Brian A. Mintz

EDUCATION

Fifth year PhD student in Applied Mathematics at Dartmouth College, Hanover, NH
Graduated Brandeis University, GPA 3.87 / 4.00,

Ph.D.	Applied Mathematics, Dartmouth University Advised by Feng Fu	Expected 5/25
B.A.	Mathematics with Highest Honors, Brandeis University	5/20
B.S.	Computer Science, Brandeis University	5/20

PUBLICATIONS

1. "*How Norms shape the Evolution of Prosocial Behavior: A C.U.R.E. for Social Dilemmas*," with Feng Fu, in Proceedings of the Royal Society A, (2024)
2. "*Brunnian Ti-Links: Using tiles to generate finite and infinite Brunnian Links*," in Bridges Proceedings (2024)
3. "*Social Learning and the Exploration-Exploitation Tradeoff*", with Feng Fu, in MDPI mathematics (2023)
4. "*Data Assimilation in Operator Algebras*," with David Freeman, Dimitrios Giannakis, Abbas Ourmazd, and Joanna Slawinska, in Proceedings of the National Academy of Sciences, Applied Mathematics (2023)
5. "*The Point of No Return: Evolution of Excess Mutation Rate is Possible Even for Simple Mutation Models*," with Feng Fu, in MDPI mathematics (2022)

Projects in progress

6. "*Modeling Power Dynamics in Iterated Games,"* with Feng Fu, Andy Chen, Ben Chang, Alina Glaubitz, and Olivia Chu.
7. "*A Genetic Approach to Artificial Intelligence Coordination in Multi-Agent Reinforcement Learning,"* with Feng Fu.
8. "*The Evolution of Bet Hedging"* with Ethan Levien.
9. "*Multidimensional Bounded Confidence models"* with Natalia Komarova and Dominic Woddarz.

EXPERIENCE

Instructor: Evolutionary Game Theory (Spring 2024), Linear Algebra with Applications (Fall 2023), and Calculus I (Winter 2023).

Undergraduate Mentor: Supervised six group research projects (Spring 2024), two directed reading projects (Spring 2024, Winter 2023).

Peer Reviewer: Dynamic Games (Spring 2024), Chaos, Solitons, and Fractals (Spring 2024), PLOS One (Fall 2023).

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Teaching Advisor: Differential Equations (Winter 2022), Calculus of Vector-valued Functions (Fall 2021), Statistics (Winter 2021), and Honors Multivariate Calculus (Fall 2020)

Liaison for the Mathematics Graduate Program, Dartmouth Winter 2023-present

CONTRIBUTED TALKS

1. "Brunnian Ti-Links: A modular system for creating finite and infinite Brunnian Links", Bridges Math/Art Conference, Richmond Virginia, Fall 2024.
2. "Incentive Alignment in Multiagent Reinforcement Learning" at ICIAM, Summer 2023
3. "How norms shape prosocial behavior; A C.U.R.E. for social dilemmas" at National Taiwan University, Summer 2023
4. "The Point of No Return: Evolution of Excess Mutation Rate is Possible Even for Simple Mutation Models," at the AMS sectional meeting in UMass Amherst, Fall 2022
5. "Reducing Speckle in Ultrasound by Sampling the Posterior Distribution of Reconstructions" at the SIAM conference on Imaging Science, Spring 2022

COURSEWORK

Graduate Mathematics: Uncertainty Quantification, Numerical Linear Algebra, Partial Differential Equations, Stochastic Processes, Numerical Analysis, Networks, Algebra I/II, Topology I, Combinatorics, Real Analysis and Measure Theory, Complex Analysis. Connecting Theory, Models, and Data.

Undergraduate Computer Science: Big Data Analysis, Data Mining, Programming Language Theory, Data Structures, Structure and Interpretation of Programs, Programming: Java and C, Advanced Programming Techniques, Operating Systems, Theory of Computation.

Misc. Game Theory and Economics, Biostatistics, Connecting Theory/Models/Data.

RECOGNITIONS

Kenneth P. Bogart Award for excellence in graduate teaching Spring 2024
Arnold Shapiro Prize for unusual talent and accomplishment in Mathematics Spring 2020
Jerome A. Schiff Fellowship for undergraduate research Fall 2018 – Spring 2019

OUTREACH

Co-organizer for Dartmouth Math Directed Reading Program Winter 2023-present
Co-organizer – Sonia Kovalesky Day, Dartmouth Spring 2024
Workshop leader – Sonia Kovalesky Day, Dartmouth Spring 2023, Spring 2024
Workshop leader – Science Day, Dartmouth Spring 2023, Spring 2024
Instructor – Exploring Mathematics Camp, for middle/high school children Summer 2022
Volunteer – Sonia Kovalesky Day, Dartmouth Spring 2022

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SKILLS

Programming: Python, MATLAB, Java, Sage, and Scheme.
AI and Machine Learning: SciKitLearn and Pandas.
Statistical data analysis: Jmp, SPSS, and R.
Technical communication: LaTeX, MS Word, PowerPoint, and Excel.

Website with more details.

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