

Claire Miller

Department of Mathematics, Science, and Social Studies Education
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ACADEMIC HISTORY

Present Rank: Assistant Professor of Mathematics Education
 Allocation of Effort: 45% Research, 45% Teaching, 10% Service
 Tenure Status: Tenure-track
 Graduate Faculty Status: Graduate Faculty (2025 – present)

EDUCATION

2024 **Doctor of Philosophy, Mathematics Education**, University of Georgia
 Dissertation: *Investigating Novice Statistics Students' Reasoning About and With Sampling Distributions*
 Committee: Amy B. Ellis (chair), AnnaMarie Conner, Christine Franklin, and Denise A. Spangler

2024 **Master of Science, Statistics**, University of Georgia

2016 **Master of Education, Mathematics Education**, University of Georgia

2008 **Bachelor of Science, Mathematics Education**, University of Georgia

ACADEMIC POSITIONS

2025 – present **Assistant Professor**, Department of Mathematics, Science, and Social Studies Education, University of Georgia

Spring 2025 **Limited-term Lecturer**, Department of Statistics, University of Georgia

2022 – 2025 **Graduate Research and Teaching Assistant**, Department of Mathematics, Science, and Social Studies Education, University of Georgia

Fall 2022 **University Supervisor**, Department of Mathematics, Science, and Social Studies Education, University of Georgia

2021 – 2022 **Mathematics Teacher**, North Oconee High School, Bogart, GA

2018 – 2021 **Graduate Research Assistant**, Department of Mathematics, Science, and Social Studies Education, University of Georgia

2018 – 2021 **Graduate Teaching Assistant**, Department of Statistics, University of Georgia

2010 – 2018 **Mathematics Teacher**, North Oconee High School, Bogart, GA

2008 – 2010 **Mathematics Teacher**, Glynn Academy, Brunswick, GA

LICENSURE AND CERTIFICATION

Georgia T-6 Mathematics (6-12)
 Gifted Endorsement
 Advanced Placement Statistics

INSTRUCTION

COURSES TAUGHT

Semester	Course	Hours	Enrollment
Spring 2026	EMAT 4070/6070: Statistics for Secondary Teachers	3	25
Fall 2025	EMAT 4850/6850: Teaching Secondary School Mathematics II	3	12
	EMAT 4850L: Field Experience in Secondary School Mathematics II	1	12
	EMAT 4950/6950: Professional Seminar in Teaching Mathematics	3	16
Spring 2025	STAT 2000: Introductory Statistics	4	160
	STAT 2000: Introductory Statistics	4	163
	STAT 2000: Introductory Statistics	4	120
	BUSN 3000: Applied Statistics and Data Analysis for Business	3	102
	BUSN 3000: Applied Statistics and Data Analysis for Business	3	107
Spring 2024	EMAT 4800: Teaching Secondary School Mathematics I	3	14
	EMAT 4800L: Field Experience in Secondary School Mathematics I	1	14
Fall 2023	EMAT 3400: Children's Mathematical Learning	3	22
Spring 2021	STAT 2000: Introductory Statistics	4	177
Fall 2020	STAT 2000: Introductory Statistics	4	178
Spring 2020	STAT 2000: Introductory Statistics	4	178
Fall 2019	STAT 2000: Introductory Statistics	4	181
Spring 2019	STAT 2000: Introductory Statistics	4	183
Fall 2018	STAT 2000: Introductory Statistics	4	169

GRADUATE ADVISING

GRADUATE STUDENT ADVISORY COMMITTEE MEMBERSHIP

Çaylı, Selen	Ph.D., Mathematics Education (current)
Lee, Geon	M.A., Mathematics Education (2025)

SCHOLARLY ACTIVITIES

RESEARCH INTERESTS

Statistics education, student learning, reasoning

RESEARCH AND PUBLICATIONS

*Peer reviewed

Journal Articles

***Miller, C.**, Bloodworth, A., & Conner, A. (2025). Cognitive demand of integrated tasks: Investigating elementary students' coding and mathematics activity. *Research in STEM Education* (published online ahead of print 2025). <https://doi.org/10.1163/27726673-bja00032>

*Bloodworth, A., Conner, A., **Miller, C.**, Franco, L., Foutz, T., & Hill, R. (2023). Robotics and coding: A framework for examining cognitive demand. *Journal of Technology Education*, 35(1), 7-31. <https://doi.org/10.21061/jte.631>

***Miller, C.**, Menke, J., & Conner, A. (2023). Collective argumentation in integrated contexts: A typology of warrants contributed in mathematics and coding arguments. *Journal for STEM Education Research*, 6, 275-301. <https://doi.org/10.1007/s41979-023-00091-z>

Conference Proceedings

*Miller, C. (accepted). Using Peirce's case-rule-result framework to characterize students' reasoning about sampling distributions. *Proceedings of the 48th Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Brigham Young University.

***Miller, C.** (2026). Investigating students' ways of reasoning when estimating an unknown population parameter. In A. P. Adiredja, B. P. Katz, K. Melhuish, & K. Gallagher (Eds.). *Proceedings of the 28th Annual Conference on Research in Undergraduate Mathematics Education* (pp. 323-331). Alexandria, VA.

***Miller, C.** (2025). Using inductive reasoning to adjust and refine estimates for sampling variability. In R. M. Zbiek, X. Yao, A. McCloskey, & F. Arbaugh (Eds.). *Proceedings of the 47th Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1713-1721). Pennsylvania State University. <https://doi.org/10.51272/pmena.47.2025>

***Miller, C.** (2024). Deduction, induction, and abduction: Students' ways of reasoning about sampling distributions. In K. W. Kosko, J. Caniglia, S. Courtney, M. Zolfaghari, & G. A. Morris (Eds.). *Proceedings of the 46th Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1443-1448). Kent State University. <https://doi.org/10.51272/pmena.46.2024>

*Conner, A., Lesseig, K., **Miller, C.**, & Bloodworth, A. (2024). Mathematics in integrated STEM: Dilemmas and strategies for success. In T. Evans, O. Marmur, J. Hunter, G. Leach, & J. Jhagroo (Eds.). *Proceedings of the 47th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 1, pp. 84-85). Auckland, NZ.

***Miller, C.** (2024). Novice statistics students' forms of reasoning when reasoning about and with sampling distributions. In S. Cook, B. Katz, & D. Moore-Russo (Eds.). *Proceedings of the 26th Annual Conference on Research in Undergraduate Mathematics Education* (pp. 1453-1455). Omaha, NE.

*Conner, A., **Miller, C.**, Bloodworth, A., Foutz, T., & Hill, R. (2024). Cognitive demand of integrated tasks: The implementation of a mathematics and coding task. *Proceedings of the 15th International Congress on Mathematical Education*. Sydney, AU.

***Miller, C.** (2024). Reasoning about sampling distributions: The power of abductive reasoning. *Proceedings of the 15th International Congress on Mathematical Education*. Sydney, AU.

***Miller, C.**, Menke, J., & Conner, A. (2021). Patterns of reasoning: Warrants in elementary mathematics and coding arguments. In D. Olanoff, K. Johnson, & S. Spitzer (Eds.). *Proceedings of the 43rd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1569-1573). Philadelphia, PA.

- *Conner, A., **Miller, C.**, Menke, J., & Zhuang, Y. (2020). Elementary teachers' beliefs about teaching mathematics and science: Implications for argumentation. In A. I. Sacristán, J.C. Cortés-Zavala, & P.M. Ruiz-Arias (Eds.). *Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1951-1952). Mexico: Cinvestav / AMIUTEM / PME-NA. <https://doi.org/10.51272/pmena.42.2020-321>.
- *Menke, J., & **Miller, C.** (2020). From terrified to comfortable: A fourth grade teacher's journey in teaching coding. In A. I. Sacristán, J.C. Cortés-Zavala, & P.M. Ruiz-Arias (Eds.). *Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1955-1956). Mexico: Cinvestav / AMIUTEM / PME-NA. <https://doi.org/10.51272/pmena.42.2020-323>.

Conference Presentations (excluding those with proceedings)

- Miller, C.** (submitted). *Building prospective secondary mathematics teachers' conceptual understanding of probability models using simulation tasks*. Annual Conference of the Association of Mathematics Teacher Educators, Baltimore, MD.
- Miller, C.** (accepted). *Investigating students' statistical reasoning in the context of sampling distributions*. Linking Research and Practice Workshop presented at the National Council of Teachers of Mathematics Annual Conference, Denver, CO.
- Miller, C.**, Conner, A. C., Bloodworth, A., Foutz, T., & Hill, R. (2024, October). *Examining cognitive demand of STEM tasks involving mathematics and coding of robots*. Interactive Workshop presented at the National Council of Teachers of Mathematics Research Conference, Chicago, IL.
- Miller, C.**, Alibek, A., & Foutz, T. (2022, October). *Using argumentation to foreground mathematics in STEM teaching* [presentation]. Georgia Mathematics Conference, Eatonton, GA.
- Conner, A., **Miller, C.**, & Menke, J. (2022, February). *Why does that work? Teachers' impact on kinds of warrants in mathematics and coding arguments*. Report presented at the 26th Annual Conference of the Association of Mathematics Teacher Educators, Las Vegas, NV.
- Miller, C.** (2021, February). *Impact of a professional development course: Teachers' views of using collective argumentation to teach coding*. Poster presented at the 25th Annual Conference of the Association of Mathematics Teacher Educators. Virtual.
- Zhuang, Y., Menke, J., Gillespie-Schneider, J., **Miller, C.**, Foster, J., Conner, A. (2021, February). *Elementary teachers' videos of instruction: Using argumentation in teaching mathematics, science, and coding*. Individual session presented at the 25th Annual Conference of the Association of Mathematics Teacher Educators. Virtual.
- Sarver, C.**, & Menke, J. (2020, February). *Using collective argumentation to teach coding in elementary classrooms*. Poster session presented at the UGA College of Education Faculty and Student Research Conference, Athens, GA.

Invited Presentations

- Miller, C.** (2026, July). *Building students' conceptual understanding of probability models using simulation tasks*. Invited workshop presented at Stats&DataNet: Statistics and Data Sciences Across Disciplines. Virtual.
- Conner, A., & **Miller, C.** (2024, July). *Using educational robots and argumentation in integrated STEM instruction*. Invited workshop presented at Teacher Day for the 47th Conference of the

International Group for the Psychology of Mathematics Education, Auckland, NZ.

In Progress

Miller, C. (in progress). Not all induction is created equally: Students' ways of reasoning about sampling distributions. *Journal of the Learning Sciences*.

Bloodworth, A., **Miller, C.**, Conner, A., Foutz, T., & Hill, R (in progress). Characterizing levels of thinking and reasoning: Elementary students' engagement with cognitively demanding coding tasks. *Journal of Technology Education*.

RECOGNITIONS AND ACHIEVEMENTS

- 2025 **Outstanding Research Award**, The Council on Technology and Engineering Teacher Education
Robotics and Coding: A Framework for Examining Cognitive Demand
- 2020 **First Place Poster Award**, College of Education Research Conference, University of Georgia
Using Collective Argumentation to Teach Coding in Elementary Classrooms

SERVICE

PUBLIC SERVICE

- 2018 – present **Advanced Placement Statistics Exam Rater**, Educational Testing Service
- 2015 **Georgia Assessment of Performance on School Standards (GAPSS)**, Clarke Central High School, invited assessment team member
- 2013 **Leadership Summit**, University of Georgia, invited team member

PROFESSIONAL SERVICE

- 2026 – present **Co-editor**, *Statistics Teacher*
- 2019 – 2026 **Associate Editor**, Statistics Education Web (STEW)
- 2026 – present **Reviewer**, *Journal of Mathematical Behavior*
- 2026 – present **Reviewer**, Association of Mathematics Teacher Educators (AMTE) Conference
- 2024 – present **Reviewer**, *Journal for STEM Education Research (JSER)*
- 2023 – present **Reviewer**, National Council for Teachers of Mathematics Annual Conference
- 2023 – present **Reviewer**, Research in Undergraduate Mathematics Education (RUME) Conference
- 2022 – present **Reviewer**, *The Mathematics Educator*
- 2020 – present **Reviewer**, Annual Meeting of the North American Chapter of the International Group for Psychology of Mathematics Education (PME-NA)
- 2022 **Reviewer**, International Conference on Teaching Statistics (ICOTS)

UNIVERSITY, COLLEGE, AND DEPARTMENTAL SERVICE

- 2025 – present **Mathematics Education Secondary Committee**, Department of Mathematics, Science, and Social Studies Education

PROFESSIONAL AFFILIATIONS

- National Council of Teachers of Mathematics (NCTM)

Psychology of Mathematics Education, North American Chapter (PME-NA)
Association of Mathematics Teacher Educators (AMTE)