

ALICE N. NADEAU

School of Mathematics
University of Minnesota
206 Church St. SE
Minneapolis, MN 55455

Phone: (612)-624-7890
Email: nadea093@umn.edu
www.math.umn.edu/~nadea093

EDUCATION

PhD in Mathematics, University of Minnesota Advisor: Richard McGehee Title: Dynamical Systems for Planetary Climate	Expected May 2019
MS in Mathematics, University of Minnesota	April 2016
BA in Mathematics with Honors, Grinnell College	May 2013

RESEARCH INTERESTS

Dynamical systems and their applications, conceptual climate models, nonsmooth systems, the carbon budget, bifurcations in nonautonomous systems, rate-induced tipping points

PUBLICATIONS

- A. Nadeau, C. Lehman, R. McGehee, and E. Gorham. Determining constraints on the carbon budget during deglaciation with a new method of carbon isotope data analysis. Under review, *Quaternary Science Review* July 2018.
- A. Nadeau and R. McGehee. A Simple Formula for a Planet's Mean Annual Insolation by Latitude. *Icarus*, 291, July, 2017. 46-50. DOI: 10.1016/j.icarus.2017.01.040.
- E. Dinan, A. Nadeau, I. Odegard. Folding Concave Polygons into Convex Polyhedra: The L-Shape, *Rose-Hulman Undergraduate Mathematics Journal*, 16(1) 2015.
- B. Alpert, V. Morissette-Thomas, A. Nadeau, L. Proulx, Y. Wei, H. Zhu, J. Zhu. Mathematical Challenges in High Throughput Microcalorimeter Spectroscopy, *IMA Preprint Series*, August 2014.
- M. Chamberland, C. Johnson, A. Nadeau, B. Wu. Multiplicative Partitions, *Electronic Journal of Combinatorics*, 20(2), 2013.

AWARDS, FELLOWSHIPS, AND GRANTS

- University of Nebraska "Watch Us" Grant (Co-PI), 2017
Grant to fund a workshop for new undergraduate women math majors at Minnesota.
- University of Minnesota Campus Climate Grant (Co-PI), 2017
Awarded to projects to improve campus climate, foster understanding, and build community.
- University of Minnesota Interdisciplinary Doctoral Fellowship, 2016
Awarded annually to about 20 U of M PhD students to fund an interdisciplinary project.
- Ford Foundation Predoctoral Fellowship, Honorable Mention, 2015
Awarded annually to 65 PhD students who will use diversity to enrich the education of all students.
- Goldwater Scholarship, 2012
Awarded annually to approximately 300 US undergraduates interested in science and math.
- Pamela Ferguson Endowed Prize in Mathematics, 2012
Awarded annually to up to two Grinnell juniors who show "the greatest achievement and promise."

PRESENTATIONS

Invited Presentations

- “Mathematical considerations for adapting conceptual climate models to other planets.” November 2018
Midwest Dynamical Systems Conference
- “Mapping and Tracking Pluto’s Nitrogen Glaciers.” October 2018
Univeristy of St. Thomas Center for Applied Mathematics Colloquium
- “Mathematical challenges in modeling Pluto’s climate.” September 2018
St. Olaf College Mathematics, Statistics and Computer Science Research Seminar
- “Detecting Rate-Induced Tipping in an Ecological Resource–Consumer Model.” September 2018
Minisymposium on Mathematical Methods for Conceptual Climate Modeling
SIAM Conference on Mathematics of Planet Earth
- “Mathematical Tipping Points and Climate Change.” February 2018
College of the Holy Cross Mathematics and Computer Science Colloquium
- “Connections between Rate Induced Tipping and Nonautonomous Stability Theory.” May 2017
Minisymposium on Applications and Numerical Methods in Nonauton. Systems
SIAM Conference on Applications of Dynamical Systems
- “Peatlands, Agriculture, and the Carbon Budget.” September 2016
Minisymposium on Mathematics and Conceptual Climate Modeling
SIAM Conference on Mathematics of Planet Earth
- “How we can use box models to study climate.” September 2014
Grinnell College Mathematics and Statistics Seminar Series

Contributed Presentations

- “Mathematics Project at Minnesota.” August 2018
MathFest Session on Advancing Women in Mathematics: On the Ground Initiatives
- “Partitioning the Carbon Budget: 20kyr to Present (I and II).” March 2018
Mathematics and Climate Research Network Paleoclimate Seminar Series
- “Predominant sources and sinks of carbon from Mauna Loa data.” June 2017
World Conference on Natural Resource Modeling; Barcelona, Spain
- “Rate induced tipping and nonautonomous bifurcation.” July 2016
NOAA Geophysical Fluid Dynamics Lab Tipping Points Seminar Series

CONFERENCE AND SPECIAL SESSION ORGANIZER

- AMS Micro-conference on DEs, Probability, and Sea Ice (Co-organizer) September 2018
- Minisymposium on Applications of Numerical Methods for Nonauton. Systems (Co-organizer) May 2017
SIAM Conference on Applications of Dynamical Systems

SERVICE

University of Minnesota

- Co-Founder and Co-Director, Mathematics Project at Minnesota 2017 – Present
Coordinate workshop for underrepresented undergraduates interested in pursuing math careers.
- President and other officer positions, SIAM Student Chapter AY 2014 – AY 2017
Organize annual activities including undergraduate modeling competition and 5-Minute Thesis event.

Grinnell College

- Alumni Committee Member, Louis Stokes Alliance for Minority Participation–IINSPIRE 2017 – Present
Establish network of post-baccalaureate IINSPIRE students to facilitate mentor-mentee relationships.
- Student Assistant and Intern, Grinnell Science Project AY 2010 – AY 2013
Coordinate orientation week for 30 incoming freshman who are underrepresented in the sciences.

UNDERGRADUATE RESEARCH SUPERVISOR

Undergraduate Research Opportunity Program, University of Minnesota

Emma Jaschke, “Adapting the Budyko Energy Balance Model to Pluto.”

Elise Reed, “Proposed Effects of Early Agriculture on Current Climate.”

Julie Sherman, “Constraints on the Oceanic Carbon Sink using Atmospheric Oxygen Data.”

Directed Study (MATH 4993), University of Minnesota

Khanh Kieu, “Detecting Tipping Points in a Resource-Consumer Model.”

Senior Project (MATH 4995), University of Minnesota

Emma Jaschke, “Teaching High School Math through Applications to Climate.”

TEACHING EXPERIENCE

Course Developer, University of Minnesota

ODL MATH 2243 (*online*): Linear Algebra and Differential Equations

Instructor, University of Minnesota

MATH 2243: Linear Algebra and Differential Equations [Su 2017, Fa 2017]

ODL MATH 2243 (*online*): Linear Algebra and Differential Equations [AY 2017, AY 2018]

Graduate Teaching Assistant, University of Minnesota

MATH 3283W: Sequences, Series, and Foundations: Writing Intensive [Sp 2018]

MATH 2374: College of Science and Engineering Multivariable Calculus [Sp 2015]

MATH 1572H: Honors Calculus II [Fa 2015]

MATH 1372: College of Science and Engineering Calculus II [Fa 2014]

MATH 1272: Calculus II [Sp 2014]

MATH 1271: Calculus I [Fa 2013]

INDUSTRIAL EXPERIENCE

Princeton Cooperative Institute for Climate Science Intern

Summer 2016

Princeton University and NOAA Geophysical Fluid Dynamics Lab

Assessing Biogeochemical Stocks and Fluxes in GFDL’s ESMs

John Deere Early Talent Intern

Summers 2009 and 2010

Tractor Cab Assembly Operations, Waterloo, IA

Logistics/Product Planning and Quality Assurance in the 9000 Line Tractors

PROFESSIONAL MEMBERSHIPS

Member, Society for Industrial and Applied Math

Member, American Mathematics Society

Member, Mathematics and Climate Research Network

TECHNICAL SKILLS

Programming Languages: Python, MATLAB, Mathematica, Maple, C/C++, HTML

Foreign Languages: Arabic (Modern Standard, Jordanian and Egyptian Colloquial)