

Curriculum Vitae
Melissa S. Barker
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EDUCATION

Ph.D. in Education	Expected 2026
Utah State University, Logan, UT Specialization in Curriculum & Instruction Concentration in Mathematics Education & Leadership	
Master of Mathematics	2016
Utah State University, Logan, Utah Teaching Certificate: Secondary Education, Level 4 Math Endorsement GPA: 3.96	
B.S. Electronics Engineering Technology	2001
Brigham Young University, Provo, Utah	
Cybersecurity Bootcamps	
Utah Valley University and Salt Lake Community College	2022

PROFESSIONAL HISTORY

Graduate Teaching Assistant	2023 - present
School of Teacher Education and Leadership, USU, Logan, UT	
Graduate Research Assistant	2022 - present
School of Teacher Education and Leadership, Utah State University	
Secondary Mathematics Teacher	2017 - present
Nebo School District, Spanish Fork, Utah	
Co-teacher and Mathematics Technician	2015 - 2017
Merit College Preparatory Academy, Springville, Utah	
College Mathematics Tutor	2014 - 2016

Springville, Utah

Substitute Teacher Kelly Educational Staffing	2013 - 2015
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Mathematics Instructor Manti High School, Manti, UT	2011
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Special Education Technician C.S. Lewis Academy, Santaquin, UT	2010
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Research Programmer and Supervisor Utah Valley University, Institutional Research & Information	2010-2011
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Supervisor - U.S. Census	2010
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Temporary and Substitute Mathematics Teacher Juab High School, Nephi, UT	2009
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Mathematics Tutor Provo, UT	2002
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Editor, Assistant Data Analyst BRG Research Services, Provo, UT	2001
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Teaching Assistant, Electronics Engineering Technology 103 Brigham Young University, Provo, UT	1999
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AWARDS & COMPETITIVE PROGRAMS

2022-2026 Presidential Doctoral Research Fellow, Utah State University
2011-2016 Math for America Fellow, National Science Foundation Grant
1997-2001 Earle J. Yohe Full Tuition Scholarship Recipient - 4 years

RESEARCH

Research Interests

- Factors influencing women to choose STEM degrees and careers
- The effect of project-based learning on elementary and middle school students' interest in pursuing STEM fields

Research Participation

Participation in CAREER Grant research with Dr. Colby Tofel-Grehl **2022-2024**

This project evaluates the effectiveness of a new professional development model in rural Hawaii as it impacts teacher growth. As a GRA, I wrote curricula, modeled teaching STEM projects, and collected data on teacher implementation and student growth.

Participation in research with Dr. Tye Campbell **2024-present**

We investigate elementary students' mathematical well-being.

PROFESSIONAL DEVELOPMENT AND LEADERSHIP

Discourse in the Classroom **2022**

Nebo School District

This professional development opportunity provides resources and coaching to increase productive discourse in the classroom.

Peer Coach **2021 - 2022**

Nebo School District

This professional development training and program provided skills and opportunities to work with colleagues to improve practice in the classroom. Peer coaches leverage active listening and reflective feedback to support learning-focused conversations. Peer coaches attend initial and ongoing professional learning that focuses on relationship building, the language of coaching, and the coaching cycle. Peer coaches engage weekly in coaching conversations, individualized professional learning, and classroom observations.

Nebo School District Math III Team Leader **2020 - 2021**

I have served on a team designed to build the capacity of math teachers in the district by helping to create and refine essential learning goals and identifying and improving vertical alignment through the other core math courses. Nicole Berg, District Math Specialist, said: "You were chosen for your growth mindset, your work ethic, and how you really care about your students. You have done a lot to prepare yourself on what good instruction looks like in the classroom. We thought your knowledge and expertise would be a great addition to the team."

School Curriculum and Vision Team **2019 - 2020**

Recruited by my principal for my unique contributions and to represent the math department in my high school. I served on this committee designed to support the school's mission, nurture the collaborative culture at MMHS, improve teacher capacity through professional development opportunities, participate in accreditation, and approve Student Learning Objectives.

MIST **2018 - 2019**

MIST: Mathematical Immersion for Secondary Teachers. I accepted the role of facilitator in my area, where I recruited other interested teachers from surrounding high schools, coordinated and conducted nine 2.5-hour professional development sessions, and carried out other duties in this research endeavor. This research project was created to test the feasibility of conducting professional development sessions with teams gathering virtually from around the country. The research is still ongoing.

PCMI Attendee

2017

Park City Mathematics Institute, Park City, UT: *Teacher Leadership Program*

- three-week residential professional development opportunity
- worked with top mathematics educators, researchers, graduate students, and scholars
- best practices in mathematics teaching
- NCTM President was a guest speaker

PUBLICATIONS

Hansen, T., Searle, K., Jiang, M., & **Barker, M.** (2024). Shrinking Lands and Growing Perspectives: Affordances of Data Science Literacy During a Culturally Responsive Maker Project. In *Improving Equity in Data Science* (pp. 37-56). Routledge.

PRESENTATIONS

Barker, M. (2024). *Electrifying Math: Literal Equations for STEM Success*, UCTM, Utah Valley Convention Center, Provo, UT.

Barker, M. (2023). *Building Thinking Classrooms*, UCTM, Utah Valley Convention Center, Provo, UT.

Barker, M. (2014). *The Application of Mathematics in the Field of Electronics*, STEAM Expo Utah State University, Blanding, UT.

COURSE DEVELOPMENT

Park City Math Institute

July 2017

I have to teach WHAT? An Introduction to Statistical Concepts for Grades 6-9

An online course for in-service teachers to increase their statistical understanding for teaching secondary courses. Used by teachers to prepare to teach a course in statistics. The online nature created an accessible medium that allowed for flexibility. The introductory level allowed for easy entry for teachers who were inexperienced in statistics principles.

UNIVERSITY TEACHING

Spring 2023-Present

Emma Eccles Jones College of Education, USU, Logan, UT

ELED 4061 - Teaching Elementary School Mathematics I: Rational Numbers, Operations, & Proportional Reasoning

Development of pedagogical content knowledge in rational numbers, operations, and proportional reasoning for teaching preschool to Grade 6. Understanding characteristics of instruction, assessment, remediation, and intervention are critically considered.

LICENSES AND ENDORSEMENTS

Level 2 Professional Educator License for the State of Utah
Secondary Education, Level 4 Math Endorsement

PROFESSIONAL SERVICE

Scholarship Application Reviewer (2022), *Undergraduate Research and Creative Opportunities*
Utah State University, Logan, Utah

PROFESSIONAL MEMBERSHIPS

AERA - American Educational Research Association (since 2022)

SIG - Research, Evaluation, and Assessment in Schools

SIG - Longitudinal Studies

SIG - Out-of-School Time

SIG - Research in Mathematics Education

SIG - Teaching and Teacher Education

IEEE - Institute of Electrical and Electronics Engineers (since 2021)

NCTM - National Council of Teachers of Mathematics (since 2022)

SSMA- School Science and Mathematics Association (since 2022)

SWE - Society of Women Engineers (since 2022)

UCTM - Utah Council of Teachers of Mathematics (since 2022)

SheTech - STEM activation for High School Girls (since 2021)

WTC - Women in Tech Council (since 2021)