

Marcie Tiraphatna

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Education

- 2022 *Continuing Education*, August 2018 – May 2022
Virginia Tech, Blacksburg, VA
Advisor: Dr. Estrella Johnson
Comprehensive Exams: Math Education, Real Analysis, Mathematical Methods for Modeling and Simulation of Biological Systems
- 2017 **M.S. Mathematics**, December 2017
University of North Texas: Denton, TX
Advisor: Dr. Lior Fishman
Thesis: *Non-measurable Sets, Determinacy and Games*
- 2015 **B.S. Mathematics**, May 2015
University of Texas at Arlington: Arlington, TX

Professional Positions

- 2022-Present Instructor – Virginia Tech Mathematics Department
- 2018-2022 Graduate Teaching Assistant – Virginia Tech Mathematics Department
Held several positions within the department including Instructor of Record, Course Developer, Lab Instructor, Recitation Leader, grader, and Math Emporium Staff
- 2015-2017 Graduate Student Assistant – University of North Texas Mathematics Department
Recitation Leader and grader for a variety of math courses

Teaching Experience

Instructor of Record

Virginia Tech

Math 1225: Calculus of a Single Variable (Fall 2022, Spring 2022, Fall 2021, Spring 2021, Fall 2020, Fall 2019)

Topics: limits, continuity, differentiation, transcendental functions, applications of differentiation, introduction to integration; Modalities: 3 in-person, 1 hybrid, 1 online

Math 1226: Calculus of a Single Variable (Spring 2020)

Topics: techniques and applications of integration, trapezoidal and Simpson's rules, improper integrals, sequences and series, power series, parametric curves and polar coordinates, software-based techniques; Modality: in-person, transitioned to online.

Other Non-Instructor of Record Experience

Virginia Tech

Math 1225: Calculus of a Single Variable – Course Developer (Summer 2021)

Collaborated on the design of course materials and curriculum with an emphasis on facilitating group work. Incorporated existing course videos from online learning to supplement in-person lectures. Created guided lecture notes for in-class student group work with comments for instructors.

Math 2534: Introduction to Discrete Mathematics – Grader (Summer 2020)

Math 1524: Business Calculus - Lab instructor (Spring 2019)

Lead group structure technology labs for topics in PreCalculus, Differential Calculus and Multivariable Calculus with business applications; Modality: hybrid

Math Emporium Tutor (Fall 2018)

Group tutor for all first and second year mathematics courses

University of North Texas

Math 1710: Calculus 1 - Recitation leader (Fall 2017)

Facilitated recitation section focused on group work problem solving; Topics: limits and continuity, derivatives and integrals; differentiation and integration of polynomial rational, trigonometric, and algebraic functions; applications, including slope, velocity, extrema, area, volume, and work. Modality: in-person

Math 1650: Pre-Calculus - Recitation leader (Spring 2017, Fall 2016)

Facilitated recitation section focused on group work problem solving; Topics: trigonometric functions, their graphs and applications; sequences and series; exponential and logarithmic functions and their graphs; graphs of polynomial and rational functions; general discussion of functions and their properties; Modality: 2 in-person

Grader

Math 1190: Business Calculus (Fall 2017)

Math 1580: Survey of Mathematics with Applications (Fall 2017)

Math 1680: Elementary Probability and Statistics (Spring 2016) (exams only)

Math 3410: Differential Equations 1 (Spring 2016, Fall 2015)

Math 3510: Abstract Algebra 1 (Fall 2015)

Publications

Peer-Reviewed Journal Articles

Norton, A., Arnold, R., Kokushkin, V., & Tiraphatna, M. (2022). Addressing the Cognitive Gap in Mathematical Induction. *International Journal of Research in Undergraduate Mathematics Education*. <https://doi.org/10.1007/s40753-022-00163-2>

Refereed Conference Proceedings

Kokushkin, V. & Tiraphatna, M. (2020). An instructor's actions for maintaining the cognitive demands of tasks in teaching mathematical induction. In A.I. Sacristán, J.C. Cortés-Zavala & P.M. Ruiz-Arias, (Eds.). *Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Mexico (pp. 2092-2096). Cinvestav /AMIUTEM / PME-NA. <https://doi.org/10.51272/pmena.42.2020>

Tiraphatna, M. (2020). Students' understanding of infinite iterative processes. In Karunakaran, S. S., Reed, Z., & Higgins, A. (Eds.). *Proceedings of the 23rd Annual Conference on Research in Undergraduate Mathematics Education* (pp. 975-980). Boston, MA.

Tiraphatna, M. & Wilkins, J. L. M. (2019). College students' understanding of conditional probability. In Otten, S., Candela, A. G., de Araujo, Z., Haines, C., & Munter, C., (Eds.). *Proceedings of the forty-first annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 385-389). St Louis, MO.

Presentations

Kokushkin, V. & Tiraphatna, M. (February, 2020). Building on students' ideas to foster conceptual inductive reasoning. *12th annual Conference on Higher Education Pedagogy*. Blacksburg, VA.

Mathematics Department visitor's day (April, 2019); Panelist for prospective graduate students

Service

Faculty Advisor for the Association for Women in Mathematics (AWM) - VT Chapter, 2022

Co-Leader of Virginia Tech Departmental Math Education Seminar, 2020-2021

Coordinated and organized weekly seminars about math education with speakers from the math education community

STRIVE for MORE Undergraduate Workshop, Virginia Tech, (September 25-26, 2021)

STRIVE for MORE Undergraduate Workshop, Virginia Tech, (September 26-27, 2020)

Supporting Women in Mathematics through Mentoring (SWIMM) mentor, 2018

President of the Association for Women in Mathematics (AWM) - UTA Chapter, 2015

Honors and Awards

John Ed Allen Scholarship – Fall 2015

Participant of the Scholarships for Undergraduates to Reach Goals in Education (SURGE) Program sponsored by the NSF: Spring 2014 – Spring 2015