DANIEL PAUL MAES

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EDUCATION

University of Michigan, Ann Arbor

PhD in Applied and Interdisciplinary Mathematics	*May 2025*
M.S. in Applied and Interdisciplinary Mathematics	*May 2, 2020*
Valdovinos Lab Member	Winter 2019 - Present
Marjorie Lee Browne Scholar	Fall 2018 - Winter 2020

Williams College

B.A. in Mathematics (with Honors) and Statistics	*June 3, 2018*
Honors Thesis in Mathematics	Fall 2017 - Spring 2018
SIAM, Williams Chapter Member/Board Member	Fall 2016 - Spring 2018
AMS, Williams Chapter Member/Vice President	Fall 2016 - Spring 2018
Mellon Mays Undergraduate Fellow	Spring 2016 - Spring 2018

TECHNICAL SKILLS

- R/RStudio/RMarkdown
- LaTeXFormatting for Papers and Presentations
- MATLAB, Mathematica
- Applied Math Research and Modeling
- Basic Python/Java
- Group and Individual Presentations

COURSES TAUGHT

- MATH 105 - Data, Functions, and Graphs (University of Michigan, Fall 2018)
- MATH 115 - Calculus I (University of Michigan, Winter 2019/Fall 2019)

RESEARCH EXPERIENCE

Valdovinos Lab   May 2019 - Present
Graduate Student Research Project

- The Valdovinos Lab studies the structure and dynamics of ecological networks at ecological and evolutionary scales. A key focus is on understanding anthropogenic effects on species existence.
- Our project focuses on developing a more mechanistic and structured underlying theory on mutualistic interactions in ecology, rather than relying on current, more phenomenologically-based models.
- This work culminated in a master's capstone project.

Mellon Mays Undergraduate Fellowship (MMUF)   June 2016 - June 2018
Undergraduate Research Fellowship

- MMUF is a funded research fellowship, aimed to help underrepresented minorities in academia pursue their doctorate degrees and careers in the professoriate.
- Worked on a research project titled *Understanding Critical Mass at UC Berkeley: Creating Predictive Models for Affirmative Action Policies in Undergraduate Admissions in the United States.*
- Used predictive models to assess the efficacy of specific affirmative action policies.

NCSU REU: Modeling and Industrial Applied Mathematics   May 2017 - August 2017
Undergraduate Summer Research Project

· Participated in a small group focused on financial mathematics research.
· Found optimal investment strategies for Leveraged Exchange-Traded Funds (LETFs).
· Created a poster which was displayed in an undergraduate research symposium at the end of the REU.

WORKS IN PREPARATION

· *The Ecological Theory of Mutualisms.* Kayla R. S. Hale, Daniel P. Maes, Fernanda S. Valdovinos.
· *Assessing Critical Mass at UC-Berkeley: Creating Predictive Models for Affirmative Action Policies in Undergraduate Admissions in the United States.* Daniel P. Maes, Chad M. Topaz, Kaitlin Hill.
  Here is a short blog post on the SIAM News site describing the project.

FELLOWSHIPS & FUNDING

Rackham Merit Fellowship - Rackham Science Award   ∼$48,559
University of Michigan, Rackham Graduate School   *Fall 2023 - Winter 2025*

· The Rackham Merit Fellowship Program at the University of Michigan helps sustain the academic excellence and inclusiveness of the Michigan graduate community by offering financial assistance to students in an effort to reduce disparities in graduate education.

NSF Graduate Research Fellowship $138,000
National Science Foundation   *Fall 2020 - Summer 2023*

· The National Science Foundation's Graduate Research Fellowship Program offers 3 years of fellowship funding to a select number of graduate students in a variety of scientific fields.

Marjorie Lee Browne Fellowship $10,890
University of Michigan, Department of Mathematics   *Winter 2020*

· The Marjorie Lee Browne Fellowship program is a funded masters bridge program for underrepresented minorities in mathematics. The final semester of the program is funded through a research fellowship.

SIAM Student Travel Award $650
Society for Industrial and Applied Mathematics   *May 2019*

· Travel grant awarded to student attendees and/or presenters at the 2019 SIAM Conference on Applications of Dynamical Systems held in Snowbird, Utah.

HONORS & AWARDS

· **Ford Foundation Fellowship Honorable Mention**. Honorable Mention for the Ford Foundation Predoctoral Fellowship. March 2018 and March 2020.
· **Outstanding Presentation Award**. Mathematical Association of America undergraduate paper session at MathFest 2018. Denver, Colorado. August 2, 2018.
· **Williams College Morgan Prize in Mathematics**. To a senior major with accomplishment and promise in applied mathematics, statistics, or mathematics teaching. Williams College Department of Mathematics & Statistics. June 2, 2018.
· **Honors Thesis, Mathematics**. Williams College Department of Mathematics & Statistics. May 2018.
· **Deans List**. Williams College. Spring 2016, Fall 2016, Fall 2017, and Spring 2018.
· **Outstanding Poster Award**. Mathematical Association of America undergraduate poster session at the 2018 Joint Mathematics Meeting. San Diego, California. January 13, 2018.
· **Institute for Recruitment of Teachers (IRT) Associate**. May 2017 - April 2018.
· **Academic Achievement List**. IFSA-Butler, Kings College London. Spring 2017.

SELECTED TALKS, PRESENTATIONS, & POSTERS

· **The ecological theory of mutualism: Models generalizing across different mechanisms**. 2020 Ecological Society of America Annual Meeting. Salt Lake City, UT/Virtual. August 3-6, 2020.
· *Invited mini-symposium talk*: **Creating Predictive Models for Racial Affirmative Action Policies in U.S. Undergraduate Admissions**. SIAM Conference on Applications of Dynamical Systems. Snowbird, Utah. May 22, 2019.
· **Using Markov Chains to Assess Critical Mass**. MAA MathFest 2018. Denver, CO. August 2, 2018.
· **Understanding Critical Mass at UC Berkeley: Creating Predictive Models for Affirmative Action Policies in Undergraduate Admissions in the United States**. Thesis Defense, Honors Thesis in Mathematics. Williams College Department of Mathematics. Williamstown, MA. May 7, 2018.
· **Optimal Investment Strategies and Portfolio Analysis of Leveraged Exchange-Traded Funds (LETFs)**. AMS Joint Mathematics Meeting. San Diego, CA. January 12, 2018.
· **A Financial Statistical Approach for Leveraged Exchange-Traded Funds (LETFs)**. Student Colloquium, Statistics Major. Williams College Dept. of Mathematics. Williamstown, MA. September 27, 2017.
· **Optimal Investment Strategies and Portfolio Analysis of Leveraged Exchange-Traded Funds (LETFs)**. North Carolina State University Undergraduate Research Symposium. Raleigh, North Carolina. August 1, 2017.
· **The Criticality of Critical Mass: Understanding Affirmative Action Policy in United States Undergraduate Admissions**. Mellon Mays Summer Colloquium. Williamstown, MA. July 20, 2016.

PROFESSIONAL MEMBERSHIPS

· American Mathematical Society (AMS)
· American Statistical Association (ASA)
· Society for Industrial and Applied Mathematics (SIAM)
· Ecological Society of America (ESA)
· Mu Sigma Rho, The National Statistical Honors Society
· Sigma Xi, The Scientific Research Honors Society

SERVICE

Institute for the Quantitative Study of Inclusion, Diversity, & Equity April 2019 - Present
Associated Partner

· The Institute for the Quantitative Study of Inclusion, Diversity, and Equity (QSIDE) is a cross-institutional collaborative effort to use cutting-edge quantitative techniques to increase inclusion, diversity, and equity.
· Our mission is to bring together researchers from the humanities, social sciences, and natural sciences together with mathematical, statistical, and computer scientists to tackle such research interests.
· My current work is a continuation of my undergraduate thesis project on assessing affirmative action policies in use at U.S. undergraduate colleges and universities.

Ross Summer Connection 2019 June 2019 - August 2019
Graduate Student Instructor

· Ross Summer Connection is a program run by Ross Business School at the University of Michigan.
· This summer program is for underrepresented groups in business to get a jump start on their studies at U-M, in the hopes of setting them up for success while at Michigan.
· My responsibilities included teaching the Precalculus course to a group of 12 students and advising them on best practices for productivity and studying while in college.