

Zachary M. Deiman

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Education

Ph.D. Mathematics

August 2021 – Present

University of Michigan, Ann Arbor, MI

Advisor: Dmitry Chelkak

M.S. Mathematics

August 2021 – April 2023

University of Michigan, Ann Arbor, MI

B.S. Mathematics

September 2017 – May 2021

University of Minnesota, Minneapolis, MN

Minors in Computer Science and Astrophysics

Senior thesis: *Residual estimates for an anisotropic Swift-Hohenberg equation*

Advisor: Arnd Scheel

Publications and Preprints

Publications

- K. Chen, Z. Deiman, R. Goh, S. Jankovic, and A. Scheel. *Strain and defects in oblique stripe growth. Multiscale Model. Simul.*, 19(3), 1236–1260 (2021). [[arXiv](#)]

Preprints

- D. Chelkak and Z. Deiman. *Domino tilings of a black-and-white Temperleyan cylinder*. To appear.

Conferences and Presentations

Conferences Attended

- Workshop on The Topology and Dynamics of Rational Maps (participant). *December 2025*
Boston College, Chestnut Hill, MA.
- 46th Midwest Probability Colloquium (participant). *October 2025*
Northwestern University, Evanston, IL.
- 2025 Finger Lakes Probability Seminar (participant). *April 2025*
University of Rochester, Rochester, NY.

Student Seminar Talks

- *Discrete Complex Analysis: T-holomorphic Functions*. *October 2025*
Student Combinatorics Seminar, University of Michigan.
- *WUSTs, LERWs, and SLEs*. *January 2025*
Student Analysis Seminar, University of Michigan.
- *Introduction to Random Lozenge Tilings*. *December 2024*
Student Analysis Seminar, University of Michigan.

- *T-embeddings and Origami Maps.* November 2024
Student Combinatorics Seminar, University of Michigan.
- *Lax Equations and the Toda Lattice.* September 2023
Student Analysis Seminar, University of Michigan.
- *Residual Estimates for an Anisotropic Swift-Hohenberg Equation.* March 2023
Student Analysis Seminar, University of Michigan.
- *Introduction to Fractional Differential Equations.* April 2022
Student Analysis Seminar, University of Michigan.
- *Solutions and Asymptotics for the Phase-Diffusion Equation.* November 2020
Undergraduate Mathematics Research Seminar (online), University of Minnesota.

Undergraduate Math Club Talks

- *Happy Holo-ween!: The Spooky World of Complex Dynamics.* October 2025
Math Club, University of Michigan.
- *The Delta Function.* March 2025
Math Club, University of Michigan.
- *Abstract Calculus I.* October 2023
Math Club, University of Michigan.
- *Constructing the Real Numbers.* September 2022
Math Club, University of Michigan.
- *Fractional Derivatives.* February 2022
Math Club, University of Michigan.
- *REU Panel* (panelist). November 2020
Math Club (online), University of Minnesota.

Other Talks

- *MREG Presentation: Parabolic PDEs.* July 2022
Parabolic PDEs MREG (online), University of Michigan.
- *Arcsine Solution to a Nonlocal Transport Equation.* June 2022
Parabolic PDEs MREG (online), University of Michigan.
- *Story Time Over Tea.* March 2021
Tutoring & Academic Success Center Staff Meeting (online), University of Minnesota.
- *Distributional Derivatives of Discontinuous Functions.* December 2020
DRP Final Project Event (online), University of Minnesota.
- *Theory of Improvisation.* October 2020
Tutoring & Academic Success Center Staff Meeting (online), University of Minnesota.
- *Quenching in the Phase-Diffusion Equation.* July 2020
Complex Systems REU (online), University of Minnesota.

- *Working with Multiple Students* (co-presenter). *March 2020*
Tutoring & Academic Success Center Staff Meeting (online), University of Minnesota.
- *Improving Confidence in Your Mind and Soul*. *November 2019*
Tutoring & Academic Success Center Staff Meeting, University of Minnesota.

Teaching

Graduate Student Instructor

University of Michigan

- MATH 105: Data, Functions, and Graphs *Fall 2025*
- MATH 116: Calculus II *Winter 2022, Fall 2022, Winter 2025*
- MATH 115: Calculus I *Fall 2021, Fall 2023, Spring 2024*

Graduate Student Mentor

Fall 2024

Mathematics Department, University of Michigan

Course Co-coordinator

University of Michigan

- MATH 115: Calculus I *Spring 2024*
- MATH 116: Calculus II *Winter 2024*

Lab Instructor

University of Michigan

- MATH 215: Multivariable and Vector Calculus *Winter 2023*

Undergraduate Teaching Assistant

University of Minnesota

- MATH 1031: College Algebra and Probability *Spring 2021*
- MATH 1051: Precalculus I *Fall 2020*

Course Grader

University of Minnesota

- MATH 5651: Basic Theory of Probability and Statistics *Fall 2019*
- MATH 4242: Applied Linear Algebra *Summer 2019*
- MATH 1271: Calculus I *Summer 2018*

Mentorship and Service

Graduate Student Advisory Committee (GSAC)

Fall 2025

University of Michigan

- Organized social events for math graduate students.

Directed Reading Program (DRP)

Winter 2025 – Fall 2025

University of Michigan

- Met weekly with an undergraduate student to read a textbook and discuss a project on an advanced mathematics topic of mutual interest.
 - Fall 2025: Mentored Yawen Liu on random lozenge tilings.
 - Winter 2025: Mentored Luka Todorovic on complex analysis and differential equations.

Student Analysis Seminar Co-organizer

Winter 2023 – Fall 2025

University of Michigan

- Managed logistics and scheduled speakers for a seminar intended for math graduate students.

Tutor II

Fall 2022, Summer 2023, Fall 2023

Mathematics Department, University of Michigan

- Organized weekly study groups for Mathematics Ph.D. students to help them prepare for the University of Michigan's Real Analysis and Complex Analysis Qualifying Review (QR) Exams.
- Wrote solutions for over 160 problems from past Real Analysis, Complex Analysis, and Applied Functional Analysis QR Exams to assist others in studying.

Scratch Community Moderator

Summer 2019 – Summer 2021

Scratch Foundation

- Reviewed comments and projects for appropriateness on the scratch.mit.edu website, a coding community for children to create games and animations using the Scratch programming language.
- Promoted computer programming, inclusiveness, creative collaboration, and constructive feedback.

Peer Tutor Mentor

Fall 2019 – Spring 2021

Tutoring & Academic Success Center, University of Minnesota

- Observed and mentored new Peer Tutors.
- Organized and presented 60-minute staff meetings for continuous Peer Tutor training.
- Provided tutoring information for students who required assistance in their courses.

Peer Tutor

Spring 2018 – Spring 2021

Tutoring & Academic Success Center, University of Minnesota

- Met with undergraduate students one-on-one and in groups, both in-person and online, to assist them in mathematics, computer science, and physics courses.
- Fulfilled the College Reading & Learning Association's (CRLA) International Tutor Training Program Certification (ITTPC) requirements for becoming a Level III Certified Master Tutor.

Programs

Michigan Research Experience for Graduates (MREG)

Summer 2022

University of Michigan

- Participated in a research project studying various parabolic partial differential equations, organized by University of Michigan graduate students and led by Neel Patel.

Directed Reading Program (DRP)

Spring 2020, Fall 2020

University of Minnesota

- Met weekly with a graduate student to read a textbook and discuss a project on an advanced mathematics topic of mutual interest.
 - Fall 2020: Functional analysis, mentored by Cole Jeznach.
 - Spring 2020: Algebraic topology, mentored by Tobias Ramaswamy.

Research Experience for Undergraduates (REU)

Summer 2020

University of Minnesota

- Participated in a research project on analyzing a phase-diffusion equation as part of the University of Minnesota Complex Systems REU, supervised by Arnd Scheel.
- Funded by the University of Minnesota's Undergraduate Research Opportunities Program (UROP) and the National Science Foundation.

Post-Secondary Enrollment Options (PSEO)

Fall 2016 – Spring 2017

University of Minnesota

- The PSEO program through the University of Minnesota allows high school students to enroll in University of Minnesota classes for both high school and college credit.

Awards and Scholarships

University of Michigan

- Rackham One-Term Dissertation Fellowship *Winter 2026*
- G. Cleaves Byers Endowment for Collegiate Mathematics Education *Winter 2024*

University of Minnesota

- University of Minnesota Dean's List *Fall 2016 – Spring 2021*
- Iron Range Scholarship *Fall 2017 – Spring 2021*
- Ella Thorp Undergraduate Scholarship *Fall 2020 – Spring 2021*
- UROP Scholarship *Summer 2020*
- J. Ian Richards Scholarship *Fall 2019 – Spring 2020*
- CRLA ITTPC Tutor Certification
 - Level III Certified Master Tutor *Spring 2019*
 - Level II Certified Advanced Tutor *Spring 2019*
 - Level I Certified Tutor *Spring 2018*

Spring Lake Park High School

- Beth McGregor Young Memorial Scholarship *May 2017*
- Spring Lake Park Lions Scholarship *May 2017*
- St. Cloud State University Mathematics Contest
 - Grade 11 First Place Individual Winner *April 2016*
 - Grade 10 First Place Team *April 2015*
 - Grade 9 Third Place Individual Winner *April 2014*
 - Grade 9 First Place Team *April 2014*