

Molly L. Kelton, PhD

Assistant Professor of Mathematics Education
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Education

PhD, Mathematics and Science Education, University of California San Diego and San Diego State University, Spring 2015.

Dissertation Title: Math on the Move: A Video-Based Study of School Field Trips to a Mathematics Exhibition.

MS, Mathematics, University of Utah, Spring 2006.

Research focus: Mathematical Biology.

BA, Mathematics, Vassar College, Spring 2004.

Minor: Ancient Greek.

Academic and Research Positions

2016 – Present: Assistant Professor of Mathematics Education, Department of Teaching and Learning, College of Education, Washington State University

2015 – 2016: Post-doctoral Scholar on NSF-funded grant (InforMath, see Grants and Other Funding), Department of Mathematics and Statistics, San Diego State University

2009 – 2015: Graduate Research Assistant, multiple NSF-funded grants (see Other Grant-Related Activity), Department of Mathematics and Statistics, San Diego State University

2008 – 2009: Data Analyst, Department of Defense, Center for Deployment Health Research, Naval Health Research Center, San Diego

Areas of Expertise and Research Interests

- Leveraging diverse in- and out-of-school settings and community partnerships to advance educational equity and social justice
- Mathematical thinking and learning in designed out-of-school learning environments and across formal, informal, and everyday settings
- Integrated STEAM (Science, Technology, Engineering, Arts, and Mathematics) education and its potential to foster inclusive and transformative STEM learning
- Embodied and emplaced cognition, communication, and experience
- Multi-modal interaction analysis and video-based research methodologies in the learning sciences

Grants and Other Funding

Federal Research Grants

Offerdahl, E. G., **Kelton, M. L.** (2019 - 2022). *REU Site: The RISE Program – Research in Interdisciplinary STEM Education*. Research in Undergraduate Education proposal to the National Science Foundation. Kelton is co-PI with Offerdahl (lead PI). Total funding requested: \$377,994. **Under Review**. (Submitted August, 2018).

Kelton, M. L., Owen, J. P., Danielson, R., & Butterfield, P. (2018-2023). *Health Education through Arts-based Learning (HEAL): A Partnership to Investigate Interdisciplinary Science Programs in Rural Communities*. Kelton is lead PI with WSU co-PIs Owen (CAHNRS), Danielson (College of Education), and Butterfield (College of Medicine). Research project through the National Institutes of Health Science Education Partnership Award program. Total awarded: \$1,195,049. **Funded**. (Awarded 2018, Grant # 1R25GM129814-01).

Kelton, M. L. (2018-2023). *Making the Most of Mathematics in Out-of-School Time (MOST): Mapping and Designing for Youth's Mathematics Learning Pathways Across Urban Settings*. Collaborative research project with New York University through the Advancing Informal STEM Learning Program of the National Science Foundation. Funding for WSU sub-award (with Kelton as PI for sub-award): \$315,514. Kelton is co-PI for multi-institution project with Ma, J. Y. (lead PI), Kirkland, D. (co-PI), and Hoadley, C. (co-PI). Total funding for multi-institution project requested: \$2,000,000. Not Funded. (Revised Version Submitted November 2017; Original Submission November 2016).

Kelton, M. L. (2016-2018). *InforMath: Mathematics to Enrich Learning Experiences in Science and Art Museums*. Research project in collaboration with colleagues at San Diego State University and the Reuben H. Fleet Science Center through the Advancing Informal STEM Learning Program of the National Science Foundation. Funding for the 2016 – 2018 sub-award to WSU (with Kelton as PI for the sub-award): \$57,916. Kelton is a co-PI for the 2013-2018 multi-institution project with Nemirovsky, R. (lead PI) and Siboroski, P. (co-PI). Total funding for multi-institution project awarded: \$1,517,474. **Funded**. (Awarded 2013, DRL-1323587).

Foundation Research Grants

Kelton, M. L. (2016-2019). *Mapping Mathematics Learning Pathways across Diverse Urban Settings for Low-Income Youth*. Research project in collaboration with colleagues at New York University through the Reducing Inequality Research Grants Program of the William T. Grant Foundation. Funding for the sub-award to WSU (with Kelton as PI for the sub-award): \$181,022. Kelton is a co-PI for the multi-institution project with Ma, J. Y. (lead PI). Total funding for multi-institution project requested: \$636,394. Not funded. (Submitted April 2016).

University Research Grants

Kelton, M. L., & Danielson, R. (2018-2019). *Health Education through Arts-based Learning (HEAL): Establishing a New Partnership in Interdisciplinary STEM Education in Diverse Rural Communities*. Proposal submitted to WSU's New Faculty Seed Grant program. Kelton is lead PI with co-PI Danielson (College of Education). Total funding requested:

\$22,043. **Funded.**

Frost, J., **Kelton, M. L.**, Lesseig, K., Roth McDuffie, A., Rougee, A., & Slavitt, D. (2018). *Collaborative Research Retreat for Coherence in Cross-campus Mathematics Education Programs: Theory-building and implementation*. Collaborative research retreat with WSU collaborators funded through WSU's College of Education Collaborative Research Retreat Funding Awards. Kelton is a collaborating researcher. Total funding: \$453. **Funded.**

Kelton, M. L., Owen, J. P., Danielson, R., & Butterfield, P. (2017). *Collaborative Research Retreat for the Health-sciences Education through Arts-based Learning (HEAL) Partnership*. Collaborative research retreat with WSU collaborators funded through WSU's College of Education Collaborative Research Retreat Funding Awards. Kelton is PI with co-PI's Owen (CAHNRS), Danielson (College of Education), and Butterfield (College of Medicine). Total funding: \$855. **Funded.**

Corporate and Private Research Funding

Kelton, M. L. (2017-2018). *Gear-Up Professional Development Program*. Kelton is sole PI on this rural professional development project in collaboration with Eureka Palouse! and the University of Idaho. Funded by private donation through WSU's College of Education office of development. Total funding: \$5,000. **Funded.**

Other Grant-Related Activity

Ma, J. Y., **Kelton, M. L.**, Kirkland, D., Hoadley, C. (2017-2018). *Provostial Seed Grant for: Making the Most of Mathematics in Out-of-School Time (MOST): Mapping and Designing for Youth's Mathematics Learning Pathways Across Urban Settings*. Research project in collaboration with colleagues from New York University. Kelton is co-PI with Ma, J. Y. (lead PI), Kirkland, D. (co-PI), and Hoadley, C. (co-PI). This seed grant is funded by NYU's Provostial Mega-Grants Initiative Seed Funding. Total funding to NYU: \$26,000. **Funded.**

Newlin, J. & Nemirovsky, R. (2009-2015). *Math Core for Museums*. \$2,604,410. Project funded by the Informal Science Education (now Advancing Informal STEM Learning) Program of the National Science Foundation (DRL-0840320). **Kelton** was a graduate research assistant for this grant from 2009 – 2015.

Nemirovsky, R., Leander, K., Hall, R., Nathan, M., & Alibali, M. (2008-2015). *Tangibility for the Teaching, Learning, and Communicating of Mathematics*. \$1,996,463. Project funded by the Research on Education and Learning Program of the National Science Foundation (DRL-0816406). **Kelton** was a graduate research assistant for this grant from 2009 – 2015.

Scholarly and Professional Achievements

Refereed Journal Articles

Kelton, M. L., Ma, J. Y., Rawlings, C., Rhodehamel, B., Saraniero, P., & Nemirovsky, R. (2018). Family meshworks: Children's geographies and collective ambulatory sense-making in an immersive mathematics exhibition. *Children's Geographies*, 16(5), 543-557.

Kelton, M. L., & Ma, J. Y. (2018). Reconfiguring mathematical settings and activity through multi-party, whole-body collaboration. *Educational Studies in Mathematics*, 98(2), 177-196.

Kelton, M. L., & Saraniero, P. (2018). STEAM-y partnerships: A case of interdisciplinary

- professional development and collaboration. *Journal of Museum Education*, 43(1), 55-65.
- Ellis, J., **Kelton, M. L.**, & Rasmussen, C. (2014). Student perceptions of pedagogy and persistence in United States Calculus. *ZDM The International Journal on Mathematics Education*, 46(4), 661-673.
- Nemirovsky, R., **Kelton, M. L.**, & Rhodehamel, B. (2013). Playing mathematical instruments: Emerging perceptuomotor integration with an interactive mathematics exhibit. *Journal for Research in Mathematics Education*, 44(2), 372-415.
- Nemirovsky, R., **Kelton, M. L.**, & Rhodehamel. (2012). Gesture and imagination: On the constitution and uses of phantasms. *Gesture*, 12(2), 130-165.
- LeardMann, C. A., **Kelton, M. L.**, Smith, B., Littman, A. J., Boyko, E. J., Wells, T. S., & Smith, T. C. (2011). Prospectively assessed posttraumatic stress disorder and associated physical activity. *Public Health Reports*, 126(3), 371-83.
- Kelton, M. L.**, LeardMann, C. A., Smith, B., Boyko, E. K., Hooper, T. I., Gackstetter, G. S., Bliese, P. D., Hoge, C. W., & Smith, T. C. (2010). Exploratory factor analysis of self-reported symptoms in a large, population-based military cohort. *BMC Medical Research Methodology*, 10(94). doi: 10.1186/1471-2288-10-94.
- Schreiber, S., & **Kelton, M. L.** (2005). Sink Habitats Can Alter Ecological Outcomes For Competing Species. *The Journal of Animal Ecology*, 74(6), 995-1004.

Refereed Journal Articles Under Review

- Kelton, M. L.**, & Ma, J. Y. (Under Review). Assembling a torus: Family mobilities in an immersive mathematics exhibition. *Cognition and Instruction*.
- Saraniero, P., & **Kelton, M. L.** (Under Review). Discover and explore: STEAM learning for museum professionals. *Curator*.
- Kelton, M. L.**, & Nemirovsky R. (Under Review). On the politics and aesthetics of contemporary mathematics exhibitions: An analysis of dissensual design and student response. *Cognition and Instruction*.
- Ma, J. Y., **Kelton, M. L.**, & Radke, S. C. (Under Review). Mathematics learning pathways: Supporting a more equitable mathematics education by looking across settings. *Mathematical Thinking and Learning*.

Refereed Journal Articles In Progress (Working Plan, Next 3 Shown)

- Nemirovsky, R., Duprez, D., & **Kelton, M. L.** (In Progress). Affects and emergent learning. To be submitted to *Body & Society*.
- Kelton, M. L.** (In Progress). "What does this remind you of?": Re-contextualization practices on school field trips to a mathematics exhibition (Working title). To be submitted to *School Science and Mathematics*.
- Kelton, M. L.** (In Progress). I am the Hulk!: Negotiating the disciplinary status of playful encounters on school field trips to a mathematics exhibition. (Working title). To be submitted to the *Journal for Research in Mathematics Education* or *Mathematical Thinking and Learning*.

Refereed Book Chapters

Nemirovsky, R., **Kelton, M. L.**, & Civil, M. (2017). Toward a vibrant and socially significant informal mathematics education. In J. Cai (Ed.), *Compendium for Research in Mathematics Education*, (pp. 90 – 101). Reston, VA: National Council of Teachers of Mathematics. (Invited, Anonymous Peer Reviewed)

Edited Book Chapters

Nemirovsky, R., & **Kelton, M. L.** (2016). Navigating turbulent waters: Objectivity, interpretation, and experience in the analysis of interaction. In A. A. diSessa, M. Levin, & N. J. S. Brown (Eds.), *Knowledge and interaction: A synthetic agenda for the learning sciences* (pp. 458 – 479). New York, NY: Routledge. (Invited, Editor Reviewed)

Hall, R., Nemirovsky, R., Ma, J., & **Kelton, M. L.** (2016). Towards a generous* discussion of interplay between natural descriptive and hidden machinery approaches in knowledge and interaction analysis. In A. A. diSessa, M. Levin, & N. J. S. Brown (Eds.), *Knowledge and interaction: A synthetic agenda for the learning sciences* (pp. 496 - 519). New York, NY: Routledge. (Invited, Editor Reviewed)

Refereed Conference Proceedings

Ma, J. Y., Gholson, M., Gutiérrez, R., **Kelton, M. L.**, & McKinney de Royston, M. (January, 2019). Ontological possibilities of mathematics in mathematics education: An activity-based exploration and discussion. To appear in *Proceedings of the 10th International Mathematics Education and Society Conference*, Hyderabad, India.

Kelton, M. L. & Ma, J. Y. (June, 2018). Reflections on video-based techniques for studying bodies on-the-move in an immersive mathematics exhibition. In R. Nemirovsky (Chair), *Video data and the learning event: Four case studies*. In J. Kay & R. Luckin (Eds.), *Rethinking learning in the digital age: Making the learning sciences count, 13th international conference of the learning sciences (ICLS) 2018, Volume 3* (pp. 1195 – 1202). London: International Society of the Learning Sciences.

Kelton, M. L., Rhodehamel, B., Rawlings, C., Saraniero, P., & Nemirovsky, R. (April, 2017). The shape of Taping Shape: Visitor experiences with an immersive mathematics exhibition. In A. Chronaki (Ed.), *Mathematics Education and Life at Times of Crisis: Proceedings of the Ninth International Mathematics Education and Society Conference, Volume 1* (pp. 262 – 266). Volos, Greece: University of Thessaly Press.

Ma, J. Y. & **Kelton, M. L.** (April, 2017). Reconfiguring mathematical settings and representations through whole-body collaboration. In A. Chronaki (Ed.), *Mathematics Education and Life at Times of Crisis: Proceedings of the Ninth International Mathematics Education and Society Conference, Volume 2* (pp. 687 – 698). Volos, Greece: University of Thessaly Press.

Ma, J. Y. & **Kelton, M. L.** (April, 2017). Developing concepts in a study of mathematical learning pathways. In A. Chronaki (Ed.), *Mathematics Education and Life at Times of Crisis: Proceedings of the Ninth International Mathematics Education and Society Conference, Volume 1* (pp. 277 – 281). Volos, Greece: University of Thessaly Press.

- Kelton, M. L.** (June, 2014). Unbounded disruptions: How field-trip experiences entangle with school and everyday life. In J. Y. Ma (Chair), *Disrupting learning: Changing local practice for good*. In J. L. Polman, E. A. Kyza, D. K. O'Neill, I. Tabak, W. Penuel, A. S. Jurow, K. O'Connor, T. Lee, & L. D'Amico (Eds.), *Learning and becoming in practice: The international conference of the learning sciences (ICLS) 2014, Volume 3* (pp. 1399-1401). Boulder, CO: International Society of the Learning Sciences.
- Kelton, M. L.** (November, 2013). Math on the move: A video-based study of school field trips to a mathematics exhibition. In M. V. Martinez, & A. C. Superfine (Eds.), *Proceedings of the thirty-fifth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1181-1184). Chicago, IL: University of Illinois at Chicago.
- Nemirovsky, R., Ernest, J. B., & **Kelton, M. L.** (February 2012). Learning to play projective geometry: An embodied approach to undergraduate geometry learning. In S. Brown, S. Larsen, K. Marrongelle, & M. Oehrtman (Eds.), *Proceedings of the 15th annual conference on research in undergraduate mathematics education* (pp. 129-133). Portland, Oregon.
- Refereed Conference Presentations**
- (Note: If a presentation led to a proceeding, it is only listed in the above proceedings section.)
- Kelton, M. L.** (August, 2018). Sensing ratios: Hands-on mathematics. Workshop presented at the 1st Annual Palouse STEAM Summit, Pullman, WA.
- Brown, M., Berger, M., Gizerian, S., **Kelton, M. L.**, Lupinacci, J., Perone, S., & Peters, J. (March, 2018). Community engagement for student and faculty success. Poster presented at WSU's Academic Showcase, Pullman, WA.
- Nemirovsky, R., **Kelton, M. L.**, Rawlings, C., & Rhodehamel, B. (July, 2016). Crafting informal mathematics education: The case of curvature and basket weaving. Paper presented at the 13th International Conference on Mathematics Education, Hamburg, Germany.
- Kelton, M. L.** (April, 2016). Informal learning environments interweaving mathematics with cultural practices. In R. Nemirovsky (Chair), *Broadening what counts as mathematics in mathematics education*. Symposium conducted at the 2016 Annual Meeting of the American Educational Research Association, Washington, DC.
- Kelton, M. L.**, Renner, N., & Perin, S. (July 2012). Embodying visitors: Analysis techniques for investigating multimodal interaction in museums. Paper presented at the 2012 Visitor Studies Association Conference, Raleigh, NC.
- Guberman, S., Livingston, T., **Kelton, M. L.**, Fleming, E., & Onka, A. (July 2012). Designing and studying math exhibits about ratio and proportion. Paper presented at the 2012 Visitor Studies Association Conference, Raleigh, NC.
- Hall, R., Nemirovsky, R., Ma, J., & **Kelton, M. L.** (April 2012). Towards a generous* discussion of the interplay between natural descriptive and hidden machinery orientations in knowledge and interaction analysis. In M. Levin (Chair), *Integrating issues of knowledge and interaction in analyses of cognition and learning*. Symposium conducted at the 2012 Annual Meeting of the American Educational Research Association, Vancouver, Canada.

- Kelton, M. L.** (February 2012). Learning mathematics in museums. Poster at the 15th Annual Conference on Research in Undergraduate Mathematics Education, Portland, OR.
- Nemirovsky, R., **Kelton, M. L.**, & Rhodehamel, B. (April 2011). Mathematical instruments and perceptuo-motor integration. In R. Goldman (Chair), *Diverse perspectives on embodied learning: What's so hard to grasp?* Symposium conducted at the 2011 Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Kelton, M. L.**, LeardMann, C. A., Smith, B., Littman, A. J., Boyko, E. J., Wells, T. S., & Smith, T. C. (March 2009). Physical activity and posttraumatic stress disorder. Paper presented at the 2009 Navy Occupational Health & Preventive Medicine Conference, Hampton, VA.
- Kelton, M. L.**, LeardMann, C. A., Smith, B., Littman, A. J., Boyko, E. J., Wells, T. S., & Smith, T. C. (August, 2008). Prospectively assessed posttraumatic stress disorder symptoms and associated physical activity levels. Poster at the 2008 Force Health Protection Conference, Albuquerque, NM.
- Kelton, M. L.**, & Schreiber, S. (January, 2004). Low quality habitats can alter ecological outcomes. Poster at 2004 AMS/MAA Joint Mathematics Meetings Undergraduate Poster Session, Phoenix, AZ.

Invited Presentations

- Kelton, M. L.** (January, 2018). Politics and aesthetics of contemporary mathematics exhibitions. Invited presentation at the San Francisco Exploratorium.
- Kelton, M. L.** (March, 2014). Invited speaker for STEAM Conference 2014, San Diego, CA.
- Kelton, M. L.** (April 2012). Panelist for SEEE Seminar *Hands on Math & Science: What, Why and How?* San Diego, CA.
- Kelton, M. L.** (January 2012). Learning mathematics in museums. Poster presented at the San Diego State University Judy Sowder Tribute conference, San Diego, CA.
- Kelton, M. L.**, & Nemirovsky, R. (February, 2010). Math Core for Museums: Building interest, confidence, and skill in the mathematics of ratio and proportion. Poster presented at the Showcase of Mathematics Education at San Diego State University Poster Session, San Diego, CA.
- Kelton, M. L.** (October 2003). Low quality habitats can alter ecological outcomes. Vassar College Mathematics Department Invited Colloquium, Poughkeepsie, NY.

Fellowships

Internal/Institutional Fellowship Awards

- Kelton, M.L.** (2017). Washington State University, Center for Civic Engagement, Community Engagement Faculty Fellowship. \$1,250. **Awarded.** (Awarded 2016).

Other Awards and Honors

- University of California San Diego, Interdisciplinary Scholar Award, nominated, March, 2011.
- Navy Occupational Health & Preventive Medicine Conference, Captain Gregory Gray Award for Military Operational Research, awarded 1st Place, 2009.

University of Utah, Department of Mathematics, National Science Foundation IGERT (Integrative Graduate Education and Research Traineeship), Fellow in Mathematical Biology Graduate Program, September 2004 – June 2006.

University of Utah, Phi Kappa Phi, selected.

National Science Foundation, Graduate Research Fellowship Award, honorable mention, 2004.

Vassar College, Phi Beta Kappa, (Mu of New York), selected.

Vassar College, Mathematics Department, awarded the Mary Evelyn Wells and Gertrude Smith Prize for Excellence in the Study of Mathematics, 2004.

Joint Mathematics Meetings, Undergraduate Poster Session, prizewinner, Phoenix, January 2004.

The College of William & Mary, Mathematics Department, Undergraduate Researcher Summer 2003 Research Experiences for Undergraduates (REU) Program, funded by the National Science Foundation, selected participant.

Public Exhibitions

My scholarship includes design-based research on mathematics learning in out-of-school environments. As part of this, I collaborate with large teams of museum and university professionals to co-create and study public exhibitions related to mathematics. The following are major exhibitions to which I have made substantive, long-term contributions as a collaborating designer:

3-D. A component of the larger exhibition *Seeing is Believing* at the Museum of Photographic Arts, San Diego, CA. *3-D* is an interactive suite of exhibits that examines the history, technology, and optical geometry associated with three-dimensional photography. Installed at the Museum of Photographic Arts, (August 2016 – October 2017). The design and development of *3-D* were supported, in part, by the NSF-funded *InforMath: Mathematics to Enrich Learning Experiences in Science and Art Museums*, on which I serve as co-PI (DRL-1323587, see Grants and Other Funding).

Taping Shape. An immersive installation made of packing tape and an accompanying set of table-top exhibits exploring topics in topology, geometry, and materials science. Installed at the Fleet Science Center, (January 2016 – September 2016). The design and development of *Taping Shape* were supported, in part, by the NSF-funded *InforMath: Mathematics to Enrich Learning Experiences in Science and Art Museums*, on which I serve as co-PI (DRL-1323587, see Grants and Other Funding).

Math Moves!. A suite of interactive, multi-sensory, and multi-party exhibits about the mathematical topics of ratio and proportion. Copies installed at four US science centers: Museum of Science Boston, Science Museum of Minnesota, North Carolina Museum of Life + Science, and Explora! (January 2012 – present). The design and development of *Math Moves!* were funded by the NSF project *Math Core for Museums* (DRL-0840320, see Other Grant-Related Activity).

The following are major exhibitions to which I have contributed less intensively as a design advisor:

Taping Shape, 2.0: Why Knot? This exhibition focuses on the mathematics of knot theory, through immersive-scale and hands-on, table-top exhibits. The design of *Why Knot?* was led, funded, and implemented by the Fleet Science Center (February 2018 – August 2018). Design consultations and visitor research on *Why Knot?* are funded by *InforMath: Mathematics to Enrich Learning Experiences in Science and Art Museums*, on which I serve as co-PI (DRL-1323587, see Grants and Other Funding).

Teaching

Courses at Washington State University

Middle-level Mathematics Methods (Department of Teaching and Learning, Fall 2016 & Fall 2017)

Teaching Elementary Mathematics (Department of Teaching and Learning, Spring 2017 & Spring 2018)

Language and Cultural Factors in Mathematics Education (Department of Teaching and Learning, Fall 2018)

Student Advising at Washington State University

Candace Chappelle (Academic Advisor)

Madison Dissmore (Masters Committee Chair)

Valerie Ebbay (Master Committee Member)

Abigail Higgins (Doctoral Committee Member), graduated Spring 2017

Roxanne Moore (Doctoral Committee Member)

Kaylan Petrie (Doctoral Committee Member)

Other Teaching and Educational Design Experience

Eureka! Palouse, Moscow, ID, lead facilitator and course designer for Gear Up for Teachers, a week-long summer professional development for formal and informal educators, Summer 2018

Eureka! Palouse, Moscow, ID, co-facilitator and course designer for Gear Up, a week-long summer-camp providing hands-on experiences with ratio and proportion for middle schoolers, Summer 2017

San Diego State University, co-instructor for Math 509: Teaching Secondary Mathematics with Technology, Fall 2015.

Informal Mathematics Collaborative, co-facilitator and course designer for the Balboa Park InforMath Collaboratory, San Diego, a professional development course for museum educators, Fall 2014, Spring 2014, Fall 2015, Spring 2015.

Reuben H. Fleet Science Center, San Diego, consulting professional development facilitator, September 2012 – 2013.

Youth to the Core (a San Diego educational non-profit promoting integrated health,

mathematics, and science education), founding board member, curriculum developer, and instructor, August 2011 – September 2012.

Explora Science Center, Albuquerque, NM, guest educator, July 2011.

Reuben H. Fleet Science Center, San Diego, curriculum designer and professional developer, June 2011 – October 2011 (pro bono).

Salt Lake Community College, adjunct faculty member at May 2007 – September 2007.
Instructor for college algebra.

Higher Ground Learning (a Salt Lake City alternative learning center), K-12 instructor and curriculum designer, August 2006 – September 2007.

University of Utah, National Science Foundation Research Experience for Undergraduates (REU) Program in Mathematical Biology, mentor, September 2005 – May 2006.

Vassar College Mathematics Department Intern (one chosen per year, responsibilities included grading and tutoring, primarily for multivariate calculus), September 2003 – May 2004.

Private Mathematics Tutoring, September 2003 – present.

Vassar College, Grader for Discrete Mathematics, January 2003 – May 2003.

Vassar College, Grader for Multivariate Calculus, September 2002 – December 2002.

Vassar College, Organic Chemistry Laboratory Intern, September 2001 – December 2001.

Guest Teaching and Speaking at Washington State University

“The embodied and spatial turns in mathematics education” in Mathematics and Science Education doctoral seminar (Department of Teaching and Learning, Spring 2018)

“Ontology and epistemology in mathematics education” in Mathematics Education doctoral seminar (Department of Mathematics and Statistics, Fall 2017)

Panelist for Graduate Students of Education on faculty panel about the academic job search and interviewing process (College of Education, Spring 2017)

“Developing grant proposals” in Mathematics Education doctoral seminar (Department of Mathematics and Statistics, Fall 2016)

“Math on the move” in Educational Psychology doctoral seminar (Department of Educational Leadership, Sports Studies, and Educational/Counseling Psychology, Fall 2016)

Professional Service

National and International

Research coordinator and consultant for CPM Educational Program, a California nonprofit 501(c)(3) corporation dedicated to improving grades 6-12 mathematics curriculum and instruction across the US. (2016 – present). Main activities include:

- Leading, developing, reviewing for, coordinating, administering, and overseeing a nationally-known research grants program funding research in mathematics education.
- Leading, developing, coordinating, administering, and overseeing a research briefs program dedicated to improving public understanding of mathematics education research through white papers that summarize research findings for practitioners,

school administrators, educational leaders, and public audiences.

Vice president and member of board of directors of the Corrales Institute for New Education, a New Mexico nonprofit 501(c)(3) corporation focused on educational equity and out-of-school learning.

Reviewer for international and national peer-reviewed journals:

- Educational Studies in Mathematics (2017 – present)
- International Journal of Science and Mathematics Education (2016 – present)
- Journal of the Learning Sciences (2016 – present)
- International Journal of Research in Undergraduate Mathematics Education (2016 – present)
- Journal for Research in Mathematics Education (2015 – present)
- Visitor Studies (2015 – present)
- ZDM – The International Journal on Mathematics Education (2014 – present)

Reviewer for international and national conferences:

- Annual Meeting of the Special Interest Group for Human-Computer Interaction (SIG CHI) (2017 – present)
- The International Conference of the Learning Sciences (2015 – present)
- Annual Conference on Research on Undergraduate Mathematics Education (2012 – present)

Member of the National Council of Teachers of Mathematics, International Society of the Learning Sciences, American Educational Research Association, and Visitor Studies Association.

Local and Regional

Member of board of directors for Eureka! Palouse, an Idaho nonprofit 501(c)(3) corporation. Eureka!'s mission is to provide equitable access to learning through innovative programs, clubs, and activities for all ages to enrich the STEM/STEAM culture on the Palouse. (2016 – 2018). Activities include:

- Co-developing mathematics curriculum and interactive materials for educational programming
- Advising on and developing assessments for out-of- and after-school mathematics programming
- Advising on grants and funding development related to mathematics programming

Department, College, and University

WSU College of Education Grants and Research Advisory Committee (2018 – Present)

WSU Department of Teaching and Learning Middle Level Mathematics Endorsement Committee Member (2018 – Present)

WSU Department of Teaching and Learning Elementary Education Program Member (2016 – Present)

WSU Department of Teaching and Learning Mathematics and Science Education PhD

Program Member (2016 – Present)

WSU College of Education Recruitment and Admissions:

Interviewer for WSU Teacher Education Program Admission Interviews (2017 – Present)

Participant in WSU Faculty Call-a-Thon to recruit high-quality undergraduate students (2018)

Faculty attendee at WSU Future Cougars of Distinction Dinner (2018)

Other

Vassar College, Women in Science and Mathematics, Founding President, September 2003 – May 2004.

Selected Press Coverage

WSU News. (September 21, 2018). Blending art, science to reverse biomedical career shortage. <https://news.wsu.edu/2018/09/21/wsu-heal-states-rural-biomedical-career-shortage/>.

WSU News. (December 20, 2016). WSU CCE Community Engagement Faculty Fellows announced. <https://news.wsu.edu/announcement/wsu-cce-community-engagement-faculty-fellows-announced/>.

Rocha, M. J. (February 26, 2016). What's new at the Fleet? A tunnel of tape. *The San Diego Union-Tribune*. <http://www.sandiegouniontribune.com/entertainment/visual-arts/sdut-reuben-h-fleet-science-center-new-exhibitions-2016feb26-story.html>.

SD Metro Magazine (2013). San Diego State launches math collaborative. *SD Metro*. <http://www.sandiegometro.com/2013/11/daily-business-report-nov-18-2013/>

Chute, J. (2013). SDSU, Balboa Park are Informath. *Union Tribune San Diego*. <http://www.utsandiego.com/news/2013/dec/02/balboa-park-learning-institute-sdsu/>

Adams, C. (2013). Museums open doors to informal math learning. *Education Week*. http://www.edweek.org/ew/articles/2013/06/05/33mathmuseum_ep.h32.html?tkn=TVVF6aPnC5HOW5ZNx9pg%2FbM3%2Fs4yrl3pMlin&cmp=ENL-EU-NEWS1