

LESLIE ATKINS ELLIOTT

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CURRENT POSITION

Associate Professor 2015 - present
Boise State University
Department of Curriculum, Instruction and Foundational Studies
Courtesy appointment, Physics

EDUCATION & WORK HISTORY

Associate Professor 2011 - 2015
California State University, Chico
Department of Physics (20%) & Department of Science Education (80%)
(Assistant Professor 2007 - 2011)

Associate Research Scientist 2006 - 2007
LessonLab Research Institute

Postdoctoral Researcher 2004 - 2006
Department of Education & Psychological and Brain Sciences
Advisor Dr. Kevin Dunbar
Dartmouth College

Ph.D., Physics 2004
Title: Analogies as Categorization Phenomena: Studies from Scientific Discourse
Advisor Dr. David Hammer
University of Maryland

M.S., Physics 2000
University of Washington

B.S., Physics *magna cum laude*, Departmental Honors 1998
University of Virginia

GRANTS & FUNDING

Current

PI, Transforming Writing and Literacy Practices in the Inquiry Classroom, \$200,000
NSF DUE, TUES program
2013-2016

PI, Assessing, Investigating and Fostering Transformative Experiences in Undergraduate Physics, \$98,000
NSF DUE, TUES program
Collaborative proposal with Dr. Brian Frank, MTSU (**total award \$200,000**)
2012 - 2016

Expired

co-PI, Triad Grant, \$63,000
Bechtel Foundation. Grant to develop curriculum from NGSS in collaboration with preservice and inservice science teachers.
2015 - 2016

PI, Bechtel Grant - Undergraduate Science for Future Elementary Teachers, \$20,000
California State University system grant for preparing elementary teachers in Next Gen. Science Standards
2013-2014

PI, Scholar-in-Residence: Preparation of a Manuscript Regarding the Work-Energy Theorem, \$1,900
PER-TG Scholar-in-Residence Grant for a 2-week residency at SPU
2014

Co-PI, Building a Life Science Curriculum for Elementary Teachers, \$166,325

NSF DUE, CCLI program (Dr. Irene Salter, PI)
Proposal with Western Washington University & Whatcom Community College (**total award \$300,000**)
2010-2013

PI, CELT Learning and Teaching Scholarship Grant, \$800

California State University, Chico grant for conference travel related to teaching & learning
Summer 2013

PI, Development of an Interactive Computer Application for Modeling Energy, \$5,000

CELT Instructional Improvement Grant
2012 - 2013

PI, Textbook Alternative Program, \$500

Chico Affordable Learning Solutions

PI, Student-Generated Scientific Inquiry, \$150,000

NSF DUE, CCLI program (Phase 1)
2009 - 2012

PI, CSU, Chico Grant Stimulus Program, \$5,000

CSU Chico College of Natural Sciences
May, 2011

PI, Research Foundation Summer Scholars Explorer Award, \$4,000

CSU, Chico Internal Research Grant for the preparation of a research proposal
2009

PI, Building Bridges, \$1,078,943

California Math/Science Partnership Grant, California Department of Education
2008 – 2011

PI, Physical Science for Early Elementary, \$3,885

CSU, Chico Center for Excellence in Learning and Teaching, Instructional Improvement Grant
2008-2009

Co-PI, Mobile Computing and Data Collection for Science Teacher Education, \$19,845

CSU, Chico Center for Excellence in Learning and Teaching, Impact Grant (Dr. Irene Salter, PI)

FELLOWSHIPS/SUPPORT

APS CWIS Childcare Grant: American Physical Society

Funding to support attendance at APS March Meeting by providing funding for childcare

2015

AAPT Childcare Grant: American Association of Physics Teachers

Funding to support attendance at AAPT Winter Meeting by providing funding for childcare

2015

PERTG Travel Fellowship: Funding to Attend AAPT/PERC 2012

PER-TG Travel Fellowships

2012

NSF G/K-12 Fellowship Program, University of Washington

PRIME: Partnership for Research in Math-Science-Engineering Education

2000-2001

NSF Research Experiences for Undergraduates Fellowship

Neutron Spin, Dr. Donal Day, University of Virginia

1997

NSF Research Experiences for Undergraduates Fellowship

Eotwash Group, Dr. Eric Adelberger, University of Washington

1996

HONORS & AWARDS

TEACHING

Professional Achievement Honor

University Faculty Recognition and Support Committee, CSU Chico

One of four faculty, university-wide. "The Professional Achievement Honor recognizes faculty who, through their scholarship and teaching, provide unique and exciting learning opportunities for students."

2012

Award for Exemplary Online Instruction

Center for Excellence in Learning & Teaching, CSU Chico.

A university-wide award for developing an exemplary online course. The award is for the online course website related to NSCI 141.

2010

PUBLICATIONS

BOOKS

Atkins Elliott, L., Jaxon, K., Salter, I. *Composing Science: A facilitator's guide to writing in the science classroom*. New York: Teachers College Press (October, 2016)

Donovan, D., Rousseau, J., ... Salter, I., and **Atkins, L.J.** *Life Science and Everyday Thinking, 1st Edition*. It's About Time publishers, Armonk, NY. 2014.

WEBSITES

Case studies of students doing science: <http://studentsdoingscience.tufts.edu/case-studies/leslie/view-the-case/> (published 2016)

Composing Science: website and lesson plans from book: <http://www.composingscience.com/> (published 2016)

PEER REVIEWED PUBLICATIONS: BOOKS & JOURNALS

in progress:

Creating Work: Developing a Mechanistic Model for Energy

Intercontextuality, Expansive Framing and Transfer

Hacking the Lab: Makers in Introductory Physics

Definitions as a Goal of Inquiry

Robertson, A. and **L. Atkins Elliott**. "All students are brilliant." A confession of injustice and a call to action. In publication. *The Physics Teacher*. (2017)

Robertson, A.D., **L.J. Atkins**, D. Hammer, D.M. Levin, and J. Richards. Articulating a Shared Language for Responsive Teaching in Science: Illustrations from Seminal Literature and Classroom Cases. *Responsive Teaching in Science*, edited by D. Hammer, A. D. Robertson, and R. E. Scherr (anticipated publication in November 2015; Routledge).

Atkins, L.J. and Frank, B.W. Examining the products of responsive inquiry. *Responsive Teaching in Science*, edited by D. Hammer, A. D. Robertson, and R. E. Scherr (anticipated publication in November 2015; Routledge).

Atkins, L.J. and Salter, I.Y. Engaging future teachers in having wonderful ideas. Chapter in *Effective Practices in Preservice Physics Teacher Education*, edited by E. Brewe and C. Sandifer. 2015, APS.

Salter, I.Y. and **Atkins, L.J.** "What students say versus what they do regarding scientific inquiry." *Science Education*, 98(1) 2014.

Atkins, L.J., P. Gudeman, J. McGowan, K. Mulhern, K. Prader, G. Rodriguez, A. Showaker, & A. Timmons (co-authors were undergraduates in PHYS 341) Animating Energy: Stop-Motion animation and energy tracking representations. *The Physics Teacher*, March 2014.

Frank, B.W. and **Atkins, L.J.** Adapting Transformative Experience surveys in undergraduate physics. Physics Education Research Conference. Portland, OR. July, 2013.

Donovan, D., **Atkins, L.J.**, Salter, I.Y., and Rousseau, J. Advantages and Challenges of Using Physics Curricula as a Model for Reforming an Undergraduate Biology Course. *CBE – Life Sciences Education, special issue: Education at the Intersection of Physics and Biology*. in press. 2013.

Salter, I.Y. and **Atkins, L.J.** Student-generated scientific inquiry for elementary education undergraduates: Course development, outcomes and implications. *Journal of Science Teacher Education*. 24(1)157 - 177; 2013.

Atkins, L.J. Peer-Assessment with online tools to improve student modeling. *The Physics Teacher*. November 2012.

Atkins, L.J. and Salter, I.Y. Using scientists' notebooks to foster authentic scientific practices. Physics Education Research Conference. Philadelphia, PA. July, 2012. * Finalist for the 2012 PERC Proceedings Paper Award *

Salter, I.Y. And **Atkins, L.J.** Surveys fail to measure grasp of scientific practice. Physics Education Research Conference. Philadelphia, PA. July, 2012.

Atkins, L.J. and Salter, I.Y. "What's a fourth? What's a fifth? What's the point?": Constructing definitions in scientific inquiry. EARLI, Exeter, U.K. 2011.

Atkins, L.J. and Elliott, R.C. Investigating thin film interference with a digital camera. *American Journal of Physics* 78 (12), 1248-1253 (2010).

Atkins, L.J. Thin film interference using a computer's screen and camera. *The Physics Teacher*. December, 2010.

Atkins, L.J. and Salter, I.Y. Constructing definitions as a goal of inquiry. July, 2010. American Association of Physics Teachers: Physics Education Research Conference. Portland, OR.

Atkins, L.J. Endorsing and rejecting scientific claims in scientific argument. epiSTEME-3. Mumbai, India. January, 2009.

Atkins, L.J. The roles of evidence in scientific argument. American Association of Physics Teachers: Physics Education Research Conference. July, 2008.

Atkins, L.J., Velez, L., Goudy, W.D. and Dunbar, K.N. The unintended effects of interactive objects and labels in the science museum. *Science Education* (93)1: 161-184.

Atkins, L.J. Understanding educational reform. *American Journal of Physics*. March, 2007.

Atkins, L.J. Epistemic games, epistemic frames: Understanding visitor behavior in a science museum. International Conference of the Learning Sciences, June 2006

Atkins, L.J. Analogies in the wild: Generated analogies as assertions of categorization. Annual meeting of the Cognitive Science Society. August, 2006

Scherr, R.E. and **Atkins, L.J.** A graduate physics course in physics education research. American Association of Physics Teachers: Physics Education Research Conference, August 2004

Atkins, L.J. Student generated analogies in science: Analogy as categorization phenomenon. International Conference of the Learning Sciences, June 2004.

Seidler, G.T., **L.J. Atkins**, E.A. Behne, U. Noomnarm, S.A. Koehler, R.R. Gustafson, and W.T. McKean. Applications of synchrotron x-ray microtomography to mesoscale materials. *Advances in Complex Systems*, Vol. 4, issue 4. 2000.

CONFERENCE ABSTRACTS

Atkins, L.J. Using Motivational Interviewing to Describe Responsive Teaching. AAPT Winter Meeting. New Orleans, LA. January, 2016.

Atkins, L.J. Noticing, Valuing and Using Physics Outside of the Classroom: Understanding TE in Physics. AAPT Winter Meeting. New Orleans, LA. January, 2016.

Jaxon, K. **Atkins, L.J.** Composition in Scientific Inquiry: SeuratSpots, Disco Balls, and the Making of Meaning in Science. Conference on College Composition and Communication. Indianapolis, Indiana. March, 2014.

Salter, I.Y., **Atkins, L.J.**, and Jaxon, K. Silent Science - a "write to learn" activity for any discipline. CELT Conference, 2013. CSU, Chico.

Wright, S. Salter, I.Y., **Atkins, L.J.**, Jaxon, K., Fosen, C., Kittle, P., Pape, S. Teaching Writing Across the Disciplines: A Conversation. CELT Conference, 2013. CSU, Chico.

Marcum, Salter, **Atkins**, Nichols, Gaffney, Kagan, Mattman, Oakley, Brogden, Challenger, Steinbeck, Bykerk-Kauffman. STEM Teaching and Learning. CELT Conference, 2013. CSU, Chico.

Scherr, R.E., **Atkins, L.J.**, Close, H.G., Daane, A.R., and Vokos, S. Understanding energy with a social embodied learning activity. Symposium on Conceptual metaphor and embodied cognition in science learning. ESERA 2013. Nicosia, Cyprus.

Atkins, L.J., Salter, I.Y., Donovan, D. and Rousseau, J. Life Science & Everyday Thinking: Rationale and results of a lab curriculum for future elementary teachers. NSF TUES Conference. Washington, DC. January 24, 2013.

Donovan, D., Salter, I, **Atkins, L.J.**, and Rousseau, J. Introducing a New Intro Biology Curriculum. National Association of Biology Teachers (NABT) Annual Conference, Nov. 1, 2012.

Donovan, D., Salter, I, **Atkins, L.J.**, and Rousseau, J. An Evolutionary Showcase from a New Intro Biology Curriculum. National Association of Biology Teachers (NABT) Annual Conference, Nov. 3, 2012.

Atkins, L.J. Representing energy for a physics of processes & causation. Physics Education Research Conference. Philadelphia, PA. July, 2012.

Atkins, L.J., Donovan, D., Rousseau, J., and Salter, I.Y. Life Science & Everyday Thinking: Rationale and results of a lab curriculum for future elementary teachers. SABER (Society for the advancement of biology education research). Minneapolis, MN. July 2012.

Rocha, R. (undergraduate) and **Atkins, L.J.** Representations of Energy in Science Education. CSU, Chico Natural Sciences Poster Session. April 20, 2012.

Atkins, L.J. Transformative Experiences in Preservice Teacher Education. Anaheim, CA. PhysTEC (Physics Teacher Education Coalition) Conference. Anaheim, CA. February 3-4, 2012.

Schademan, A., **Atkins, L.J.**, Kotar, M., Monet, J., and Salter, I.Y. "Why does it choose to go that way?": Pivotal discourse events in model-based inquiry. Proceedings of the Jean Piaget Society. June, 2011.

Atkins, L.J. CCLI: Student-Generated Scientific Inquiry. CCLI PI Conference, Washington, DC. January 26 - 28, 2011.

Salter, I.Y. and **Atkins, L.J.** Student-Generated Scientific Inquiry: Rethinking Science Notebooks. ASTE Experiential Session, Minneapolis, MN January 20 - 22, 2011.

Salter, I.Y. and **Atkins, L.J.** Student-generated scientific inquiry: An undergraduate pre-service curriculum. ASTE Syllabus-Share Session, Minneapolis, MN January 20 - 22, 2011.

Atkins, L.J. and Salter, I.Y. Student-generated scientific inquiry. Talk presented (by Atkins) at AAPT. July, 2010.

Roth, K, Chen, C, Lemmens, M, Wickler, N, Garnier, H. (with panelists **Atkins**, Calabrese Barton, Roseman, Shouse, and Zembal-Saul) Coherence and Science Content Storylines in Science Teaching: Evidence of Neglect? Evidence of Effect? Special Symposium at the National Association for Research in Science Teaching Conference, April, 2009.

Nelson, J.K., Lizcano, R.A., **Atkins, L.J.**, Dunbar, K.N. Conceptual judgments of expert vs. novice chemistry students: An fMRI study. Poster presented at the Annual Meeting of the Psychonomic Society. November, 2007

Atkins, L.J., Bishop, N., Rocco, L. and Wearn, C. Multiple perspectives on visitor interactions at a science museum exhibit. Visitor Studies Association 2006 Annual Conference. July 2006

Atkins, L.J. Frames and games in the science museums: Understanding informal science conversations. Foundations and Frontiers in Physics Education Research. August, 2005

Atkins, L.J. Analogies in the wild: Generated analogies as assertions of categorization. 129th meeting of the American Association of Physics Teachers. August, 2004

Atkins, L.J. Functional vs. structural analogies: A conceptual or epistemological basis? American Association of Physics Teachers: Physics Education Research Conference. August 2003

Atkins, L. J., Martinez, G., Seeley, L. H., and Seidler, G. T. An experimental study of bond-orientational order in random dense packings of spheres. APS March Meeting 2001, Seattle, WA March, 2003

Behne, E.A., Noomnarm, U., Koehler, S.A., Wells, D.W., **Atkins, L.J.**, Chapman, B.D., and Seidler, G.T. Three-dimensional x-ray microtomography of liquid and solid foams. APS March Meeting 2001, Seattle, WA March, 2003

BOOK REVIEWS & REPORTS

Atkins, L.J. Review: *Digital Technologies and the Museum Experience*. *Science Education*, 93(6) 1149 - 1151.

Atkins, L.J., Behne, E., Martinez, G., Rensberger, J., and Seidler, G.T. X-ray microtomography of the vascular canal network in permineralized Triceratops bone. APS User Activity Report, 1999.

Seidler, G.T., Behne, E., **Atkins, L.J.**, and Rendahl, A. X-ray microtomography study of a model crumpled membrane. APS User Activity Report, 1999.

Seidler, G.T., **L.J. Atkins**, E.A. Behne, U. Noomnarm, R.R. Gustafson, and W.T. McKean. (2002) Applications of Synchrotron X-Ray Microtomography to Mesoscale Materials. In *Challenges in Granular Physics*, Halsey, T., and Mehta, A., Eds.

PRESENTATIONS

INVITED TALKS

Atkins Elliott, L - Plenary Speaker: Transforming Research in Undergraduate STEM Education (TRUSE). St. Paul, MN. July, 2017.

Atkins Elliott, L, and K. Jaxon — invited presentation and workshop to North Carolina State University. November, 2016

Atkins Elliott, L, and K. Jaxon — invited presentation, talk and workshop to University of Miami, OH. September, 2016

Atkins Elliott, L, Little, A. (co-organizers). Examining "Non-content" Outcomes of Physics Instruction: Goals and methods. L. Atkins Elliott, D. Hammer, L. Jaber, A. Leak, A. Little, A. Phillips, J. Radoff, R. Russ, J. Watkins and B. Zwickl. Session at the Physics Education Research Conference, Sacramento, CA. July, 2016.

Atkins Elliott, L.J., Little, A. (co-organizers). "Reducing the "real world"/classroom divide." Invited talk in organized session at the Physics Education Research Conference, Sacramento, CA. July, 2016.

Atkins, L.J. - one of 3 invited speakers in an online series. Student Learning Outcomes as Emergent. <http://connectedlearning.tv/student-learning-outcomes-emergent>

Atkins, L.J. American Physical Society. Inspired Teaching of Physics Panel. Composing Science: Integrating Scientific Inquiry and Writing Instruction. San Antonio, TX. March, 2015.

Atkins, L.J., American Association of Physics Teachers. Exemplary Ways to Prepare Elementary School Teachers to Meet the NGSS Challenge. "Crosscutting Concepts and Elementary Teacher Preparation." San Diego, CA. January, 2015.

Atkins, L.J. "Writing Science: A 'Writing Proficiency' Course for Future Teachers. Seminar. Tufts University, Department of Education. September 12, 2014.

Atkins, L.J. (Panelist.) American Association of Colleges for Teacher Education annual conference. Major Panel: It's Not Elementary: Preparing Elementary School Educators. Indianapolis, IN. March, 2014.

Atkins, L.J. The Content Outcomes of Responsive Teaching in Physics. Invited session "Responsive Teaching in Science." American Association of Physics Teachers. Orlando, FL. January, 2014.

Atkins, L.J., Marcum, B. and Heaston, S. Coordinating Curriculum around Crosscutting Concepts. A New Vision for Preparing Tomorrow's Teachers in Math, Science, and STEM: Addressing the Common Core State Standards for Mathematics and the Next Generation Science Standards. California State University-East Bay. October 28, 2013.

Atkins, L.J. Developing academic registers in science. Physics Department "What Physicists Do" seminar. Sonoma State University. October 28, 2013. www.youtube.com/watch?v=Pm1tFN0ijD8

Atkins, L.J. Responsive Inquiry and the Preparation of Elementary Teachers. Invited session "Physics Preparation for Pre-service Elementary Teachers." American Association of Physics Teachers. Portland, OR, July 2013.

Atkins, L.J. Developing academic registers in science: Joint construction of operational definitions. Physics Department seminar. Sacramento State University. March 14, 2013.

Atkins, L.J. Developing academic registers in science: Joint construction of operational definitions. Physics Department seminar. CSU Chico. February 15, 2013.

Frank, B.W. and **Atkins, L.J.** How Responsive Inquiry Promotes a Transformative Experience Agenda. Invited Session: Examining How Different Research-based Curricula Promote Different Agendas in Research. AAPT Conference. Philadelphia, PA. July 2012.

Atkins, L.J. and Salter, I.Y. Using scientists' notebooks to foster authentic scientific practices. Invited symposium: Reading of scientific texts as means of exposing students to authentic disciplinary practices. Physics Education Research Conference. Philadelphia, PA. July, 2012.

Atkins, L.J. Developing academic registers in science: Joint construction of operational definitions. Science education seminar. University of Michigan. March 28, 2011.

Atkins, L.J. How we believe: Meta-rules of arguments. Science literacy program seminar. University of Oregon. March 1, 2011.

Atkins, L.J. Theory-driven inquiry: Experiments to resolve arguments in science instruction. Seminar Series, University of California, Berkeley. March 2010.

Atkins, L.J., Inquiry as argument: Debating our way into science. No Question Left Behind: Bringing Guided-Inquiry Curricula into Science and Mathematics Classrooms. University of Maine, June, 2009.

Atkins, L.J., Justifying scientific claims: Meta-rules of argument. Foundations and Frontiers in Physics Education Research. *Plenary talk*. Bar Harbor, ME. June, 2009.

Atkins, L.J., Justifying scientific claims: Meta-rules of argument. University of Wisconsin Science Education presentation. Madison, WI, April 2009.

Atkins, L.J., The social nature of conceptual development. Colloquium at Deep Springs College. Deep Springs, CA. January, 2009.

Atkins, L.J. Understanding students' scientific arguments. California Science Project: Science Teaching Symposium. CSU, Chico. March 8, 2008.

Atkins, L.J. Analogies, categories, language and physics: How our minds organize information. The Wonderful Speakers Series, 2005, Worcester Polytechnic Institute. September 28, 2005.

Atkins, L.J. Science in context: Studies from classrooms, labs and museums. Department seminar, Learning Sciences Department. Indiana University, Bloomington. April, 2005

Atkins, L.J. Science in context: Studies from classrooms, labs and museums. Department seminar. Curriculum & Instruction. University of North Carolina. March, 2005.

Atkins, L.J., and Goudy, D. Integrating research and practice.

The Bay Area Institute 2005, San Francisco, CA. August 20, 2005.

CONTRIBUTED TALKS & POSTERS

Jaxon, K, and **L.J. Atkins**. "Composition in Scientific Inquiry: SeuratSpots, Disco Balls, and the Making of Meaning in Science." Paper presented at the National Conference on College Composition and Communication, Indianapolis, IN. March 2014.

WORKSHOPS

FACILITATOR

Composing Science: A Workshop on Teaching Writing in the Inquiry Classroom Invited workshop (RiPE & Ctte. on Teacher Preparation), AAPT	July, 2016
Making Spaces for Ideas Invited workshop for Academy eLearning, CSU, Chico	June, 2015
Writing in the Sciences (with Kim Jaxon) American Association of Physics Teachers. San Diego, CA	January, 2015
A New Vision for Preparing Tomorrow's Teachers in STEM: Addressing the NGSS. Facilitator. California State University, East Bay	October, 2013
Innovative Instruction Invited workshop for Academy eLearning, CSU, Chico	June, 2013
Kick-Start Scientific Inquiry with Thinking Starters (co-author; presenters: Paula Magee and Irene Salter) NSTA Conference, Indianapolis, IN March 2012	March, 2012
Student-Generated Scientific Inquiry: Rethinking Science Notebooks (with Irene Salter) ASTE Conference, Minneapolis, MN January 2011	January, 2011
Beginning with the big ideas: Inquiry in the college classroom (with Irene Salter) CELT Conference California State University, Chico,	Fall, 2010
Structuring scientific debates	October 7, 2010
No Question Left Behind: Bringing Guided-Inquiry into Science and Mathematics Classrooms. University of Maine	June, 2009
Knowledge Analysis Workshop American Educational Research Association conference Presentation of research at roundtable	April, 2009
Using Videocases to Support and Study Preservice Teacher Learning: Two Approaches National Association for Research in Science Teaching (NARST)	March, 2008
ViSTA: Videocases for Science Teaching Analysis MiniConference at LessonLab	November, 2006
Analysis of Student Inquiry in Group Conversations About Physical Science. National Association for Research in Science Teaching (NARST)	March, 2003

CO-AUTHOR

Introducing a New Intro Biology Curriculum (facilitated by D. Donovan) 2012 NABT Professional Development Conference	November, 2012
An Evolutionary Showcase from a New Intro Biology Curriculum (facilitated by D. Donovan) 2012 NABT Professional Development Conference	November, 2012

PARTICIPANT

Workshop liaison: Cottrell Scholars CURE/Inquiry Workshop. Chicago, IL. December, 2016.	December, 2016
Stanford EDUC 115N: How to Learn Math - Faculty: Jo Boaler Certificate of Completion. Online MOOC via Coursera on the learning and teaching of math.	Summer, 2013
Safe Zone training: Ally for LGBT Community CSU, Chico Diversity Training	September, 2011
Accessible Technology Initiative Course Makeover (two day workshop on UDL) CSU, Chico Center for Excellence in Learning and Teaching	June, 2008
Physical Science for Elementary Teachers American Association of Physics Teachers	January, 2008

Implementing the Learning Assistant Model. American Association of Physics Teachers, 2007	August, 2007
Early Career/ Junior Faculty Consortium International Society of the Learning Sciences	June, 2006
Doctoral Consortium International Society of the Learning Sciences	June, 2004
Inquiry as Intervention Public Conversations Project	January, 2003
Preparing Future Faculty: Teaching and Learning in Higher Education, 2001 University of Washington	Spring, 2001

TEACHNG EXPERIENCE

Boise State University STEM-ED 210, 220 & 350	2016 -
California State University, Chico NSCI/GEOS 141: Concepts in Physical Science Teaching a large-enrollment (96 students) lab-based course in introductory physics for future elementary teachers. Addresses the California science standards, includes videos of elementary students learning similar content, reflections on learning, large-lectures with “clickers,” and frequent student-led debates and discussions.	2008 - 2015
NSCI 142: Concepts in Life Science Teaching a lab-based course (6-hours/wk) in introductory biology for future elementary teachers. Co-authoring the curriculum as part of NSF-funded project: Building a Life Science Curriculum for Elementary Teachers	
NSCI 321: Scientific Inquiry Co-teaching a grant-funded course on scientific inquiry in perception (light, color and sound) to undergraduate preservice teachers.	
PHYS 341: Advanced Inquiry into Physics Teaching a lab-based advanced inquiry course in upper division physics. Topics are student-directed and past semester focused on sundials, modeling Lambertian surfaces (as a means of addressing what limits the resolution of sundials), representations of energy, and dynamics of energy transfer.	
PHYS 499: Special Problems Taught a physics course to a future high school physical science teacher. Worked through research-based curriculum and reading the research papers related to the development of that curriculum.	
NSCT 697: Independent Study Masters in Science Teaching course in physics for a middle school physics teachers.	
NSCI 698: Special Topics in Science Education: Critical Thinking Issues in Science Education Taught a blended (online, with periodic meetings) course for teachers in the Masters in Science Teaching program. Teachers developed and shared case-studies of their teaching that addressed topics in scientific inquiry.	
NSCT 698: Special Topics in Science Education: Scientific Inquiry Taught a blended (online, with periodic meetings in person) course for teachers in the Masters in Science Teaching program. Teachers developed and shared case-studies of their own teaching that addressed topics in scientific inquiry.	
NSCT 813: Early Access to Scientific Inquiry Special session summer course for in-service elementary teachers on the intersection of scientific inquiry and literacy. Co-taught with Dr. Julie Monet, Geosciences.	
University of Maryland PHYS 115: Inquiry into Physics	2003 - 2004
Introductory physics course for elementary education majors. Course was laboratory based with an emphasis on constructing models and theories for physical phenomena, including circuits, static electricity and buoyancy.	
PHYS 121: Introductory Physics	2003
Teaching Assistant. Taught reform laboratories and tutorial sessions in introductory physics with the NSF ROLE grant, “Learning to Learn Physics for Bioscience Majors.” Attended regular meetings for developing, evaluating and interpreting the effects of the reforms.	

University of Washington

PHYS 121 - 123: Introductory Physics

1998 - 2000

Teaching Assistant. Used the University of Washington Physics Education Group's *Tutorials in Introductory Physics*. Wrote and graded exam questions for a large introductory physics course. Coordinated preparation, schedules and grading responsibilities for all introductory teaching assistants. Taught lab sections for 121-123.

PHYS 408: Physics by Inquiry

2002

Teaching Assistant. Conducted curriculum development for wave phenomena for *Physics by Inquiry*. Piloted and tested curriculum with M.A. students.

PHYS 300: Statistical methods for physicists

2001

Teaching Assistant. Led laboratory section and frequent guest lecturer for an experimental course (measurement of fundamental quantities: e , c , h , etc.) with attention to statistical methods.

K-12 TEACHING EXPERIENCE

Topanga Mountain School

2006 - 2007

Science teacher.

Taught science in a multi-age independent high school. Discussion-based, inquiry methods, in multiple topics, including astronomy, density, buoyancy, error and uncertainty in measurement, and sound.

Santa Monica Alternative School House (SMASH)

2007

Core 2 (a second/third grade classroom) visiting Science Teacher

Developed and taught a unit on decomposition as part of a video-case in science teaching (to be used for preservice methods courses).

The Governor's School of North Carolina

2003 - 2007

Summer residential high public school teacher.

Developed and taught courses in contemporary science topics for selected high school seniors at a summer residential school. Topics taught include physics, astronomy, philosophy of science and cognitive science.

AP Physics

2003 - 2004

Designed and taught AP Physics (Mechanics) for a home-schooled high school student.

University Preparatory High School

2001 - 2002

Teacher, 10th grade Environmental Chemistry

Instructor for high school environmental chemistry course. Developed curriculum and laboratories.

TEACHER PROFESSIONAL DEVELOPMENT

Triad Grant, science educator

2015 - 2016

Al Schademan, PI. Grant to develop curriculum from NGSS in collaboration with preservice and inservice science teachers.

Collaborative Professional Development, lead scientist

2014 - 2016

Esther Larocco & Charles Zartman, PI's. ELD/Science Inquiry grant. Lead science summer institute and participate in follow-up activities during the school year.

Honing Diagnostic Practice: Toward a New Model of Teacher Professional Development.

2010 - 2013

Energy Project at Seattle Pacific University: Research Institute scholar (2010), instructor (2011, 2012, 2013).

Early Access to Science for Youngsters (EASY) Summer Institute

June, 2009

Co-developed and taught (with Dr. Julie Monet) a week-long (40-hour) summer institute for professional development in scientific inquiry that addresses both literacy and inquiry.

Structuring Scientific Debates

June, 2009

Invited workshop director for Maine's "No Question Left Behind" conference. Led a two-hour workshop on the research behind incorporating debate and argument into science instruction and methods for doing so.

Enhancing Education Through Technology

Fall 2008

Designed and led two one-day workshops for local 4th and 5th grade teachers as part of the EETT grant. Topics included electricity, magnetism, and water.

CSP: Inquiry & Literacy

Summer 2008

Designed the science content portion of professional development for two one-week summer institutes through the California Science Project at CSU, Chico. Topics included force, motion and energy.

STeLLA: Science Teachers Learning through Lesson Analysis

2006 - 2007

As part of the LessonLab Research Institute's STeLLA grant, led two cohorts of teachers in a year-long professional development program. Professional development included a modified lesson study, using videos of teachers' practice to inform instruction, paired with content instruction in electricity and magnetism.

- Seattle Local Systemic Change (LSC) Institute** Summer 1999
 Taught curriculum from *Physics by Inquiry* and FOSS for elementary teachers in the Seattle School District in a one-week summer institute.
- Physics by Inquiry Summer Institute** Summer 1998
 Facilitated the University of Washington's summer institute in Physics by Inquiry, a six-week inquiry based program for elementary teachers. Topics included light, astronomy, matter, buoyancy, and electricity.

SERVICE

NATIONAL LEADERSHIP/SERVICE TO THE PROFESSION

- NSF Review Panel** Dec. 2015
 DUE review panel; 16 grants
- Chair**, Physics Education Research Leadership Organizing Committee (PERLOC) 2015 - 2016
 Elected position; chair of the eight-member board of the national organizing council for physics education research.
- Chair**, Physics Education Research Conference Task Force 2015 - 2016
 Appointed position; chair of the six-member task force charged with making recommendations regarding the restructuring of the national conference on physics education research.
- External evaluation of tenure case** 2014
 University of Texas, San Marcos
- Co-Organizer: Physics Education Research Conference 2013** 2013
 Co-Organizer of the PERC in Portland, OR: *From Fearing Physics to Having Fun with Physics: Exploring the Affective Domain of Physics Learning from Multiple Perspectives*
- Physics Education Research Leadership Organizing Council (PERLOC)** 2013 - 2016
 Elected position; one of six members of the national organizing council for physics education research. Duties include coordinating the PER conference, award winners, and changes to conference structure
- Teso University Education Advisory Board** 2010 -
 Board member for Teso University, Uganda
- AAAS Project 2061: Assessment Items Review Panel** (Energy, middle school). August 2008
reviewer for assessments for middle school science standardized test. 40 hour commitment.

UNIVERSITY COMMITTEES & SERVICE

- Center for Excellence in Learning and Teaching**, Board member (College representative) 2013 -
- Wildcat Welcome** Faculty mentoring day 2013
- Curriculum for Character** organizing committee 2013
- Gateway Science Museum Commission** (faculty representative) 2010 - 2013
- Campus Hearing Committee Representative** (Physics Department Representative) 2010 - 2012

COLLEGE COMMITTEES & SERVICE

- College of Natural Science Poster Session Committee** (Science Education Department Representative) 2013 -
- Academic Policies and Status Committee** (Science Education Department Representative) 2008 - 2013
- Student Learning Fee Committee** (Science Education Department Representative) 2010-11, 2012 - 2013
- Emergency Preparedness Committee** (Physics and Science Education Departments Representative) 2008 - 2011

DEPARTMENTAL COMMITTEES & SERVICE

- Search Committee:** Physics Education assistant professor position 2014 - 2015
- Search Committee:** Physics Education associate professor position 2014 - 2015
- Search Committee:** Department Chair position 2013 - 2014
- Search Committee:** Biology Education position 2012 - 2013
- Interim Department Chair** (Science Education Department; replacement during chair's maternity leave) 2012 - 2013

Personnel Committee: Chair Chair of department Review/Personnel Committee	2012 - 2013
Personnel Committee: Secretary Member of department RTP/Personnel Committee	2011 - 2012
Search Committee: Chemistry Education Science Education department representative to hiring committee	2010 - 2011
RTP & Constitution Committee Committee to write the constitution and RTP document for the Science Education Department	2008 - 2009
Curriculum Committee Science Education Department curriculum committee	2008 - 2009
MiST Advisory Board Bi-weekly meetings to set the assessment and curricular goals of the Masters in Science Teaching degree program	2007 - 2009
ScienceFEST Board Committee to set learning outcomes, goals and objectives for elementary teacher preparation in science	2007 - 2008

LOCAL COMMUNITY SERVICE

Teaching Excellence and Achievement Program (TEA) Led 2 hour seminar and class visitation with visiting international teachers.	Mar. 9 2011
Teacher-Based Reform, Inland Northern California Grant Review Panel Read and scored grant proposals to T-BAR INC.	2011, 2012
Noyce Scholarship review Read and review applicants for the Noyce scholarship	April 2010
Science Fair Judge Sierra View Elementary	March 2010
EASY: Early Access to Science for Youngsters Developed and co-led (with Dr. Julie Monet) a week-long (40 hour) summer institute for K-3 teachers.	June 2009
SPS Tutoring Center Volunteer one hour a week in the SPS tutoring center.	Fall 2008
National Science Teachers Association Presented a talk to the local undergraduate chapter of NSTA (November, 2008)	Nov. 2008
Enhancing Education Through Technology Led two days of professional development in Electricity & Magnetism, and Water for 4th and 5th grade teachers as part of the EETT grant	Aug - Oct, 2008
California Science Project: Force & Motion, Electricity Developed and led two weeks of summer professional development for teachers through the California Science Project (Inland Northern section). Emphasized developing representations of phenomena.	June, 2008

CONSULTING/CONTRACTS

The Dynamics of Learners' Engagement and Persistence in Science (Gordon and Betty Moore Foundation) Tufts University (contracted to provide video and analysis of classroom)	2015
Community Professional Development grant Science content specialist (140 h./year)	2014 - 2017
Summer STEM Institute consultant for Chico Rural Teacher Pathway.	2012, 2013
T-BAR (Teacher-Based Reform). <i>Review panel.</i>	2011 - 2012
Honing Diagnostic Practice: Toward a New Model of Teacher Professional Preparation. Instructor, Consultant. (PI, Dr. Stamatias Vokos, Seattle Pacific University)	2009 - 2012
Analogical reasoning via imagery: The role of transformations and simulations Consultant (PI, John J Clement, University of Massachusetts) <i>5 - 10 hours of consulting on analogy project</i>	July 2009

PENDING

Advisory council, Creating Aligned Physics and Computing Activities for Engaging Teachers and Youth in Computer Science (CAPACETY - CS), UC, Santa Barbara

Advisory board. NSF IUSE Institutional and Community Transformation Design and Development track, "A model of educational transformation: Developing a community of faculty implementing Next Generation Physics and Everyday Thinking." CSU, San Marcos.

Advisory board. NSF IUSE "Supporting the Teaching and Learning of Disciplinary Practices Through a Novel Museum-University Collaboration: a Longitudinal Study of Science Teacher Learning" New York Hall of Science.

REVIEWER

AAPT: Physics Education Research Conference
American Journal of Physics
International Conference of the Learning Sciences
Israeli Science Foundation Grant Reviewer
Journal of College Science Teaching
Journal of the Learning Sciences

Journal of Research in Science Teaching
Nat'l Assn. for Research in Science Teaching Conference
National Science Foundation: IUSE (Dec. 2015)
Physical Review Special Topics: Physics Ed. Research
The Physics Teacher
Science Education