Daniel Dema

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Education

York University Sep. 2024 – Present

Master of Arts in Pure Mathematics

University of Toronto Sep. 2019 – Apr. 2024

Honours Bachelor of Science in Mathematics

Relevant Coursework: Real Analysis, Complex Analysis, Abstract Algebra, Topology, Measure Theory, Set Theory

Work Experience

Teaching Assistant Sep. 2021 – Present

University of Toronto

- MAT337H5 - Introduction to Real Analysis ×2
- MAT240H5 - Algebra I ×3
- MAT224H5 - Linear Algebra II ×3
- MAT137H5 - Differential Calculus for Mathematical Sciences ×1
- MAT137Y5 - Calculus ×1
- MAT136H5 - Integral Calculus ×1
- MAT135H5 - Differential Calculus ×1
- MAT102H5 - Introduction to Mathematical Proofs ×4
- MATA22H3 - Linear Algebra I for Mathematical Sciences ×1

Teaching Assistant Sep. 2024 – Present

York University

- MATH1507 - Mathematics II for the Biological and Health Sciences ×1
- MATH1506 - Mathematics I for the Biological and Health Sciences ×2
- MATH1300 - Differential Calculus with Applications ×1
- MATH1021 - Linear Algebra I ×1

Private Tutor Sep. 2021 – Present

Self-Employed

- Provided one-on-one lessons to students for courses in Calculus and Linear Algebra at the University of Toronto
- Introduced students to new mathematical concepts and reinforced their understanding of course subject matter
- Ran sessions both in-person and remotely through Zoom

Instructional Assistant Aug. 2024

University of Toronto

- Led workshop sessions on foundational pre-calculus skills to prepare 30+ incoming undergraduate students for university level math courses
- Implemented newly developed educational methodology in the classroom and used Microsoft Excel to manage student grade 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.

Skills

Languages: English (Native Speaker), French (Fluent)

Software: Python, HTML/CSS, Git/GitHub, VS Code, LaTeX, Microsoft Office Suite (Excel, Word, PowerPoint, Outlook)