Maria-Veronica Ciocanel

CONTACT INFORMATION

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Updated: July 2024

RESEARCH INTERESTS

Dynamical systems, mathematical biology (intracellular transport and organization, physiology), ordinary and partial differential equations, stochastic processes, aplied topological data analysis

ACADEMIC APPOINTMENTS

Department of Mathematics, Duke University, Durham, NC
Assistant Professor of Mathematics — **July 2020 – present**
Assistant Professor of Biology (Joint)

Mathematical Biosciences Institute, The Ohio State University, Columbus, OH
OSU President's Postdoctoral Scholar — **July 2018 – June 2020**
Postdoctoral Fellow — **July 2017 – June 2018**

EDUCATION

Brown University, Providence, Rhode Island — **2012 – 2017**
- PhD, Applied Mathematics — **May 2017**
- Thesis: Modeling Intracellular Transport during Messenger RNA Localization in *Xenopus* Oocytes
- Advisor: Björn Sandstede, Professor of Applied Mathematics, Brown University
- MS, Applied Mathematics — **2012 – 2013**

Duke University, Durham, North Carolina — **2008 – 2012**
- BS, Mathematics; BA, French and European Studies
- Graduation with Distinction in Mathematics (Honors), *summa cum laude*, Phi Beta Kappa

PUBLICATIONS

Peer-reviewed articles

22. AC Nelson, M Rolls, **MV Ciocanel**, SA McKinley
Minimal Mechanisms of Microtubule Length Regulation in Living Cells. *Bulletin of Mathematical Biology* 86, no. 5 (2024): 58.

21. **MV Ciocanel**, L Ding, L Mastromatteo, S Reichheld, S Cabral, K Mowry, B Sandstede
Parameter identifiability in PDE models of fluorescence recovery after photobleaching. *Bulletin of Mathematical Biology* 86, no. 4 (2024): 36.

20. CM Topaz, S Ning, **MV Ciocanel**, S Bushway
Federal Criminal Sentencing: Race-Based Disparate Impact and Differential Treatment in Judicial Districts. *Humanities & Social Sciences Communications* 10, no. 1 (2023): 1-10.

19. J Benson, M Bessonov, K Burke, S Cassani, **MV Ciocanel**, DB Cooney, A Volkening
How do classroom-turnover times depend on lecture-hall size? *Mathematical Biosciences and Engineering* 20, no. 5 (2023): 9179-9207.

18. N Goldrosen, CM Smith, **MV Ciocanel**, R Santorella, S Sen, S Bushway, CM Topaz
Racial Disparities in Criminal Sentencing Vary Considerably across Federal Judges. *Journal of Institutional and Theoretical Economics*, vol. 179, no 1 (2023).

17. M Dawson, C Dudley, S Omoma, H-R Tung, **MV Ciocanel**
Characterizing emerging features in cell dynamics using topological data analysis methods. *Mathematical Biosciences and Engineering* 20, no. 2 (2023): 3023-3046.

16. **MV Ciocanel**
Applications of PDEs and Stochastic Modeling to Protein Transport in Cell Biology. *Notices of the American Mathematical Society* 69, no 11 (2022)

15. **MV Ciocanel**, A Chandrasekaran, C Mager, Q Ni, G Papoian, AT Dawes
Simulated actin reorganization mediated by motor proteins. *PLOS Computational Biology* 18(4) (2022): e1010026.

14. P Gandhi, **MV Ciocanel**, K Niklas, AT Dawes
Identification of approximate symmetries in biological development. *Philosophical Transactions of the Royal Society A* 379, issue 2213 (2021).

13. K Mallory, JR Abrams, A Schwartz, **MV Ciocanel**, A Volkening, and B Sandstede
Influenza spread on context-specific networks lifted from interaction-based diary data. *Royal Society Open Science* 8.1 (2021): 191876.

12. **MV Ciocanel**, R Juenemann, AT Dawes, SA McKinley
Topological data analysis approaches to uncovering the timing of ring structure onset in filamentous networks. *Bulletin of Mathematical Biology* 83, 21 (2021): 1-25.

11. **MV Ciocanel**, C Topaz, R Santorella, S Sen, C Smith, A Hufstetler
JUSTFAIR: Judicial System Transparency through Federal Archive Inferred Records. *PloS One* 15.10 (2020): e0241381.

10. **MV Ciocanel**, J Fricks, PR Kramer, SA McKinley
Renewal reward perspective on linear switching diffusion systems in models of intracellular transport. *Bulletin of Mathematical Biology* 82, 126 (2020): 1-36.

9. **MV Ciocanel**, P Jung, A Brown.
A mechanism for neurofilament transport acceleration through nodes of Ranvier. *Molecular Biology of the Cell* 31, No 7 (2020): 640-654.

8. MJ Panaggio, **MV Ciocanel**, L Lazarus, CM Topaz, B Xu.
Model reconstruction from temporal data for coupled oscillator networks. *Chaos* 29 (2019): 103–116.

7. **MV Ciocanel**, B Sandstede, SP Jeschonek, and KL Mowry.
Modeling microtubule-based transport and anchoring of mRNA. *SIAM Journal on Applied Dynamical Systems* 17 (2018): 2855–2881.

6. **MV Ciocanel**, SS Docken, RE Gasper, C Dean, BE Carlson and MS Olufsen.
Cardiovascular regulation in response to multiple hemorrhages: Analysis and parameter estimation. *Biological Cybernetics* (2018).

5. **MV Ciocanel**, TL Stepien, I Sgouralis, and AT Layton.
A Multicellular Model of the Renal Myogenic Response. *Processes (Systems Biomedicine)* 6 (2018).

4. **MV Ciocanel**, JA Kreiling, JA Gagnon, KL Mowry, and B Sandstede.
Analysis of Active Transport by Fluorescence Recovery after Photobleaching. *Biophysical Journal* 112 (2017): 1714–1725.

3. **MV Ciocanel**, TL Stepien, A Edwards, and AT Layton.
Modeling Autoregulation of the Afferent Arteriole of the Rat Kidney. *Women in Mathematical Biology, Springer* (2017): 75–100.

2. EA Powrie, **MV Ciocanel**, JA Kreiling, JA Gagnon, B Sandstede, and KL Mowry.
Using *in vivo* imaging to measure RNA mobility in *Xenopus laevis* oocytes. *Methods* 98 (2016): 60–65.

1. **MV Ciocanel**.
Modeling and Numerical Simulation of the Nonlinear Dynamics of the Parametrically Forced String Pendulum. *SIURO* 5 (2012).

Broader Impact Articles

MV Ciocanel, N Goldrosen, CM Topaz.
Quantifying Federal Sentence Disparities with Inferred Sentencing Records. *Society for Industrial and Applied Mathematics News*, September 2023.

MV Ciocanel, J Nardini.
Online and In-Person Interviewing for Tenure-Track Positions. *Notices of the American Mathematical Society, Early Career Collection*, 2022.

H Adams, **MV Ciocanel**, CM Topaz, L Ziegelemeier.
Topological Data Analysis of Collective Motion. *Society for Industrial and Applied Mathematics News*, January 2020.

C Topaz, **MV Ciocanel**, P Cohen, M Ott, N Rodriguez.
Institute for the Quantitative Study of Inclusion, Diversity, and Equity (QSIDE). *Notices of the American Mathematical Society*, 67(2), 2020.

Articles in Progress

SA McKinley, **MV Ciocanel**.
Extreme Statistics and Significance Thresholds for Maximally Persistent Topological Features (*submitted*, 2023).

Research Grants

- **NSF Physics of Living Systems**: Mechanosensitivity of Membrane-Actin Cortex Adhesion. Co-PI with Christoph Schmidt (PI, Duke) and Brent Hoffman (Co-PI, Duke). $599,963 2023 – 2026
- **NIH R01**: Pairing modeling and experiment to understand microtubule behavior in healthy and injured neurons. Co-PI with Melissa Rolls (PI, Penn State University) and Scott McKinley (Co-PI, Tulane University). $510,504 (to Duke) 2022 – 2027
- **NSF RTG**: Training Tomorrow's Workforce in Analysis and Applications. Senior Personnel. 2021 – 2026

Selected Awards

Top 5% of Duke University undergrad instructors in the Natural Sciences Fall 2021

For at least two of the three categories: Overall Quality of Course, Overall Quality of Instructor, Intellectual Stimulation of Course.

President's Postdoctoral Scholars Award from the Ohio State University May 2018

Sigma Xi Award for Excellence in Research from the Division of Applied Mathematics at Brown University May 2017

Selected Invited Talks

- *Parameter identifiability for PDE models of fluorescence microscopy experiments*
  2022: Southeastern-Atlantic Regional Conference on Differential Equations
  2023: Dynamics Days Meeting
  2024: North Carolina State University (Biomathematics), University of Alberta, VCU BAMM (Biology and Medicine through Mathematics conference)
- *Tracking symmetries in simulated biological development and connection to polarity*
  2022: AAAS Annual Meeting
- *Modeling mechanisms of neuronal microtubule dynamics and polarity*
  2021: BIRS Workshop on Mathematics of the Cell
  2022: Joint Math Meetings, SIAM Life Sciences
  2023: Joint Math Meetings, UNC Chapel Hill (Carolina Seminar on Math Biology: Cytoskeleton), UNC Chapel Hill (Mathematics Colloquium), Virginia Commonwealth University (International Symposium on BEER), Duke Society of Women in Science
  2024: American Physics Society March Meeting, SIAM Conference on the Life Sciences
- *Analyzing federal sentence disparities through inferred sentencing records*
  2021: ICERM Hot Topics Workshop on Mathematical and Computational Approaches to Social Justice, Upstate New York Statistics Conference, Duke Data Dialogue, QSIDE Datathon for Justice (**Plenary**)
  2022: SIAM Annual Meeting
- *Modeling the dynamic organization of intracellular proteins*
  2021: Joint Math Meetings, SIAM Southeastern Atlantic Section Conference
  2022: AMS Spring Central Sectional Meeting
  2023: Society of Mathematical Biology (SMB) Annual Meeting
- *Modeling, topological data analysis, and significance for biological ring channels*
  2019: SIAM Dynamical Systems, ICERM Workshop on Applied Math Modeling with Topological Techniques, University of Maryland (Biophysics), Wake Forest University, University of Houston (Networks)
  2020: Joint Math Meetings, Ohio University (Quantitative Biology), MBI Workshop on Mathematical and Computational Methods in Biology, SIAM Data Science, SMB Annual Meeting, Virginia Tech (Math Biology), UMass Amherst (Math and Computational Biology)
  2021: UNC Greensboro (Applied Math), University of British Columbia (Math Biology), SIAM Computational Science and Engineering, University of Minnesota (Dynamical Systems), UC Davis (Math Biology), Brandeis University (Math Biology), Southeast Center for Mathematics and Biology, Michigan State University (TDA), University of Melbourne (Mathematical Biology), Washington State University (Math Biology), University of Oxford (Wolfson Centre for Mathematical Biology), University of Ocklahoma (Topology and Data Science), AMS Fall Southeastern Sectional Meeting, West Virginia University (Applied Math)

2022: University of Pennsylvania (Math Biology), The Ohio State University (Topology, Geometry, and Data Analysis), University of Nottingham (Centre for Mathematical Medicine and Biology), AMS Spring Western Sectional Meeting, AWM Research Symposium, University of Florida (Systems Medicine)
2023: University of Iowa (Math Biology), NCSU (Complex Matter and Biophysics), International Society of Pharmacometrics (Mathematical and Computational Sciences), Virginia Commonwealth University (Biomathematics), BIRS Workshop on Mechanics of Cells and Polymer Networks

- *Stochastic and continuum dynamics in cellular transport*

  2018: Georgia Tech University
  2019: Joint Math Meetings, UC Irvine, UC Riverside, University of Arizona (Modeling and Computation), Arizona State University (Math Biology), Duke (Math Biology), SMB Annual Meeting, UC San Diego, Worcester Polytechnic University, Boston University
  2020: University of Houston, NC State University, Miami University, Joint Math Meetings, University of Kentucky, UNC Chapel Hill
  2023: Triangle Area Graduate Mathematical Conference at Duke (**Plenary**), New Connections in Math Research Symposium at Duke (**Plenary**)

- *Modeling neurofilament transport kinetics across nodes of Ranvier*

  2018: MBI-CBI Session on Quantitative Neuroscience

- *Modeling microtubule-based transport during mRNA localization in Xenopus (frog) oocytes*

  2016: Brown/Boston University (Dynamics and PDEs), SIAM Life Sciences Conference, Bates College
  2017: SIAM Dynamical Systems Conference, SMB Annual Meeting, Tulane University (Probability and Statistics)
  2018: University of Cincinnati (Applied Math), SIAM Life Sciences, BIRS Workshop on Mathematics of the Cell, Modern Math Workshop

- *The mathematical journey of RNA molecules in frog egg cells*

  2017: Creighton University
  2018: Kenyon College, Ohio Wesleyan University (Science Lecture Series)
  2019: Williams College (**Class of 1960s Speaker**)
  2020: California State University Fullerton
  2021: Half Hollow High School East (NY)
  2022: Girls Exploring Math at Duke
  2024: University of South Carolina (AWM Chapter), Girls Exploring Math at Duke, IUPUI Virtual Colloquium series (REU)

- *Insights and strategies for starting local math modeling contests*

  2019: Joint Math Meetings

- *Establishing interdisciplinary collaborations and networks in research and teaching*

  2018: SACNAS National Diversity in STEM Conference
  2022: MAA Special Session (JMM)

Travel Grants

- MATRIX-Simons Travel Grant to attend the MATRIX Research Program on "Parameter Identifiability in Mathematical Biology" September 2024
- AIM SQuaRE grant for a new research collaboration on "Learning and analyzing differential equations for stochastic agent-based models" 2023-2025
- Collaborate@ICERM grant to continue collaboration on "Mathematical Models of Pedestrian Movement in Large Lecture Halls", Providence, RI June 2021
- NSF RTG Travel Award - to attend and present at the Tutorial Workshop on Parameter Estimation for Biological Models at NCSU, Raleigh, NC July 2019
- SIAM Early Career Travel Award - to attend and present at the SIAM Conference on Dynamical Systems and Applications, Snowbird, UT May 2019
- AMS Collaboration Travel grant - to continue MRC research collaboration through a short-term visit in Boston, MA March 2019
- AWM-NSF Travel Award - to attend and present at the Annual Meeting of the Society for Mathematical Biology, in Sydney, Australia July 2018
- NSF Travel Award - to attend and present at the Frontiers of Mathematical Biology: Modeling, Computation and Analysis conference, University of Central Florida, Orlando, FL May 2018
- SMB Landahl-Busenberg Travel Award - to attend and present at the SMB Annual Meeting, University of Utah, Salt Lake City, UT July 2017

- SIAM Student Travel Award - to attend and present at the SIAM Conference on Dynamical Systems and Applications, Snowbird, UT May 2017
- AMS Collaboration Travel grant - to continue MRC research collaboration through a short-term visit at Creighton University April 2017
- SIAM Student Travel Award - to attend and present at the SIAM Conference on Nonlinear Waves and Coherent Structures, Philadelphia, PA August 2016
- AWM Award - to attend and present at the AWM Workshop, held in conjunction with the SIAM Annual Meeting, Boston, MA July 2016
- MRC Award - to attend the Mathematics Research Communities Workshop on Mathematics in Physiology and Medicine, Snowbird, UT June 2016
- MPI Travel Award - to attend the Mathematical Problems in Industry Workshop at Duke University, Durham, NC June 2015
- Brown Graduate Research Travel Grant - to attend and present at the KUMU Conference on PDE, Dynamical Systems, and Applications, Columbia, MO April 2016
- RPI Travel Award - to attend and present at Applied Math Days, Troy, NY April 2015, 2016
- NIMBioS Travel Award - to participate in a short-term visit to continue work on modeling kidney autoregulation, Knoxville, TN February 2016
- NSF Travel Award - to attend the Opening Workshop of the Newton Institute program on Stochastic Dynamical Systems in Biology, Cambridge, UK January 2016
- IMA Travel Award - to attend the Mathematical Modeling in Industry Workshop, Minneapolis, MN August 2015
- NIMBioS Travel Award - to attend the Research Collaboration Workshop for Women in Math Biology, Knoxville, TN June 2015
- Brown Graduate Research Travel Grant - to attend the SIAM Conference on Applications of Dynamical Systems, Snowbird, UT May 2015

Teaching Experience

Duke University, Durham, NC

Instructor for Minicourse on Topics in Parameter Inference (Math 790)	Spring 2024
Instructor for Linear Algebra and Applications (Math 221)	Fall 2023
Instructor for Mathematical Numerical Analysis (Math 361S)	Spring 2022
Instructor for Biological Clocks: How Organisms Keep Time (Math 183/Bio 218)	Fall 2021
Instructor for Mathematical and Interdisciplinary Modeling Seminar (Math 282S)	Spring 2021
Instructor for Linear Algebra and Applications (Math 221)	Fall 2020

The Ohio State University, Columbus, OH

Instructor for Adventures in Mathematical Modeling	Spring 2020
Instructor for Beginning Scientific Computing	Spring 2019
Co-Instructor for Adventures in Mathematical Modeling	Spring 2018, 2019

Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, RI

TA for GirlsGetMath@ICERM: Summer Math Camp for High School Girls	August 2016

Division of Applied Mathematics, Brown University

Co-Instructor for Methods of Applied Math II (ODE systems, PDEs)	Summer 2015
Teaching Assistant for Methods of Applied Math I (ODEs and Applications)	Spring 2014
Teaching Assistant for Statistical Inference I (Probability and Statistics)	Fall 2013

Mentoring Experience

Supervisor of PRUV summer project at Duke University Summer 2024

Mentoring an undergraduate student at Duke on a research project on "Identifiability for PDE models in cell biology".

Supervisor of summer project at Duke University Summer 2024 – present

Mentoring an undergraduate student at Duke on a research project on "Modeling and simulation of protein linker kinetics in focal adhesions".

Supervisor of Muser project at Duke University Fall 2023 – present
Mentoring an undergraduate student at Duke on a research project on "Modeling, simulation and parameter inference of protein linker kinetics in focal adhesions".

Supervisor of summer/semester project at Duke University Summer – Fall 2023
Mentored an undergraduate student at Duke on a research project on "Modeling mRNA transport in radial glial cells".

Co-team leader for Duke Bass Connections project 2022 – 2023
Co-mentored two undergraduate students at Duke on a research project on "Effects of Climate Change on Microbial Food Webs".

Supervisor of research project 2020-2022
Mentored three undergraduate students at Brown on a research project on "Identifiability in models of fluorescence microscopy data" (**published**).

Supervisor of DOmath/Math+ project at Duke University 2021 – 2022
Mentored three undergraduate students at Duke on a research project on "Characterizing emerging features in cell dynamics" (**published**).

Supervisor of Muser project at Duke University Spring 2021
Mentored two undergraduate students at Duke on a research project on "The impact of microtubule polarity on models of cargo transport in neurons".

Supervisor of summer project in the Phoenix Project at Duke University May – August 2020
Mentored an undergraduate student at Duke on a research project on "Identifying disparities in federal sentencing data" (**published**).

Supervisor of summer research project Summer 2020
Mentored one undergraduate student at The Ohio State University on a research project on "Agent-based modeling simulations of actin interacting with different myosins" (**published**).

Supervisor of summer project at OSU May – August 2019
Mentored an undergraduate student at OSU on a research project on "3D simulations of messenger RNA transport and anchoring".

Destination Ohio State University Bridge Program August 2018 – May 2019
Mentored an undergraduate student transferring from Columbus State Community College to OSU on a research project on "Modeling actin-myosin interactions in the roundworm *C. elegans*".

Supervisor of summer project May – July 2018
Mentored an undergraduate student at Tulane University on a research project on "Topological data analysis methods for intracellular transport data" (**published**).

Summer at ICERM REU: Dynamics and Stochastics June – August 2016
Mentored undergraduates from different US colleges on a research project on "Stability of agent-based models" (three students) and a research project on "Lead propagation in the body" (two students, **published** in SIAM Undergraduate Research Online journal).

Brown Applied Math Undergraduate/Graduate Mentoring Program 2016
Mentored three female undergraduate students interested in Applied Math. Met at least once a month to discuss research, classes, graduate school, and the experience of studying mathematics.

Brown Applied Mathematics REU 2015 – 2016
Mentored two undergraduate students from different US colleges on a research project on "Epidemic spread on social networks" (**published**).

Service

Service to the profession:

- Co-organizer of Minisymposium on *Data-driven Modeling of Spatial Subcellular Processes* at the SIAM Conference on the Life Sciences June 2024
- Co-organizer of Minisymposium on *Data-driven, modeling, and topological techniques in cell and developmental biology* at the SMB Annual Meeting at OSU July 2023
- Nominating committe member for the SIAM Life Sciences Activity Group 2022
- Co-organizer of Minisymposium on *Combining Topological, Data-Driven, and Modeling Perspectives for Complex Biological Systems* at the SIAM Conference on the Life Sciences July 2022
- **Chair** of the Society of Mathematical Biology *Subgroup on Cell and Developmental Biology* 2020 – 2022

- Co-organizer of the Special Session on *Topological Data Analysis and its Applications in Biological Systems* at the Fall AMS Southeastern Sectional Meeting November 2021
- Co-organizer of 5-day *Workshop on Mathematics of the Cell*: Integrating signaling, transport and mechanics at BIRS October 2021
- Co-organizer of two-part minisymposium on *Combining modeling and inference in cell biology* at the 2021 SMB Annual Meeting June 2021
- Co-organizer of 3-day ICERM Hot Topics Workshop on *Mathematical and Computational Approaches to Social Justice* (virtual) March 2021
- Co-organizer of AMS Special Session on *Modeling and data analytic techniques for biological systems* at the 2021 Joint Math Meetings, Washington, DC January 2021
- Co-organizer of two-part Minisymposium on *Topological and network analyses for data* at the 2020 SMB Virtual Annual Meeting August 2020
- Co-organizer of three-part Minisymposium on *Modeling and Inference for Microparticle Transport and Intracellular Dynamics* at the 2020 SIAM Life Sciences, Garden Grove, CA June 2020 (cancelled)
- Co-organizer of two-part Minisymposium on *Probabilistic and Topological Methods for Biological Data* at the 2020 SIAM Mathematics of Data Science (virtual) June 2020
- Co-organizer of Minisymposium on *Multiscale modeling of cytoskeleton-mediated cellular transport and aggregation* at SMB Annual Meeting, Montreal, Canada July 2019
- Co-organizer of Minisymposium on *Topological Data Analysis and Applications in Dynamical Systems* at SIAM Applications of Dynamical Systems, Snowbird, UT May 2019
- Organizer of Minisymposium on *Modeling Cell Motility and Cytoskeleton Interactions* at SIAM Conference on the Life Sciences, Minneapolis, MN August 2018
- Co-organizer of AMS Special Session on *Analytical and Computational Advances in Mathematical Biology Across Scales* at AMS Spring Central Meeting, OSU, Columbus, OH March 2018
- Organizer of Invited session on *Models of Biological Patterning in Developing and Adult Organisms* at the International Symposium on Biomathematics and Ecology Education and Research, Illinois State University, Normal, IL October 2017
- Organizer of Minisymposium on *Modeling of intracellular transport and cell organization* at SIAM Conference on Applications of Dynamical Systems, Snowbird, UT May 2017
- Organizer of Minisymposium on *Modeling of Mechanisms of Intracellular Transport* at SIAM Conference on the Life Sciences, Boston, MA July 2016
- Co-organizer of Workshop on *Agent-Based Modeling*, Division of Applied Mathematics at Brown University, Providence, RI March 2015
- **Editorial Service**: Associate Editor, Bulletin of Mathematical Biology 2024 – present
- **Review Panel Service**: NSF DMS/NIGMS, NSF Mathematical Biology
- **Journals refereed**: SIAM Journal on Applied Mathematics, La Matematica, Bulletin of Mathematical Biology, Journal of Theoretical Biology, Mathematical Biosciences, Mathematical Biosciences and Engineering, PLOS Computational Biology, Royal Society Interface, Biophysical Journal, PNAS, Development, FASEB, PLOS One, Scientific Reports, International Journal of Biomathematics, Journal of Biological Systems
- **Poster/talk judge** for: SMB Annual Meeting (2021, 2023), Red Sock Award at the SIAM Dynamical Systems Poster Session (May 2019), MAA undergrad poster session at JMM (January 2017), OSU Mathematical Sciences Undergraduate Research Forum (March 2018), OSU Denman Undergraduate Research Forum (April 2018), OSU Hayes Graduate Research Forum (December 2017, 2018), SACNAS National Diversity in STEM Conference Undergraduate and graduate poster sessions (October 2018)

Service to Duke Math/University:

- Faculty Advisor for the Robert Calderbank and Ingrid Daubechies Visiting Scholars Spring 2023 – present
- Duke Organizer for Triangle Computational and Applied Mathematics Symposium Fall 2023
- Committee member for Graduate Research Opportunities for Women 2022-2023
- Instructor for *Math Circles* in Durham (elementary school) Spring 2022
- Founder and organizer of the *Triangle Competition in Math Modeling* for undergraduate students at Duke, UNC and NCSU 2021 – present
- Duke Math Undergraduate Prize Committee 2021-2022
- Team Advisor for Duke undergraduate teams at the Math/Interdisciplinary Contest for Modeling 2021–present
- Duke Math DST Search Committee Fall 2021
- Elliott Assistant Research Professor Hiring Committee (Math Department) Fall 2020
- Organizer of the Mathematical Biology Seminar at Duke Fall 2020 – present

Prior service to the university and department:

- Founder and organizer of a Local *Mathematical Contest for Modeling* for undergraduate students at Brown University (2015–2016) and The Ohio State University (2017 –2019)
- Tutorials and research talks at the MBI Summer REU at OSU, Columbus, OH June 2018, 2019
- Mentor in the STEMcoding project and Metro High School Coding Club (coding activities for math and life sciences), Columbus, OH September 2018
- Outreach presentation for the Johns Hopkins Center for Talented Youth Science Series on Math/Applied Math (high school students), Providence, RI December 2016
- Vice President of the Brown SIAM Student Chapter, Providence, RI 2015 – 2016
- Sheridan Center Departmental Liaison for the Division of Applied Mathematics and Sheridan Center for Teaching and Learning, Providence, RI Fall 2014 – September 2016

Service to promote diversity and inclusion:

- Co-chair of the DEI Team at Duke Math Summer 2023 – present
- Co-organizer of the DEI Panel Discussion on *Building inclusive graduate programs in mathematical biology* at the SMB Annual Meeting (hybrid) September 2022
- Member of the DEI Committee of the SMB Summer 2021 – present
- Member of the DEI Team at Duke Math Summer 2021 – present
- Member (Chair for 2023) of the Alice T. Schafer Prize Selection Committee for the Association for Women in Mathematics (AWM) 2021 – 2023
- Team leader in the AWM Mentoring Program at Duke Fall 2020, 2023
- Abstract reviewer for 2020 SACNAS – The National Diversity in STEM Conference June 2020
- Mentor in the AWM Mentor Program Spring 2019 – present
- Panelist on preparing research presentations at the Summer Research Opportunities Program at OSU, Columbus, OH June 2018
- Judge for the AWM Essay Contest February 2017, 2018
- Panelist for SAMMS (Sampling Advanced Mathematics for Minority Students) Program at MBI at OSU, Columbus, OH July 2017
- Panelist for the Brown AWM Panel on Research and Internship opportunities for mathematics undergraduate students, Providence, RI October 2014
- Math instructor for English for Action (immigrant learners), Providence, RI 2014 – 2016
- Member of the Brown Math CoOp Outreach Program, Providence, RI 2014 – 2017
- Vice President of AWM at Brown University, Providence, RI 2013 – 2014
- Coordinator for the Rose Whelan Society for Women in Math, Brown University, Providence, RI Fall 2013 – September 2016

Training

- STEM Faculty Fellows Program in Mentoring at Duke University 2023-2024
- Faculty Success Program from the National Center for Faculty Development and Diversity Spring 2021
- NRMN Postdoctoral Mentor Training Workshop at The Ohio State University June 2018
- Teaching Certificate II (Course Design Seminar) from Sheridan Center for Teaching and Learning at Brown University Spring 2017
- Teaching Certificate III (Professional Development Seminar) from Sheridan Center for Teaching and Learning at Brown University 2015 – 2016
- Teaching Certificate IV (Teaching Consultant Program) from Sheridan Center for Teaching and Learning at Brown University 2014 – 2015
- Teaching Certificate I on Reflective Teaching from Sheridan Center for Teaching and Learning at Brown University 2013 – 2014

Professional Organizations

- Society for Industrial and Applied Mathematics
- Association for Women in Mathematics
- Society for Mathematical Biology
- American Mathematical Society
- American Physics Society
- SACNAS