Luz. Marizza A. Stix

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Profile Summary

A mathematics curriculum leader and digital content developer with over 20 years of experience in K–12 and higher education. Experienced in creating online math courses and assessments, with a focus on instructional design, video-based teaching, LMS integration, and standards-aligned content creation. Skilled in developing post-calculus curricula, training teachers, and co-authoring digital textbooks. Recognized nationally for contributions to teaching and curriculum innovation.

Core Competencies

- Curriculum Development
- Digital Content Creation
- Mathematics Instruction
- Video-Based Teaching
- Assessment Design
- K–12 Standards Alignment
- Instructional Design
- Learning Management Systems
- Lesson Scriptwriting
- Interactive Media Integration
- Teacher Mentorship
- Formative Evaluation
- Conceptual Explanations
- Math Intervention Planning
- Academic Publishing

Professional Experience

Arizona State University **Tempe, AZ**
Instructor & Assessment Designer **2023 – Present**

- Developed video-aligned formative assessments for Multivariable Calculus and Precalculus courses using outcome-based design, ensuring alignment with curricular standards and clear tracking of student mastery across topics.
- Integrated AI-based learning tools into LMS platforms to deliver immediate feedback, support remediation, and drive personalized instruction across diverse student populations in online learning settings and formats.
- Scripted lesson explanations and problem breakdowns for asynchronous video content, focusing on clarity, conceptual depth, and scaffolding of complex mathematical ideas for student understanding and retention.
- Authored performance-aligned problem banks to support differentiated learning goals, enabling seamless integration with Canvas structures and adaptive curriculum frameworks.
- Collaborated with cross-functional content and product teams to revise digital assets and assessments using iterative feedback and data from learning analytics platforms and engagement metrics.
- Led formative data reviews and assessment quality audits to ensure instructional efficacy and enhance overall student learning outcomes through continuous improvement and aligned rubrics.
- Conducted benchmark analysis to inform curriculum design within overall content, lesson design, scripts; and assessment design.

Great Hearts North Phoenix Prep **Phoenix, AZ**
Mathematics Lead & Assessment Coordinator **2019 – 2022**

- Directed curriculum implementation across grades 7–12 and developed a department-wide mentoring model to improve instructional rigor and alignment with student learning goals and performance standards.
- Designed a comprehensive Math Intervention Program grounded in real-time assessment data, targeting learning gaps through adaptive instruction and scaffolded practice for at-risk learners across multiple grade levels.
- Created interactive digital modules, instructional videos, and problem sets to accompany in-class lessons and support hybrid and remote learning formats during curriculum rollouts and transitions.
- Trained math faculty on effective data analysis practices and best use of digital learning platforms to guide lesson pacing, grouping, and differentiation for diverse student needs.
- Implemented various asynchronous learning software across all academic departments and provided support for teachers using both asynchronous and synchronous learning platforms.
- Coordinated peer reviews of lesson plans, worksheets, and assessments to promote consistency, engagement, and standards adherence across the mathematics team through collaborative review cycles.

BASIS Educational Ventures **Scottsdale, AZ**
Curriculum & Assessment Consultant **2017 – 2019**

- Co-authored Algebra 2 digital textbook adopted system-wide, embedding interactive videos, problem walkthroughs, and scaffolding to support a diverse learner population in both traditional and digital settings.
- Reviewed and edited core math content across Algebra 2, Precalculus, and Calculus for conceptual clarity, assessment validity, and age-appropriate instructional progression across curricular delivery systems.
- Redesigned standards-aligned assessments to integrate digital delivery models and adaptive pathways using data-based review cycles and item-level validation with psychometric guidance.
- Drafted instructional scripts, scaffolded activity sequences, and supplemental worksheets to enhance online learning and video instruction with attention to pacing, coherence, and differentiation.
- Worked collaboratively with product development and editorial teams to ensure that digital math content met usability and accessibility guidelines for all student users and platforms.
- Co-led teacher training workshops on assessment literacy and feedback strategies using case-based curriculum exemplars and video tutorials designed for immediate classroom application.

BASIS Scottsdale **Scottsdale, AZ**
Curriculum Developer & Mathematics Instructor **2010 – 2019**

- Designed and delivered five post-calculus courses, including Category Theory and Vector Calculus, with extensive emphasis on conceptual depth, real-world applications, and independent exploration through inquiry-based lessons.
- Crafted advanced math curriculum and teaching guides, including digital tasks from Algebra 2 to Complex Analysis for both synchronous and asynchronous formats.
- Mentored all 7–12 grade math faculty on content mastery, student engagement strategies, and differentiated instruction grounded in ongoing classroom observation, feedback, digital tools for the classroom, and coaching programs.
- Authored benchmark assessments and performance rubrics tied to standards and course learning outcomes, reviewed annually for validity and student performance across multiple assessment cycles.
- Created digital tools and learning modules to support student learning..
- Served as Mathematics Content Advisor for the BASIS network, reviewing assessments, evaluating lesson fidelity, and aligning scope and sequence across schools with national and state benchmarks.
- Mentored students on independent math research and competition prep, focusing on logical reasoning, proof construction, and creative problem-solving strategies through targeted coaching and personalized guidance.

Arkansas School of Mathematics, Sciences, and the Arts **Hot Springs, AR**
Mathematics Instructor **2005 – 2009**

- Developed and taught specialized courses such as Introduction to Category Theory and Complex Analysis, emphasizing mathematical proof, abstraction, and applications to real-world problems and advanced reasoning.
- Established a summer Math Bootcamp for new students, which successfully closed skill gaps and prepared them for advanced coursework during the academic year through guided practice and mentoring.
- Designed and led a Geometry Teacher Workshop aligned to state standards, funded through competitive grants, that reached dozens of regional educators with practical classroom strategies and materials.
- Created digital and print-based instructional materials, including inquiry-based learning tasks and teacher facilitation guides for AP and honors-level courses across various delivery formats and settings.

Education

Ph.D. Mathematics Education **Dec 2025**
Arizona State University **Tempe, AZ**

M.A. Mathematics Education **2002**
Arizona State University **Tempe, AZ**

M.S. Pure Mathematics **Expected 2026**
University of California, Irvine **Irvine, CA**

B.S. Pure Mathematics **1998**
University of California, Irvine **Irvine, CA**

Technical & Digital Skills

- Canva, HTML, PHP, Java
- Camtasia, Adobe Premiere
- AI-Driven Assessment Tools
- Digital Curriculum Mapping
- Video Scriptwriting & Recording
- Instructional Media Design
- Interactive Problem Authoring
- Online Course Delivery Tools
- LaTex Proficient

Research & Publications

- **Zazkis, D., & Stix, L. M. (2025)**. Students' guided reinvention of direct proof and proof by cases. *PRIMUS: Problems, Resources, and Issues in Undergraduate Studies.*
- **Bailey, L. M., & Zazkis, D. (under review)**. Navigating through levels of abstraction. *Educational Studies in Mathematics.*
- **Bailey, L. M., Zazkis, D., & Mirin, A. (2024)**. Moving Between Abstraction Levels by Linking Recursion and Induction. *Proceedings of the 26th Annual RUME Conference.*
- **Bailey, L. M., & Zazkis, D. (2024)**. The Recursion-Induction Connection: A Pathway for Transferring Levels of Abstraction. *15th International Congress on Mathematical Education (ICME-15).*
- **Eaton, C., & Bailey, L. M. (2018)**. Revealing Luz: Illuminating Our Identities Through Duoethnography. *Journal of Humanistic Mathematics, 8*(2), 60–89. https://doi.org/10.5642/jhummath.201802.08.

Awards & Honors

- Stanford Terman Award (2021)
- MIT Inspirational Teacher Award (2021)
- Presidential Award for Excellence in Secondary Teaching ($10,000) (2015)
- Intel STS Teacher Mentor Award – Planet 30348 Marizzabailey (2015)

Certifications

- National Board Teaching Certification (2009–2019)
- Arkansas Standard Teaching Certification (2008–2012)

Service & Leadership

- Reviewer & Panelist, Presidential Award for Excellence in Math & Science Teaching (2017-2019)
- Mentor, National Board for Professional Teaching Standards (2010-2019)
- Mentor, PAEMST Candidates (2016–2019)
- AP Reader, College Board (2017–2020)
- Math Camp & Workshop Designer, Arkansas Mathematics Education Network (2006-2008)
- STRIVE Teacher Internship, Arkansas Army Corps of Engineers – Arc Flash Analyst (2008)

Presentations

- The Recursion-Induction Connection: A Pathway for Transferring Levels of Abstraction. *15th International Congress on Mathematical Education (ICME-15).* (2024)
- Moving Between Abstraction Levels by Linking Recursion and Induction. *Proceedings of the 26th Annual RUME Conference.* (2024)
- Investigations in Math: Using Graph Theory for Low-Hanging Fruit. Arizona Association of Teachers of Mathematics Conference (2021)
- Teaching Introduction to Set-Based Categories in High School. National Consortium of Specialized Secondary Schools (2007)
- Geometry Activities for the Classroom. Arkansas Conference of Teachers of Mathematics (2006, 2008)