop Teacher Leaders. Paper presented at the annual conference of the National Association for Research in Science Teaching (NARST), Rio Grande, Puerto Rico.
- Rushton, G. & Criswell, B. (2013, January). Refining a Model for the Development of Teacher Leaders: The Results of Year 1 of the I-IMPACT Project. Paper presented at the annual conference for the Association for Science Teacher Education (ASTE), Charleston, SC.
- Diem, J. & Criswell, B. (2012, December). Climate-Literacy Laboratory Exercises for Undergraduate Students in an Introductory Weather and Climate Course. Interactive poster presentation at the fall meeting of the American Geophysical Union, San Francisco, CA.
- Rushton, G., Lewis, S., Dean, M. & Criswell, B. (2012, July – August). Building Rich Communities of Practice through Noyce, MSP, Chemistry Olympiad, and More. Panel discussion at the Biennial Conference for Chemistry Education (BCCE), University Park, PA.
- Criswell, B. (2012, July – August). Creating Conducive Chemistry Conversations. Workshop presentation at the Biennial Conference for Chemistry Education (BCCE), University Park, PA.
- Criswell, B. (2012, March). Exploring the Link between the Framing of Activity and the Conceptual Trajectory of an Idea in a Chemistry Classroom. Paper presentation at the annual conference of the National Association for Research in Science Teaching (NARST), Indianapolis, IN.
- Criswell, B. & Stoll, W. (2011, October). Supporting Pre- and In-service Teachers in Using Science Talk as a Diagnostic Assessment Tool. Paper presentation at the Southeastern Association for Science Teacher Education (SASTE) conference. Athens, GA.
- Criswell, B. & Rushton, G. (2011, October). Towards a Comprehensive Recruitment

Strategy of Preservice Secondary Science Teachers. Paper presentation at the Southeastern Association for Science Teacher Education (SASTE) conference. Athens, GA

- Criswell, B. (2009, October). Helping Bridge the Gap between the Everyday and the Scientific – A Model for Structuring Teacher Talk. Paper presentation at the Southeastern Association for Science Teacher Education (SASTE) Conference. Kennesaw, GA
- McDonald, S., Criswell, B., Dreon, O. & Kerlin, S. (2009, April). The Invisible College for Inquiry Science Study: Developing Teachers through Research. Paper presentation at the National Association for Research in Science Teaching (NARST). Garden Grove, CA.
- McDonald, S., Criswell, B., Dreon, O. & Kerlin, S. (2009, April). The Impact of Video Analysis on the Development of Professional Vision in Pre-service and Practicing Teachers. Paper presentation at the National Association for Research in Science Teaching (NARST). Garden Grove, CA.
- Criswell, B. & McDonald, S. (2008, March-April). When a ‘Dead End’ Is Really Just the Beginning: Exploring a Proposed Participant Structure and Its Contributions to Progressive Discourse in the Science Classroom. Paper presentation at the National Association for Research in Science Teaching (NARST). Baltimore, MD.
- Dreon, O. & Criswell C. (2007, October). Mentoring New Inquiry-minded Science Teachers: Experiences from ICISS. Paper presentation at Franklin & Marshall’s “How People Learn”: The Implications of Learning Research for Science Education Conference, Lancaster, PA
- Criswell, B. (2004, October). Using Materials Science as an Unifying Principle in Secondary Physical Science Course. Paper presentation at Bloomsburg University’s Annual Education Conference, Bloomsburg, PA.
- Criswell, B. (2003, June). The Four Elements and the Future of the Planet: An Introductory Chemistry Curriculum with an Engaging Storyline. Poster presentation at The ACS National Convention, Local Session on Improving Secondary Chemistry Education, Princeton, N.J.

- Criswell, B. (2001, August). Constructivist Teaching in the High-School Chemistry Curriculum. Paper presentation at the Annual Summer Conference of the Collaborative for Excellence in Teacher Preparation in Pennsylvania (CETP-PA), Bloomsburg, PA.
- Criswell, B. (2000, October). From cookbook chemistry to inquiry chemistry in one easy lesson. Paper presentation at Bloomsburg University's Annual Education Conference, Bloomsburg, PA.

Grants

- K-TIES: Kentucky Teachers Improving Education in STEM. Co-PI; \$2,958,557 requested. Proposal submitted to the National Science Foundation on 8/27/18.
- T-LEAD: Teacher Leadership in Effectiveness And Development: Studying Noyce Master Teaching Fellows. PI for UK portion of a Collaborative Research project; \$246,933 requested. Proposal submitted to the National Science Foundation on 8-29-17. Funded for requested amount on 6/8/18.
- UK Noyce STEM PLUS: Producing Leaders for Urban/rUral Schools. Senior Personnel; \$1,199,304 requested. Proposal submitted to the National Science Foundation on 8/29/17. Funded for requested amount on 3/15/18.
- Energy Is Elementary. Co-PI; funded for \$110,000 by KY CPE. Submitted Sept 18, 2015 and accepted in February of 2016.
- STEM PRIDE: Partnering with Research & Industries to Develop STEM Educators for CCR. Co-PI; funded for \$149,939 for one year, second year funded for \$125,000 by KY CPE. Submitted Sept 19, 2014 and accepted in November of 2014.
- Integrating *Quality Talk* Professional Development to Enhance Professional Vision and Leadership for STEM Teachers in High-Need Schools. Co-PI; funded for \$2,172,715 by NSF DRK-12 Research & Development. Submitted December 4, 2012 and accepted in May 2013.
- Creating a PhysTEC Comprehensive Site at Georgia State University. Co-PI; funded for \$299,332 by PhysTEC. Submitted January 11, 2013 and accepted in May 2013.
- Creating an Enduring Legacy of Exemplary Global Climate Change Education for Secondary Science Teachers and Underserved Students in Georgia. This was an

active grant for which I was brought in as a Co-PI for the NCE (2012 – 2013); \$300,000 for No Cost Extension year. Funded by NASA.

- Laptop Acquisition for Science Education Lab 200 Kell Hall. Co-PI; funded for \$15,672 by the Georgia State University Tech Grant. Submitted in January 2012.
- Creating a Formula for Preparing Better Physics Teachers in Georgia. Co-PI; funded for \$4,000 by the University System of Georgia. Submitted May 20, 2011 and accepted in June of 2011.
- Supporting Science Talk through Forces, Food, and Photons. PI; funded for \$48,659 by the Georgia Teacher Quality Grant Office. Submitted November 8, 2010 and accepted in January of 2011.
- Recruiting and Retaining Teacher Leaders in Physics and Chemistry. Co-PI; funded for \$2,841,528 by NSF Noyce Track II. Submitted March 8, 2010 and accepted in May of 2010.
- 5th and 8th Grade Team Leader in the Northwest Georgia Math & Science Partnership Grant. Served as Co-PI Summer 2009 – Spring 2010.
- Nanotechnology in the Chemistry Classroom. PI; granted funded by Toshiba America Foundation for \$4,500 for the 2005 – 2006 school year.

Teaching Responsibilities

- SEM 448 Advanced Middle School Methods; SEM 634 Science Pedagogy In the Secondary School Fall 2016
- SEM 521 Foundations in STEM Teaching Summer 2018
- SEM 348 Teaching Science in the Middle School; SEM 328 Teaching Science in the Elementary School; SEM 746 Subject Area Instruction in the Secondary Schools Spring 2018
- SEM 448 Advanced Middle School Methods; SEM 634 Science Pedagogy In the Secondary School; SEM 770 Special Topics in STEM Education Fall 2017
- SEM 770 STEM Pride Summer 2017
- SEM 348 Teaching Science in the Middle School; SEM 610 STEM Teacher Leadership. Spring 2017

- SEM 448 Advanced Middle School Methods; SEM 634 Science Pedagogy In the Secondary School; SEM 770 Special Topics in STEM Education Fall 2016
- SEM 770 STEM Pride Summer 2016
- SEM 328 Teaching Science in the Elementary School; SEM 348 Teaching Science in the Middle School; SEM 746 Subject Area Instruction in the Secondary Schools Spring 2016
- SEM 328 Teaching Science in the Elementary School; SEM 422 STEM Education Methods II / SEM 448 Advanced Middle School Methods / SEM 634 Science Pedagogy In the Secondary School (Combined Courses) Fall 2015
- SEM 770 STEM Pride Summer 2015
- SEM 348 Teaching Science in the Middle School; SEM 610 STEM Teacher Leadership (new offering); SEM 746 Science Instruction in the Secondary School Spring 2015
- SEM 328 Teaching Science in the Elementary School; SEM 448 Advanced Middle School Methods / SEM 634 Science Pedagogy In the Secondary School (Combined Courses) Fall 2014
- SEM 328 Teaching Science in the Elementary School; SEM 348 Teaching Science in the Middle School Spring 2014
- SEM 328 Teaching Science in the Elementary School; SEM 448 Advanced Middle School Methods / SEM 634 Science Pedagogy In The Secondary School (Combined Courses); SEM 770 Special Topics in STEM Education Fall 2013
- EDSC 9870 Advanced Research Seminar in Science Education Spring 2013
- EDSC 4655 / EDSC 6550 Principles of Science Instruction Fall 2012
- PHYS 7210 Physics Principles & Teaching Problems I Summer 2012
- EDCI 7670 / 7680 Practicum II / III Supervision Spring 2012

- EDSC 7550 Theory / Pedagogy of Science Instruction Fall 2011
- EDSC 6550 Principles of Science Instruction Summer 2011
- EDSC 8600 Science in School Curriculum Spring 2011
- EDCI 7670 / 7680 Practicum II / III Supervision Spring 2011
- EDCI 7540 Theory / Pedagogy MCE Math / Science Fall 2010
- EDCI 7660 Practicum I Supervision Fall 2010

Dissertation & Thesis Committees

- Klista Rader (Educational Leadership Studies). Committee member beginning summer 2018.
- Dawn Nachtigall (SUNY Stony Brook). External committee member beginning fall 2017.
- Bharath Khumar (University of Kentucky). Evaluating Role of Interactive Visualization Tool in Improving Students' Conceptual Understanding of Chemical Equilibrium. Successfully defended on 8/04/2016. Committee member.
- Tugce Gul (Georgia State University). Evolution of Teacher Leadership: The Influence of Leadership Professional Development Opportunities on Teacher Leaders' Perceptions of Their Leadership Characteristics, Professional Vision, and Professional Identity. Successfully defended on 10/28/15. Committee member.
- William Stoll (Georgia State University). The Impact of Collaboration between Science and Education Faculty Members on Teaching for Conceptual Change: A Phenomenographic Case Study of a Physics Professor. Successfully defended on 10/27/15. Committee member.
- Ashlie Arkwright (University of Kentucky). Fourth and Eighth Grade Students' Conceptions of Energy Flow through Ecosystems. Successfully defended on 9/29/14. Committee member.

Professional Memberships

- Member of the Kentucky Science Teacher Association
- Member of the Association for Science Teacher Educators
- Member of the National Association for Research in Science Teaching

- Member of the American Educational Research Association

Service to the Profession

- Board member: Kentucky Science Teacher Association December 2017 – Present
- Group leader: ATLAS Video Analysis Framework March 2017 – Present
- Education Policy Standards Board, Reading Committee October 2015 – Present
- Section Co-Chair, American Education Research Association (AERA) → Division C (Learning & Instruction, Section 1d (Science) April 2012 – April 2013
- Reviewer for NSTA Press January 2012 – Present
- Reviewer for the ASTE Annual Conference August 2012 – 2014
- Reviewer for the NARST Annual Conference August 2011 – 2013
- Reviewer for *Chemistry Education Research & Practice* September 2011 - Present
- Reviewer *Journal of Chemical Education* Winter 2009 – Present
- Reviewer for the *Journal of Experimental Education* Spring 2009 – 2011
- Ad hoc reviewer for *Science Education* Winter 2007 – Spring 2011
- Ad hoc reviewer for the *Journal of Teacher Education* Fall 2010 – Fall 2013

Service to the University

- Faculty Learning Community: Transitioning to College Member Fall 2017 – Spring 2018
- Internal Evaluator, STEMCats Project (HHMI) Fall 2016 – Spring 2017
- Courses & Curricula Fall 2016 – Present
- STEAM Academy Council, STEM Education Representative Fall 2016 – Present
- Undergraduate Recruitment, Retention, and Student Success Committee Fall 2015 – Spring 2017 (Secretary 2015 – 2016)
- Teaching Evaluation Task Force Fall 2015 – Spring 2016

➤ College Strategic Planning Committee

Fall 2013 – Fall 2015