

## Zachary M. Deiman

Email: [zdeiman@umich.edu](mailto:zdeiman@umich.edu)

Website: <https://sites.google.com/umich.edu/zdeiman/>

### Education

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#### 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*

Mentor: Arnd Scheel

### Publications and Preprints

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#### 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).

### Presentations

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#### Student Seminar Talks

- *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

- *The Delta Function*. Math Club, University of Michigan. *March 2025*
- *Abstract Calculus I*. Math Club, University of Michigan. *October 2023*
- *Constructing the Real Numbers*. Math Club, University of Michigan. *September 2022*
- *Fractional Derivatives*. Math Club, University of Michigan. *February 2022*
- *REU Panel*. Math Club (online), University of Minnesota. *November 2020*

## 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.
- *Distributional Derivatives of Discontinuous Functions*. *December 2020*  
DRP Final Project Event (online), University of Minnesota.
- *Quenching in the Phase-Diffusion Equation*. *July 2020*  
Complex Systems REU (online), University of Minnesota.

## Teaching

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### Graduate Student Instructor

*University of Michigan*

- Math 116: Calculus II *Winter 2022, Fall 2022, Winter 2025*
- Math 115: Calculus I *Fall 2021, Fall 2023, Spring 2024*

### Graduate Student Mentor

*University of Michigan*

*Fall 2024*

### 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
- Math 4242: Applied Linear Algebra
- Math 1271: Calculus I

*Fall 2019*  
*Summer 2019*  
*Summer 2018*

## Mentorship and Service

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### Directed Reading Program (DRP)

*Winter 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.
  - Winter 2025: Mentored Luka Todorovic on complex analysis and differential equations.

### Student Analysis Seminar Co-organizer

*Winter 2023 – Winter 2025*

*University of Michigan*

- Fall 2023 – Winter 2025: Co-organized with Zhengjun (Jasper) Liang.
- Winter 2023: Co-organized with Christopher Stith and Tejaswi Tripathi.

### Tutor II

*Fall 2022, Summer 2023, Fall 2023*

*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 out solutions for over 130 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](https://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

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### 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 hosted 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

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### University of Michigan Awards

- G. Cleaves Byers Endowment for Collegiate Mathematics Education

*May 2024*

### University of Minnesota Awards

- University of Minnesota Dean's List
- Iron Range Scholarship
- Ella Thorp Undergraduate Scholarship
- UROP Scholarship
- J. Ian Richards Scholarship
- CRLA ITTPC Tutor Certification
  - Level III Certified Master Tutor
  - Level II Certified Advanced Tutor
  - Level I Certified Tutor

*Fall 2016 – Spring 2021*

*Fall 2017 – Spring 2021*

*Fall 2020 – Spring 2021*

*Summer 2020*

*Fall 2019 – Spring 2020*

*Spring 2019*

*Spring 2019*

*Spring 2018*

### High School Awards

- Beth McGregor Young Memorial Scholarship
- Spring Lake Park Lions Scholarship
- St. Cloud State University Mathematics Contest
  - Grade 11 First Place Individual Winner
  - Grade 10 First Place Team
  - Grade 9 Third Place Individual Winner
  - Grade 9 First Place Team

*May 2017*

*May 2017*

*April 2016*

*April 2015*

*April 2014*

*April 2014*