

## Zachary M. Deiman

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### Education

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#### Ph.D. Mathematics

University of Michigan, Ann Arbor, MI  
Advisor: Dmitry Chelkak

*August 2021 – Present*

*Expected May 2027*

#### M.S. Mathematics

University of Michigan, Ann Arbor, MI

*August 2021 – April 2023*

#### B.S. Mathematics

University of Minnesota, Minneapolis, MN

Minors in Computer Science and Astrophysics

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

Advisor: Arnd Scheel

*September 2017 – May 2021*

### 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). [[arXiv](#)]

#### Preprints

- D. Chelkak and Z. Deiman. *Domino tilings of black-and-white Temperleyan cylinders.* [[arXiv](#)]

### Conferences and Presentations

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#### Conferences Attended

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

#### Student Seminar Talks

- *Tasty Bits of Several Complex Variables.* *March 2026*  
Math Grad Show and Tell Seminar, University of Michigan.
- *Domino Tilings of Black-and-White Temperleyan Cylinders.* *February 2026*  
Student Analysis Seminar, University of Michigan.
- *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 Experience

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### Guest Lecturer

*University of Michigan*

- MATH 215: Multivariable and Vector Calculus *Fall 2025, Winter 2026*

### 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

*Mathematics Department, University of Michigan*

*Fall 2024*

### Course Co-coordinator

*University of Michigan*

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

### Teaching Assistant

*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

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### Directed Reading Program (DRP)

*Winter 2025 – Winter 2026*

*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 2026: Mentored Elliott Hanish on algebraic topology.
  - Winter 2026: Mentored Yawen Liu on discrete complex analysis.
  - Fall 2025: Mentored Yawen Liu on random lozenge tilings.
  - Winter 2025: Mentored Luka Todorovic on complex analysis and differential equations.

### Math Grad Show and Tell Seminar Co-organizer

*Winter 2026*

*University of Michigan*

- Co-founder of a seminar intended for math graduate students to share interesting and accessible mathematical results to other graduate students outside of their field of math.

### Student Analysis Seminar Co-organizer

*Winter 2023 – Winter 2026*

*University of Michigan*

- Managed logistics and scheduled speakers for a seminar intended for math graduate students to share and learn about results related to probability, differential equations, and other areas of analysis.

### 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](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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### Learning Community on Inclusive Teaching (LCIT)

*Fall 2025 – Winter 2026*

*University of Michigan*

- Attended a monthly informal seminar with other instructors in the Mathematics Department to discuss topics related to inclusivity and accessibility in mathematics education.

### 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

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### University of Michigan

- U-M Graduate Teacher Certificate *Winter 2026*
- 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, First Place Team *April 2014*