

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

Mathematical biology, dynamical systems, polymerization, cell physiology, applied mathematics

ACADEMIC APPOINTMENTS

Duke University, Durham, NC 2021–present
William W. Elliott Assistant Research Professor (postdoctoral position)
Department of Mathematics
Mentor: Veronica Ciocanel, Michael Reed

EDUCATION

University of Utah, Salt Lake City, UT May 2021
Ph.D., Mathematics
Advisor: Aaron Fogelson

Boise State University, Boise, ID December 2012
B.S., Applied Mathematics, *Summa Cum Laude*
Minor: Computer Science

PUBLICATIONS

5. **A. C. Nelson** and A. L. Fogelson. “Towards understanding the effect of fibrinogen interactions on fibrin gel structure.” *Submitted*.
4. A. L. Fogelson, **A. C. Nelson**, C. Zapata-Allegro, and J. P. Keener. “Development of fibrin branch structure before and after gelation.” *SIAM Journal on Applied Mathematics*, 82(1), 2022. <https://doi.org/10.1137/21M1401024>
3. **A. C. Nelson**, M. A. Kelley, L. M. Haynes, and K. Leiderman. “Mathematical models of fibrin polymerization: past, present, and future.” *Current Opinion in Biomedical Engineering*, 20(100350), 2021. <https://doi.org/10.1016/j.cobme.2021.100350>.
2. **A. C. Nelson**, J. P. Keener, and A. L. Fogelson. “Kinetic model of two-monomer polymerization”. *Physical Review E*, 101(2), 2020. <https://link.aps.org/doi/10.1103/PhysRevE.101.022501>
1. J. L. Herlin, **A. C. Nelson** and M. Scheepers. “Using ciliate operations to construct chromosome phylogenies”. *Involve*, 9(1), 2016. <http://dx.doi.org/10.2140/involve.2016.9.1>

GRANTS

Faculty Advancement Seed Grant, Duke University Office for Faculty Advancement 2022
\$14,000 award for Faculty-Student (FaSt) Math Series to build bridges and community among students and faculty in the mathematics department.

SELECT INVITED TALKS

SIAM Conference on the Life Sciences, Pittsburgh PA July 2022
AWM Research Symposium, Minneapolis MN June 2022
Mathematical Biology Seminar, University of California, Davis (virtual) October 2021
Mathematical Biology Seminar, Duke University September 2021
SMB Annual Meeting (virtual) June 2021
Mathematical Biology Seminar, University of Utah, British Columbia (virtual) March 2021
SIAM Conference on the Life Sciences (virtual) June 2020
AMS-AWM Session on Women in Mathematical Biology at JMM, Denver CO January 2020
AMS Western Regional Conference, Riverside CA November 2019
Boise State University Mathematics REU Program, Boise State University July 2019

| | | |
|---|---|---------------------|
| AWARDS | MAA Project NExT Fellow, \$5,000 travel funding | 2022–2024 |
| | BioFire Scholar Award, Department of Mathematics, University of Utah | 2020 |
| | Annual award to one graduate student in department; includes stipend, tuition, and travel. | |
| | AWM Student Chapter Award for Scientific Excellence | 2020 |
| | One of four national awards given by the Association for Women in Mathematics while as Vice President. | |
| | University Teaching Assistantship, University of Utah | 2018 – 2019 |
| | Co-awarded for the mathematics Graduate Teaching Mentorship (GTM) program. | |
| | NSF Research Training Grant Fellowship RTG-1148230 | 2014 – 2015 |
| | Travel awards | |
| | University of Utah Graduate School Travel Award | Spring 2020 |
| SIAM Student Travel Award | Spring, Summer 2020 | |
| University of Utah Mathematics Department Travel Award | Spring 2020 | |
| SELECT POSTER PRESENTATIONS | 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 and Gels for Biological Applications, Salt Lake City UT | May 2017 |
| MENTORSHIP | SPIRE Fellows Faculty Mentor | 2021–present |
| | Mentor undergraduate student members of the SPIRE Fellows program, which is an undergraduate support system for high-achieving undergraduates from diverse backgrounds. | |
| | 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 at Duke University | Spring 2022–present |
| | Maycol Vilchez, undergraduate at University of Utah (with Aaron Fogelson) | Spring 2020 |
| | Undergraduate Directed Reading Program, University of Utah | Spring 2019 |
| Chase Stolworthy, use machine learning for predictions on voting data in Utah | | |
| TEACHING EXPERIENCE | Duke University | |
| | BIOLOGY 218, Biological Clocks: How Organisms Keep Time | Fall 2022 |
| | MATH 75, Being Human in STEM for First Year SPIRE Fellows | Spring 2022 |
| | MATH 353/753, Elementary Differential Equations and Boundary Value Problems | Spring 2022 |
| | MATH 353/753, Elementary Differential Equations and Boundary Value Problems | Fall 2021 |
| | University of Utah | |
| | MATH 2250, Differential Equations and Linear Algebra (100 students) | 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 (online) | Summer 2017 |
| | MATH 1050, College Algebra | Spring 2017 |
| | MATH 1050, College Algebra | Fall 2016 |
| | MATH 1030, Intro to Quantitative Reasoning (online) | Summer 2016 |
| MATH 1030, Intro to Quantitative Reasoning | Spring 2016 | |

Mathematics Instructor Training Workshop Facilitator, University of Utah 2017, 2018, 2019
Facilitated annual workshop for new teaching assistants in the mathematics department. Responsibilities include organizing/planning workshops, observing new teachers, and giving lectures on teaching pedagogy.

SERVICE

Co-organizer, Minisymposium for SIAM Life Sciences July 2022
Co-leader, Collaborative Workshop for Women in Mathematical Biology, IMA June 2022
 Theme: Mathematical Approaches to Support Women’s Health
Presenter, SPIRE Speaker Series, Duke University August 2021
Co-organizer, Minisymposium for SMB Annual Meeting June 2021
Organizer, Biofluids research seminar, University of Utah 2020–2021
 Organization of weekly research seminar for faculty, graduate students and postdocs
Co-chair, AWM Speaker series committee, University of Utah 2020–2021
 Invite and host mathematicians from underrepresented groups to give talks and socialize with department.
Co-organizer, Professional Development Committee, University of Utah 2018–2021
 Organize monthly professional development events for grad students/postdocs
Judge, Sterling Scholar Award, Mathematics, State of Utah January 2020
Panelist, Colorado School of Mines, “Graduate school panel” October 2020
Vice President AWM Student Chapter, University of Utah 2019–2020
 Organize monthly student events for undergraduates and graduate students, organize outreach events on and off campus, and meet with job candidates.
Recruitment Committee, Graduate Student Advisory Committee, University of Utah 2016–2017
 Coordinate prospective graduate student recruitment activities and recruitment schedule.
Panelist, Utah Math TA Training, “Experienced graduate student panel” August 2016
Panelist, Idaho Conference on Undergraduate Research, “Applying to grad school” July 2014

**COMMUNITY
OUTREACH**

Volunteer, Defining Your Path – Field Trip Program, University of Utah February 2020
Panelist, Clayton Middle School – Career Fair, Salt Lake City UT January 2020
Presenter, Science Day at the U., University of Utah November 2019
Presenter, Girls Full STEAM Ahead Camp, Leonardo Museum, Salt Lake City UT July 2016

**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.

**WORKSHOPS &
SHORT COURSES**

American Mathematical Society Short Course (virtual) January 2021
 Mathematical and Computational Methods for Complex Social Systems
 Institute for Mathematics and its Applications Special Workshop (funded participant) May 2018
 Workshop for Women in Mathematical Biology, Minneapolis, MN