Daniel Dema

416-554-8453 | demad@yorku.ca

Education

York University Sep. 2024 – Aug. 2025 (Expected)
Master of Arts - Pure Mathematics *Toronto, ON*
Relevant Coursework: *Functional Analysis, Probability Theory, Algebra I, Algebra II*

University of Toronto Sep. 2019 – Apr. 2024
Honours Bachelor of Science - Mathematics Specialist Program *Toronto, ON*
Relevant Coursework: *Real Analysis, Measure Theory, Complex Analysis, Abstract Algebra, Topology, Set Theory, Descriptive Set Theory, Dynamics of Transformation Groups and Structural Ramsey Theory, Forcing and its Applications, K-Theory and C*-Algebras*

Teaching Experience

Teaching Assistant Sep. 2021 - Present
York University *Toronto, ON*

- MATH1021 - Linear Algebra I (Fall 2024)
- MATH1506 - Mathematics I for the Biological and Health Sciences (Fall 2024)

University of Toronto

- MAT337H5 - Introduction to Real Analysis (Fall 2024)
- MAT240H5 - Algebra I (Winter 2023, Winter 2024)
- MAT224H5 - Linear Algebra II (Fall 2021, Winter 2022, Winter 2023)
- MAT137H5 - Differential Calculus for Mathematical Sciences (Fall 2024)
- MAT137Y5 - Calculus (Winter 2022)
- MAT136H5 - Integral Calculus (Winter 2024)
- MAT135H5 - Differential Calculus (Summer 2022)
- MAT102H5 - Introduction to Mathematical Proofs - (Fall 2022, Summer 2023, Fall 2023, Summer 2024)
- MATA22H3 - Linear Algebra I for Mathematical Sciences (Summer 2023)

Private Tutor Sep. 2021 – Present
Toronto, ON

- Provided one-on-one lessons to students for courses in calculus and linear algebra at the University of Toronto
- Introduced students to new ideas and reinforced their understanding of concepts learned in class
- Ran sessions both in person and remotely through Zoom

Instructional Assistant Aug. 2024
University of Toronto *Toronto, ON*

- Ran sessions on foundational pre-calculus skills to prepare incoming first year students for university level math courses
- Implemented newly developed methodology in the classroom to provide data for ongoing research in mathematics education at the Institute for the Study of University Pedagogy

Talks

- *Course Presentation on Forcing Axioms (University of Toronto, 2024)*: A proof that under MA, every locally finite, outer regular, Radon measure space is σ-finite; presented in a graduate course on forcing.
- *An Introduction to Descriptive Set Theory (University of Toronto, 2023)*: A crash course on Polish spaces, followed by an introduction to the notions of measure and category, with a discussion of how classical theorems on Polish spaces can be used to prove the Erdős-Sierpiński duality between measure and category.
- *Basic Embedding Results in Descriptive Set Theory (University of Toronto, 2023)*: A brief introduction to Polish spaces, followed by a discussion of classical embedding results involving the the Hilbert Cube, the Cantor space, and the Baire space.