

Jacob B. Madrid

Department of Mathematics, Duke University
Physics 210, 120 Science Drive, Box 90320
Durham, NC 27708
madrid@math.utah.edu

RESEARCH INTERESTS	Mathematical Biology, Stochastic Processes, Applied Mathematics	
EMPLOYMENT	<i>Phillip Griffith Assistant Research Professor</i> Duke University	August 2023-Present
EDUCATION	<i>Ph.D. Mathematics</i> University of Utah • Advisor: Sean D. Lawley	Expected May 2022
	<i>B.S. Mathematics</i> University of Utah	May 2017
PUBLICATIONS	<ol style="list-style-type: none">JB Madrid, JP Keener, SD Lawley. The role of stochasticity in quantifying the safety and efficacy of CAR T-cell cancer treatments. <i>In preparation</i>.JB Madrid, SD Lawley. Competition between slow and fast regimes for extreme first passage times of diffusion. <i>Journal of Physics A: Mathematical and Theoretical</i>, 53(33), 2020. (arXiv:2004.05414)SD Lawley, JB Madrid. A probabilistic approach to extreme statistics of Brownian escape times in dimensions 1, 2, and 3. <i>Journal of Nonlinear Science</i>, 2020. (arXiv:1907.07515)SD Lawley, JB Madrid. First passage time distribution of multiple impatient particles with reversible binding. <i>Journal of Chemical Physics</i>, 150(21), 2019. <i>Promoted as ‘Editor’s pick’ featured article.</i>	
AWARDS	BioFire Scholar Award , University of Utah <i>Tuition benefit and funding for academic year.</i>	2021
	Outstanding Graduate Student , University of Utah	2021
	RTG Summer Lab Rotation , University of Utah	2018
TEACHING & MENTORSHIP	Instructor of Record, University of Utah <ul style="list-style-type: none">Differential Equations and Linear Algebra, <i>Fall 2022</i>Engineering Vector Calculus, <i>Summer 2021 and Summer 2022.</i>Engineering Vector Calculus and Partial Differential Equations, <i>Fall 2018, Summer 2021 and Summer 2022.</i>Partial Differential Equations for Engineers, <i>Summer 2020 and Summer 2022.</i>Mathematics in Medicine, <i>Spring 2020 and Spring 2023</i>	

Teaching Assistant, University of Utah

- Applied Complex Variables and Asymptotic Methods (graduate), *Spring 2022*
- Ordinary Differential Equations (graduate), *Fall 2020*
- Engineering Vector Calculus and Partial Differential Equations, *Fall 2017 and Spring 2018*.

Mentorship

- **Graduate School Preview.** University of Utah. Advised five undergraduates on a week long research project. *Summer 2021 and Summer 2022*
- **Mathematical Biology Journal Club.** University of Utah. Scheduled and led journal club discussions and mentored incoming first and second year graduate students. *Fall 2019-Spring 2020*

Teaching Enrichment

- **iTHEM Working Group.** University of Utah. Inclusive teaching in higher ed math. *Fall 2022*
- **Workshop for Inclusive Teaching Practices.** University of Utah. *Summer 2022*

TALKS

SIAM Northern States Section Meeting <i>University of Utah, Logan, USA</i>	April 2023
Wasatch SIAM Student Conference <i>University of Utah, Salt Lake City, USA</i>	September 2022
Graduate School Preview <i>University of Utah, Salt Lake City, USA</i>	August 2021, August 2022
SIAM Northern States Section Meeting <i>University of Wyoming, Laramie, USA</i>	September 2019
University of Utah GSAC Colloquium <i>University of Utah, Salt Lake City, USA</i>	October 2018, October 2019

SERVICE

Co-chair of graduate student advisory committee (GSAC). *Fall 2019-Summer 2020*.
Co-chair of GSAC Retention, Promotion, Tenure and Hiring Sub-Committee. *Fall 2020-Spring 2021*.

TECHNICAL SKILLS

MATLAB, LaTeX, Mathematica, Maple, XPPAUT.