

Anna C. Nelson

CONTACT INFORMATION	Department of Mathematics Duke University Physics 210, 120 Science Drive, Box 90320 Durham, NC 27708	Email: anelson@math.duke.edu Website: http://annacnelson.github.io
RESEARCH INTERESTS	Dynamical systems, mathematical biology (polymerization, cell physiology), stochastic processes	
ACADEMIC APPOINTMENTS	Duke University , Durham, NC William W. Elliott Assistant Research Professor (postdoctoral position) Department of Mathematics Mentor: Maria-Veronica Ciocanel	2021 – present
EDUCATION	University of Utah , Salt Lake City, UT Ph.D., Mathematics Advisor: Aaron Fogelson Boise State University , Boise, ID B.S., Applied Mathematics, <i>Summa Cum Laude</i> Minor: Computer Science	May 2021 December 2012
PUBLICATIONS & PREPRINTS	<ol style="list-style-type: none">6. A. Kent, K. Leiderman, A. C. Nelson, S. Sindi, M. M. Stadt, L. Xiong, and Y. Zhang. “Studying the effects of oral contraceptives on coagulation using a mathematical modeling approach.” <i>Submitted</i>.5. A. C. Nelson and A. L. Fogelson. “Towards understanding the effect of fibrinogen interactions on fibrin gel structure.” <i>Physical Review E</i>, 107(2):024415, 2023.4. A. L. Fogelson, A. C. Nelson, C. Zapata-Allegro, and J. P. Keener. “Development of fibrin branch structure before and after gelation.” <i>SIAM Journal on Applied Mathematics</i>, 82(1), 2022.3. A. C. Nelson, M. A. Kelley, L. M. Haynes, and K. Leiderman. “Mathematical models of fibrin polymerization: past, present, and future.” <i>Current Opinion in Biomedical Engineering</i>, 20 (100350), 2021.2. A. C. Nelson, J. P. Keener, and A. L. Fogelson. “Kinetic model of two-monomer polymerization”. <i>Physical Review E</i>, 101(2), 2020.1. J. L. Herlin, A. C. Nelson and M. Scheepers. “Using ciliate operations to construct chromosome phylogenies”. <i>Involve</i>, 9(1), 2016.	
AWARDS	Lewis Blake Award for Excellence in Teaching , Mathematics, Duke University Annual postdoctoral award given for excellence in teaching	2023
	BioFire Scholar Award , Mathematics, University of Utah Annual award to one graduate student in department; includes stipend, tuition, and travel.	2020
	AWM Student Chapter Award for Scientific Excellence One of four national awards given by the Association for Women in Mathematics while as Student Chapter Vice President.	2020
FUNDING	Seed Grant , Duke Office for Faculty Advancement \$14,000 award for Faculty-Student (FaSt) Math Series to build bridges and community among students and faculty in the mathematics department. Grant aims include organizing events and programs such as faculty student book clubs, student professional development panels, workshops on mentorship training for faculty, and invited speakers.	February 2022 – March 2023
	University Teaching Assistantship , Graduate College, University of Utah Co-awarded for the mathematics Graduate Teaching Mentorship (GTM) program.	2018 – 2019
	NSF Research Training Grant Fellowships DMS-2038056 (Training Tomorrow’s Workforce in Analysis and Applications) DMS-1148230 (Research Training in Mathematical and Computational Biology)	2021 – 2023 2014 – 2015

Travel funding

Duke University Arts & Science Travel Fund	2023
\$1000 to attend JMM 2024 in San Francisco CA	
AWM/NSF Travel Funding	2023
\$1500 to attend AWM Research Symposium in Atlanta GA	
AWM Travel Grant Award	2023
\$3500 to attend ICIAM 2023 in Tokyo, JP	
SIAM Early Career Travel Award	Spring 2023
\$650 to attend SIAM Dynamical Systems 2023 in Portland, OR	
MAA Project NExT Fellow	2021 – 2023
\$5000 to attend MAA Mathfest 2022 & 2023 and JMM 2023	
SIAM Student Travel Award	Spring, Summer 2020
\$650 to attend SIAM Annual 2020 & Life Sciences 2020 (cancelled due to COVID)	
University of Utah Graduate School Travel Award	Spring 2020
\$345 to attend JMM 2020 in Denver, CO	
University of Utah Mathematics Department Travel Award	Spring 2020
\$500 to attend JMM 2020 in Denver, CO	

INVITED SEMINAR TALKS

<i>Biomath Seminar Series</i>	November 2023
NC State University, Raleigh NC	
<i>Mathematical Biology Seminar</i>	October 2023
University of Pennsylvania, Philadelphia PA	
<i>Mathematical Biology Seminar</i>	February 2023
Brandeis University (virtual)	
<i>Applied and Computational Mathematics Seminar</i>	November 2022
Tulane University, New Orleans, LA	
<i>Claremont Center for Mathematical Sciences Applied Math Seminar</i>	October 2022
Harvey Mudd College (virtual)	
<i>Mathematical Biology Seminar</i>	October 2021
University of California, Davis (virtual)	
<i>Mathematical Biology Seminar</i>	September 2021
Duke University, Durham NC	
<i>Mathematical Biology Seminar</i>	March 2021
Joint with University of British Columbia and University of Utah (virtual)	
<i>Boise State University Mathematics REU Program</i>	July 2019
Boise State University, Boise ID	

INVITED & CONTRIBUTED CONFERENCE TALKS

<i>Joint Mathematics Meeting</i> , San Francisco, CA	January 2024
AWM Special Session on Women in Mathematical Biology	
<i>Joint Mathematics Meeting</i> , San Francisco, CA	January 2024
AMS Special Session on Dynamical Systems Modeling for Biological and Social Systems	
<i>AWM Research Symposium</i> , Clark Atlanta University, Atlanta, GA	September 2023
Early Career Researchers in Mathematical Biology and Differential Equations	
<i>MAA MathFest</i> , Tampa, FL	August 2023
Invited Paper Session on Frontiers in Differential Equations and Applications	
<i>SMB Annual Meeting</i> , The Ohio State University, Columbus OH	July 2023
Data-driven, modeling, and topological techniques in cell and developmental biology	
<i>SIAM Conference on Applications of Dynamical Systems</i> , Portland OR	May 2023
<i>AMS Spring Central Sectional Meeting</i> , University of Cincinnati, Cincinnati OH	April 2023
Special Session on Mathematical Modeling in Biosciences	
<i>Joint Mathematics Meeting</i> , Boston MA	January 2023
AMS Special Session on Modeling Collective Behavior in Biology	
<i>Southeastern-Atlantic Regional Conference on Differential Equations</i>	November 2022
NC State University, Raleigh NC	

	SIAM Conference on the Life Sciences, Pittsburgh PA Mathematical Modeling of Blood Clotting and its Application Minisymposium	July 2022
	AWM Research Symposium, University of Minnesota, Minneapolis MN Recent Advances in Mathematical Biology Special Session	June 2022
	SMB Annual Meeting (virtual) Mathematical Modeling of Blood Clotting: From Surface-Mediated Coagulation to Fibrin Polymerization Minisymposium	June 2021
	SIAM Conference on the Life Sciences (virtual) Mathematical and Computational Modeling of Blood Clotting Minisymposium	June 2020
	Joint Mathematics Meeting, Denver CO AMS-AWM Special Session on Women in Mathematical Biology	January 2020
	AMS Fall Western Sectional Meeting, UC Riverside, Riverside CA Special Session on Mathematical Modeling in Developmental Biology	November 2019
WORKSHOPS & SHORT COURSES	Complex Social Systems Topological data analysis and resource coverage, opinion dynamics and disease spread AMS Mathematical Research Communities, Java Center NY	June 2023
	Sex differences in physiology: Mathematical modelling and analysis <i>Invited participant</i> Banff International Research Station, Banff AB	March 2023
	Collaborative Workshop for Women in Mathematical Biology: Mathematical Approaches to Support Women's Health <i>Invited participant, project co-lead</i> Institute for Mathematics and its Applications, Minnetonka MN	June 2022
	Workshop for Women in Mathematical Biology Institute for Mathematics and its Applications, Minneapolis MN	May 2018
SELECT POSTER PRESENTATIONS	Triangle Computational and Applied Mathematics Symposium, Durham NC	November 2023
	AWM Research Symposium Poster Session, Minneapolis MN	June 2022
	AWM Graduate Student Poster Session at JMM (virtual)	January 2021
	AWM Graduate Student Workshop at SIAM Annual (virtual)	July 2020
	IMA Workshop for Women in Mathematical Biology, Minneapolis MN	May 2018
	Modeling Complex Fluids for Biological Applications, Salt Lake City UT	May 2017
MENTORSHIP	SPIRE Fellows Postdoctoral Assistant and Faculty Mentor Assists in organizing and running academic support/mentoring system for high achieving undergraduates from historically excluded backgrounds. Responsibilities include organizing monthly events for fellows and teaching First Year Seminar course titled "Being Human and Flourishing in STEM," which is a discussion-based course on identity and humanity in STEM.	2021 – present
	AWM Undergraduate Mentor Paired with undergraduate students to meet monthly to discuss semester, future plans, and build community.	
	University of Utah	2019 – 2021
	Duke University	2021 – present
	Undergraduate Research Carson Dudley (undergraduate thesis), Duke University Maycol Vilchez, University of Utah (with Aaron Fogelson)	Spring 2022 – Spring 2023 Spring 2020
	Undergraduate Directed Reading Program , University of Utah Chase Stolworthy, use machine learning for predictions on voting data in Utah	Spring 2019

**TEACHING
EXPERIENCE**

Duke University

MATH 577, Mathematical Modeling (graduate course)	Spring 2023
BIOLOGY 218, Biological Clocks: How Organisms Keep Time	Fall 2022, Fall 2023
MATH 75, Being Human in STEM for First Year SPIRE Fellows	Spring 2022, Spring 2023
MATH 353/753, Ordinary and Partial Differential Equations	Fall 2021, Spring 2022

University of Utah

MATH 2250, Differential Equations and Linear Algebra	Spring 2019
MATH 1030, Intro to Quantitative Reasoning (online)	Summer 2018
MATH 1220, Calculus II	Spring 2018
MATH 1100, Business Calculus	Fall 2017
MATH 1050, College Algebra	Fall 2016, Spring 2017, Summer 2017 (online)
MATH 1030, Intro to Quantitative Reasoning	Spring 2016, Summer 2016 (online)

Project NExT Fellowship

2021 – 2023

Professional development program for early career mathematicians directed towards improving the teaching and learning of mathematics, fostering inclusivity in the mathematics community, and providing early career faculty strategies to engage in research, scholarship, and service opportunities.

Mathematics Instructor Training Facilitator, University of Utah

2017, 2018, 2019

Facilitated annual week-long workshop for new teaching assistants in the mathematics department. Responsibilities include organizing/planning workshops, observing new teachers, and giving lectures on teaching pedagogy.

**SERVICE
& OUTREACH**

Service to the profession:

<i>Co-organizer</i> , Minisymposium for AWM Research Symposium “Promoting children’s and women’s health with mathematical and computational approaches” Clark Atlanta University, Atlanta GA	September 2023
<i>Co-organizer</i> , Minisymposium for 10th ICIAM “Recent Advances in Modeling Complex Systems and Multiscale Problems in Mathematical Biology” Waseda University, Tokyo JP	August 2023
<i>Judge</i> , MAA MathFest Student Poster Session, Tampa FL	August 2023
<i>Co-organizer</i> , Invited Paper Session for MAA MathFest “Recent Advances in Mathematical and Computational Biology, Highlighting Contributions from Undergraduate Researchers.” Tampa FL	August 2023
<i>Assistant</i> , AMS Mathematical Research Communities Week 3 “Complex Social Systems” Beaver Hollow Conference Center, Java Center NY	June 2023
<i>Judge</i> , SIAM Dynamical Systems Red Sock Poster Session, Portland OR	May 2023
<i>Judge</i> , MAA MathFest Student Poster Session, Philadelphia PA	August 2022
<i>Co-organizer</i> , Minisymposium for SIAM Life Sciences “Mathematical Modeling of Blood Clotting and its Application” Pittsburgh PA	July 2022
<i>Co-organizer</i> , Minisymposium at SMB Annual Meeting “Mathematical Modeling of Blood Clotting: From Surface-Mediated Coagulation to Fibrin Polymerization” Virtual	June 2021
<i>Judge</i> , JMM Student Poster Session, Denver CO	January 2020
<i>Presenter</i> , Center for Science and Mathematics Education Exchange “Teacher Training & Community Building: From Graduate Student to Colleague” (joint with Kelly MacArthur, Rebecca Terry) University of Utah, Salt Lake City UT	November 2018

<i>Panelist, Utah Math TA Training</i> "Experienced graduate student panel" University of Utah, Salt Lake City UT	August 2016
<i>Panelist, Idaho Conference on Undergraduate Research</i> "Applying to grad school" Boise State University, Boise ID	July 2014

Service to the university and department:

<i>Presenter, Grad-Fac Seminar</i> "Mathematical modeling of polymerization processes in physiology" Department of Mathematics, Duke University	January 2023
<i>Co-organizer, Panel on Math Graduate School Admissions, FaSt Grant</i> Department of Mathematics, Duke University	November 2022
<i>Co-organizer, Faculty-Student Weekly Tea, FaSt Grant</i> Department of Mathematics, Duke University	February 2022 – present
<i>Co-organizer, Faculty-Student Math Book Club</i> Department of Mathematics, Duke University	February 2022 – May 2023
<i>Presenter, SPIRE Speaker Series</i> "Who can do math?" Duke University	August 2021
<i>Organizer, Biofluids research seminar</i> Organization of weekly research seminar for faculty, graduate students and postdocs Department of Mathematics, University of Utah	2020 – 2021
<i>Co-chair, AWM Speaker series committee</i> Invite and host mathematicians from underrepresented groups to give talks and socialize with department. Department of Mathematics, University of Utah	2020 – 2021
<i>Presenter, Graduate Student Colloquium</i> "The mathematics of bell-ringing" Department of Mathematics, University of Utah	February 2020
<i>Professional Development Committee, Graduate Student Advisory Committee</i> Organize monthly professional development events for grad students/postdocs Department of Mathematics, University of Utah	2018 – 2021
<i>Presenter, Undergraduate Math Colloquium</i> "On the rheology of cats: Are cats fluids?" Department of Mathematics, University of Utah	April 2018
<i>Presenter, Graduate Student Colloquium</i> "On the rheology of cats: Are cats fluids?" Department of Mathematics, University of Utah	November 2017
<i>Recruitment Committee, Graduate Student Advisory Committee</i> Coordinate prospective graduate student recruitment activities and schedule. Department of Mathematics, University of Utah	2016 – 2017
<i>Panelist, Utah Math TA Training</i> "Experienced graduate student panel" Department of Mathematics, University of Utah	August 2016
<i>Presenter, Graduate Student Colloquium</i> "Computing in the Natural World: <i>In vivo</i> and <i>in vitro</i> " Department of Mathematics, University of Utah	September 2015

Service to promote diversity, equity, and inclusivity:

<i>Panelist, GROW (Graduate Research Opportunities for Women)</i> "From day 1 to PhD" Duke University, Durham NC	October 2022
<i>Committee member, Diversity, Equity, and Inclusion Team</i> Department of Mathematics, Duke University	August 2022 – present

Student mentor, AWM Student Chapter 2021 – 2022
 Department of Mathematics, Duke University Department of Mathematics, University of Utah

Panelist, Society for Women in Mathematics (SWiM) October 2020
 “Graduate school panel”
 Department of Mathematics, Colorado School of Mines (virtual)

Vice President, AWM Student Chapter 2019 – 2020
 Organize monthly student events for undergraduates and graduate students, organize outreach events on and off campus, and meet with job candidates.
 Department of Mathematics, University of Utah

COMMUNITY OUTREACH

Volunteer, Duke Math Circles with Durham Children’s Initiative August 2022 – present
 Provide exploratory instruction for K-6 students
 Durham NC

Presenter, Girls Exploring Math, Duke University June 2023
 “Math: We R_0 afraid to use it!”
 Durham NC

Volunteer, Defining Your Path – Field Trip Program February 2020
 University of Utah, Salt Lake City UT

Judge, State of Utah Sterling Scholar Award, Mathematics January 2020
 Salt Lake City UT

Panelist, Clayton Middle School – Career Fair January 2020
 Salt Lake City UT

Presenter, Science Day at the U., University of Utah November 2019
 “Computing in Nature: Using DNA to solve math problems”
 University of Utah, Salt Lake City UT

Presenter, Girls Full STEAM Ahead Camp July 2016
 “Math: We R_0 afraid to use it!”
 Leonardo Museum, Salt Lake City UT

WORK EXPERIENCE

Bioinformatics Summer Intern May 2019 – August 2019
 Sera Prognostics, Salt Lake City, UT
 Developed R scripts to remove batch and technical effects in proteomic data to aid in preterm birth prediction.

MEMBERSHIPS

American Mathematical Society
 Association for Women in Mathematics
 Mathematical Association of America
 Society for Industrial and Applied Mathematics
 Society of Mathematical Biology