SARA M. CLIFTON

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EMPLOYMENT

Visiting Assistant Professor — 2024 - present
Department of Mathematics, Denison University

Visiting Assistant Professor of Mathematics — 2023 - 2024
Department of Mathematics and Statistics, Kenyon College

Director of Mathematical Biology Program — 2022 - 2023
Division of Natural Sciences and Mathematics, St. Olaf College

Assistant Professor of Mathematics — 2019 - 2023
Department of Mathematics, Statistics and Computer Science, St. Olaf College

J.L. Doob Research Assistant Professor (postdoc) — 2017 - 2019
Department of Mathematics, University of Illinois at Urbana-Champaign

EDUCATION

Ph.D., Engineering Sciences and Applied Mathematics — 2017
Northwestern University, Evanston, IL
Dissertation: *Minimal mathematical models of human and animal dynamical systems*
Advisor: Daniel M. Abrams

B.S., Applied and Computational Mathematics, *Summa Cum Laude* — 2012
Colorado School of Mines, Golden, CO

PUBLICATIONS

*undergraduate research mentees

T. Ng*, S.M. Clifton. "Bystander effect as an emergent property of individual psychological prospects" *(in preparation).*

F. Abbas*, S.M. Clifton. "A generalized epidemic framework for misinformation: the role of reactive journalism" *(in preparation).*

A. Azzouz, M. Easton, S.M. Clifton, K. Gowda. "High-throughput platform for nutrient-limited growth reveals regimes of transcriptional and translational burden in *Escherichia coli*" *(in preparation).*

A. Sirken, A. Moravcsik, S. Jacobson, E. Koenig*, D. McGowan*, C. Dammann*, S.M. Clifton. "Gender disparity in classical music: Historical and current trends in soloist representation" *(in preparation).*

S.M. Clifton. "Review of *Modeling Social Behavior: Mathematical and Agent-Based Models of Social Dynamics and Cultural Evolution* by Paul E. Smaldino" *(invited book review in SIAM Review - under review).*

Publications (cont.)

L. Boehm Vock, L.M. Mossman*, Z. Rapti, A. Dolezol, S.M. Clifton. "Spatiotemporal, environmental, and behavioral predictors of *Varroa* mite intensity in managed honey bee apiaries," *PLOS One*, **20**, 8, (2025).

K.J. Landa*, L.M. Mossman*, R.J. Whitaker, Z. Rapti, S.M. Clifton. "Phage-antibiotic synergy inhibited by temperate and chronic virus competition," *Bulletin of Mathematical Biology*, **84**, 54 (2022).

L.M. Wagner*, S.M. Clifton. "Modeling the public health impact of e-cigarettes on adolescents and adults," *Chaos: An Interdisciplinary Journal of Nonlinear Science*, **31**, 113137 (2021).

S.M. Clifton, R.J. Whitaker, Z. Rapti. "Temperate and chronic phage competition leads to low lysogen frequency," *Journal of Theoretical Biology*, **523**, 110710 (2021).

S.M. Clifton, T. Kim, J.H. Chandrashekhar, G.A. O'Toole, Z. Rapti, R.J. Whitaker. "Lying in wait: modeling the control of bacterial infections via antibiotic-induced proviruses," *mSystems*, **4**, 5 (2019).

S.M. Clifton, K. Hill, A.J. Karamchandani, E.A. Autry, P. McMahon*, G. Sun*. "Mathematical model of gender bias and homophily in professional hierarchies," *Chaos: An Interdisciplinary Journal of Nonlinear Science*, **29**, 023135 (2019).
— Selected as a Featured Article —

S.M. Clifton, C.L. Davis, S. Erwin, G. Hamerlinck, A. Veprauskas, Y. Wang, W. Zhang, H. Gaff. "Modeling the argasid tick (*Ornithodoros moubata*) life cycle," in A. Radunskaya, R. Segal, B. Shtylla (Eds.) *Understanding Complex Biological Systems with Mathematics* (2018).

S.M. Clifton, R. I. Braun, and D. M. Abrams. "Next steps for modeling the evolution of ornamental signals," *Animal Behaviour*, **137** (2018).

S.M. Clifton, E. Herbers*, J. Chen*, D.M. Abrams. "The tipping point: a mathematical model for the profit-driven abandonment of restaurant tipping," *Chaos: An Interdisciplinary Journal of Nonlinear Science*, **28**, 023109 (2018).
— Selected as Editor's Pick —

S.M. Clifton, C. Kang, J. Li, Q. Long, N. Shah, D.M. Abrams. "Hybrid statistical and mechanistic mathematical model guides mobile health intervention for chronic pain," *Journal of Computational Biology*, **24**, 7 (2017).

S.M. Clifton, R.I. Braun, and D.M. Abrams. "Handicap principle implies emergence of dimorphic ornaments," *Proceedings of the Royal Society B*, **283**, 1843 (2016).

PRESENTATIONS

Invited talks

- "Bystander effect as an emergent property of individual psychological prospects"
  Joint Math Meetings, Seattle, WA. Jan. 9, 2025.
- "Mathematical modeling in the social sciences"
  Denison Scientific Association, Granville, OH. Dec. 11, 2024.
- "Bystander effect as an emergent property of individual psychological prospects"
  SIAM Conference on the Life Sciences, Portland, OR. June 11, 2024.

Invited talks (cont.)

- "Modeling the leaky pipeline in hierarchical professions"
  Brown University Social Equity & Applied Mathematics seminar, Providence, RI. Dec. 11, 2023 *(virtual)*.
- "Predicting collective social dynamics using mathematical modeling"
  Kenyon College, Gambier, OH. Dec. 1, 2023.
- "Predicting collective social dynamics using mathematical modeling"
  Denison University, Granville, OH. Oct. 19, 2023.
- "Modeling the leaky pipeline in hierarchical professions"
  Kenyon College, Gambier, OH. Apr. 7, 2023.
- "Predicting collective human behavior using mathematical modeling"
  The Ohio State University, Columbus, OH. March 30, 2023.
- "Modeling the leaky pipeline in hierarchical professions"
  University of Minnesota Broadening Representation and Equity With Science seminar, Minneapolis, MN. Oct. 7, 2022 *(virtual)*.
- "Modeling the public health impact of e-cigarettes on adolescents and adults"
  SIAM Conference on the Life Sciences, Pittsburgh, PA. July 13, 2022.
- "Modeling the public health impact of e-cigarettes on adolescents and adults"
  Joint Mathematics Meetings, Seattle, WA. April 11, 2022 (*virtual*)
- "Predicting collective human behavior using mathematical modeling"
  Trinity University Major's Seminar, San Antonio, TX. April 5, 2022 (*virtual*).
- "Understanding complex social systems using minimal mathematical models"
  University of Ottawa Applied Math Seminar, Ottawa, Canada. Feb. 2, 2022 (*virtual*).
- "Understanding complex social systems using minimal mathematical models"
  Claremont Center for the Mathematical Sciences Applied Math Seminar, Claremont, CA. Nov. 8, 2021 (virtual).
- "Modeling the leaky pipeline in hierarchical professions"
  Colorado School of Mines AMS Colloquium, Golden, CO. Sept. 3, 2021 (*virtual*).
- "Modeling the leaky pipeline in hierarchical professions"
  Mathematical and Computational Approaches to Social Justice at ICERM, Providence, RI. Mar. 8, 2021 (virtual).
- "Gender parity in professional hierarchies"
  St. Olaf College MSCS Colloquium, Northfield, MN. May 13, 2019.
- "Nice rack: the evolution of deer antlers and other mating displays"
  University of Illinois Undergraduate Math Seminar, Urbana, IL. Feb. 1, 2019.
- "Understanding biological and social systems via minimal mathematical modeling"
  St. Olaf College, Northfield, MN. Feb. 9, 2018.
- "Nice rack: the evolution of deer antlers and other mating displays"
  St. Olaf College, Northfield, MN. Feb. 8, 2018.

Invited talks (cont.)

- "Minimal mathematical models of human and animal dynamical systems"
  University of Illinois Doob seminar, Urbana, IL. Nov. 29, 2017.
- "Handicap principle implies emergence of dimorphic ornaments"
  International Symposium on Biomathematics and Ecology Education and Research (BEER), Normal, IL. Oct. 7, 2017.
- "Modeling the evolution of deer antlers and other mating displays"
  Trinity College, Hartford, CT. Jan. 27, 2017.
- "Nice rack: the evolution of deer antlers and other mating displays"
  Lake Forest College, Lake Forest, IL. Jan. 25, 2017.
- "Grading in STEM: how to be consistent, efficient, and effective"
  New Teaching Assistant Conference, Evanston, IL. Sept. 15, 2016 (*workshop, with K. Damme*).
- "A mathematical model for the sexual selection of extravagant and costly mating displays"
  SIAM Annual Meeting: Student Days, Chicago, IL. Jul. 9, 2014.

Contributed talks and posters

- "Predicting voter turnout and election outcomes at the precinct level"
  Joint SIAM/CAIMS Annual Meetings, Montreal, Canada. July 29, 2025 (*poster*).
- "Predicting voter turnout and election outcomes at the precinct level"
  SIAM Conference on Applications of Dynamical Systems, Denver, CO. May 13, 2025 (*poster*).
- "Bystander effect as an emergent property of individual psychological prospects"
  Dynamics Days, Denver, CO. Jan. 4, 2025.
- "Bystander effect as an emergent property of individual psychological prospects"
  Joint Math Meetings, San Francisco, CA. Jan. 5, 2024.
- "Bystander effect as an emergent property of individual psychological prospects"
  SIAM Conference on Applications of Dynamical Systems, Portland, OR. May 16, 2023 *(poster)*.
- "Modeling the public health impact of e-cigarettes on adolescents and adults"
  Dynamics Days, Hartford, CT. Jan. 9, 2023 *(virtual)*.
- "Phage-antibiotic synergy inhibited by temperate and chronic virus competition"
  International Symposium on Microbial Ecology, Lausanne, Switzerland. Aug. 15, 2022 (*poster*).
- "Phage-antibiotic synergy inhibited by temperate and chronic virus competition"
  International Symposium on Biomathematics and Ecology Education and Research (BEER), Normal, IL. Nov. 13, 2020 (*virtual*).
- "Modeling the Prevalence of Juul and Other E-Cigarette Use"
  Dynamics Days Europe, Nice, France. Aug. 24, 2020 (*poster - virtual*).
- "Phage-antibiotic synergy inhibited by temperate and chronic virus competition"
  Ecological Society of America Annual Meeting, Salt Lake City, UT. Aug. 3, 2020 (*virtual*).

Contributed talks (cont.)

- "Modeling the Prevalence of Juul and Other E-Cigarette Use"
  SIAM/CAIMS Annual Meeting, Toronto, Canada. July 6, 2020 (*virtual*).
- "Spatial disease dynamics of vector-borne pollinator viruses"
  SIAM Conference on the Life Sciences, Los Angeles, CA. Jun. 8, 2020 (*cancelled*).
- "Antibiotic-phage synergy fails when temperate and chronic viruses compete"
  Dynamics Days, Hartford, CT. Jan. 3, 2020.
- "Lying in wait: antibiotic-induced proviruses control bacterial infections"
  Society of Mathematical Biology Annual Meeting, Montreal, Canada. July 22, 2019.
- "Mathematical model of gender bias and homophily in professional hierarchies"
  SIAM Conference on Applications of Dynamical Systems, Snowbird, UT. May 22, 2019.
- "Mathematical model of gender bias and homophily in professional hierarchies"
  Dynamics Days, Evanston, IL. Jan. 4, 2019 (*poster*).
- "Mathematical model of gender bias and homophily in professional hierarchies"
  SIAM Annual Meeting, Portland, OR. Jul. 10, 2018 (*poster*).
- "The tipping point: a mathematical model for the profit-driven abandonment of restaurant tipping"
  Joint Mathematics Meetings, San Diego, CA. Jan. 11, 2018.
- "The tipping point: a mathematical model for the profit-driven abandonment of restaurant tipping"
  Dynamics Days, Denver, CO. Jan. 5, 2018 (*poster*).
- "Hybrid statistical and mechanistic model guides mobile health intervention for chronic pain"
  SIAM Conference on Applications of Dynamical Systems, Snowbird, UT. May 21, 2017 (*poster*).
- "Handicap principle implies emergence of dimorphic ornaments"
  Midwest Women in Mathematics Symposium, Indianapolis, IN. Feb. 25, 2017 (*poster*).
- "Handicap principle implies emergence of dimorphic ornaments"
  Joint Math Meetings: AWM Special Session, Atlanta, GA. Jan. 6, 2017 (*poster*).
- "A mathematical model for the sexual selection of dimorphic mating displays"
  NC State Building Future Faculty Program, Raleigh, NC. Mar. 31, 2016.
- "Teaching the introverted student"
  Flipped Classroom Conference, Claremont, CA. Jan. 11, 2016.
- "A mathematical model for the sexual selection of bimodally distributed ornament sizes"
  SIAM Conference on Applications of Dynamical Systems, Snowbird, UT. May 17, 2015.
- "A mathematical model for the sexual selection of extravagant and costly mating displays"
  Chicago Area SIAM Student Conference, Chicago, IL. Apr. 11, 2015.
- "A mathematical model for the sexual selection of extravagant and costly mating displays"
  Dynamics Days, Houston, TX. Jan. 10, 2015 (*poster*).

Contributed talks (cont.)

- "A mathematical model for the sexual selection of extravagant and costly mating displays" **Boston University/Keio University Dynamical Systems Workshop**, Boston, MA. Sept. 16, 2014.

GRANTS

Faculty

- Reid and Polly Anderson Summer Scholars award to fund two full-time summer student researchers (2025)
- AMS Primarily Undergraduate Institution (PUI) Faculty Travel Grant to the JMM (2025)
- AWM-NSF Travel Grant to SIAM Conference on Life Sciences (2024)
- Summer Collaborative Undergraduate Research & Inquiry (CURI) and TRIO McNair scholar program awards to fund four full-time summer student research assistants (2023)
- St. Olaf Professional Development Grant for conference travel (2023)
- Spring CURI Academic Year award to fund three part-time student research assistants (2023)
- American Institute of Mathematics SQuaRE grant proposal *Forecasting election results from primary election data*, not funded (2023)
- PI on NSF DMS grant proposal *Building Ecological Model Credibility through Systematic Inclusion of Complexity and Destruction of Sparse Data*, not funded (2021)

Postdoctoral

- Prepare-and-train instructor for NSF-funded *Program for Interdisciplinary and Industrial Internships at Illinois*, a six-week intensive research training program for graduate students (2019)
- Mathematical Association of America Project NExT Fellowship (2017-18)
- Travel Awards to Mathematical Biology Institute Socioepidemiology Workshop (2018), and Dynamics Days (2018)

Graduate

- National Science Foundation Graduate Research Fellowship (2014-17)
- Searle Center for Teaching Excellence Graduate Teaching Fellowship (2016-17)
- Undergraduate Research Assistant Program grant to fund two summer research assistants (2016)
- Research assistant under Research Training Grant funded by NSF (2013-14)
- Walter P. Murphy fellowship for first year graduate study at Northwestern University (2012-13)
- Student Travel Awards to SIAM Dynamical Systems Conference (2015, 2017), Women Advancing Mathematical Biology (2017), Midwest Women in Mathematics Symposium (2017), AWM Special Session at the Joint Math Meetings (2017), SIAM Annual Meeting (2016 - declined), Dynamics Days (2015), American Institute of Mathematics Food Systems Workshop (2015), BU/Keio University Dynamical Systems Workshop (2014), and SIAM Annual Meeting (2014)

Undergraduate

- President's Scholarship for undergraduate study at Colorado School of Mines (2008-12)
- Thomas J. Watson Memorial Scholarship (2008-12)
- Colorado School of Mines Music Scholarship (2009-12)

AWARDS AND HONORS

Nominee for the *Forces of Mines: Elevating Women Leadership Summit* Junior Alumni Award (2022)

Illinois Geometry Lab Research Award for the undergraduate research project from the previous calendar year that best exemplifies the IGL's mission, selected from 35 projects (2019)

Included in University of Illinois *List of Teachers Ranked as Excellent by their Students* (2017, 2018)

Association for Women in Mathematics *Most Outstanding Graduate Student Research Poster* (2017)

Outstanding Graduating Senior Award (2012)

Ryan Sayers Memorial Award for outstanding undergraduate research (2012)

Dean's List for 4.0 GPA (2009-2012)

Nominated for Oppenheimer Award for best freshman essay (2009)

TEACHING

Instructor of record

- **Complex Analysis**, an applied study of the complex plane and functions of complex variables (S26)
- **Mathematical Modeling**, an introduction to the concepts and techniques of both deterministic and probabilistic models, with applications to the social, physical and life sciences (F23, S25)
- **Essentials of Calculus**, an introduction to single-variable calculus for students who have never taken a calculus course (S25, F25, S26)
- **Linear Algebra and Differential Equations**, an introduction to linear equations, transformations and systems of differential equations (F24)
- **Elements of Statistics**, an introduction to statistical reasoning and methodology, including experimental design, exploratory data analysis, hypothesis testing and regression (F24, F25)
- **Partial Differential Equations**, a study of linear partial differential equations with applications to the physical sciences (F20, F21, F22, S24)
- **Calculus II**, a continuation of the calculus sequence covering integration techniques, series, and differential equations, with an emphasis on computation in Maple (S24)
- **Seminar: Applied Dynamical Systems**, a project-based study of dynamical systems with an emphasis on visualization and applications to biology, sociology, chemistry, engineering, and physics (S23)
- **Mathematics of Biology**, an interdisciplinary course that utilizes modeling, wet lab experimentation, statistics, and computation to understand biological systems (S20, S21, S22, S23)

Teaching (cont.)

- **Differential Equations**, a introduction to ordinary differential equations and systems with applications to physics, biology, and social sciences (F19, S20, F20, S21, F21, S22, F22, S23, F23)
- **Elementary Linear Algebra**, an introduction to linear equations and transformations with an emphasis on visualization and computation (J21)
- **Calculus II**, a continuation of the calculus sequence covering integration techniques, series, and an introduction to multivariable differentiation and integration (F19)
- **Introduction to Differential Equations**, a first course in ordinary and partial differential equations for scientists and engineers (F18)
- **BioCalculus**, an alternative to Calculus I with direct applications to the life sciences (F17, S18)
- **Calculus I** for Northwestern's EXCEL program, an intensive 5-week residential summer bridge program for incoming students who show commitment to leadership and diversity within STEM fields (2015, 2016)

Professional development and pedagogical service

- Guest lectured and facilitated an activity on social group competition models for the St. Olaf Exploring Biomathematics course (2022, 2023)
- Developed and guest lectured the module *Introduction to Sociophysics* for the University of Illinois course Introduction to Undergraduate Mathematics (2018, 2019)
- Participated in MAA Project NExT Fellowship Program, a professional development program for new or recent Ph.D.s in the mathematical sciences (2017-18)
- Served as a Searle Center Teaching Consultant, conducting teaching observations and small group analyses (SGAs) for graduate students, post docs, and faculty at Northwestern (2016-17)
- Organized and led departmental workshops to prepare graduate students for *Applied Math in Action* outreach events (2016-17)
- Created and facilitated pedagogical workshops for Northwestern graduate students and post docs, including *Effective instructor feedback in STEM* and *Evidence-based strategies for implementing group work* (2016-17)
- Created and led a *Grading in STEM* workshop and small-group discussion for new teaching assistants at Northwestern (2016)
- Completed Northwestern Searle Center Teaching Certificate Program at the Practitioner level (2015-16)
- Lectured on complex variables to prepare first-year graduate students for departmental preliminary exams (2013-15)

RESEARCH MENTORSHIP

Undergraduate research projects (1-4 students per project)

- *Social network contagion in elections* (2025)
- *An epidemic framework for misinformation* (2025)

Mentoring (cont.)

- *Voter turnout and election outcomes at the precinct scale*, presented by students at a regional conference (2025)
- *Predicting political ideology and party entropy*, presented by students at a regional conference (2025)
- *Quantifying math major structure, flexibility and accessibility*, presented by students at a regional conference (2024-25)
- *Validating mathematical models of the bystander effect* (2024)
- *Mathematical modeling of mast seeding* (2023)
- *Mathematical modeling of quorum sensing and eavesdropping* (2023)
- *Modeling the emergence of the bystander effect* (2023)
- *Validation of dynamical system models of disease spread with sparse time-series data* (2021-22)
- *Leaks in the classical music pipeline: where are the women soloists?* (2020-22)
- *Modeling the virus lysogeny decision via quorum sensing* (2021)
- *Modeling the public health impact of smoking and vaping*, published in a peer-reviewed journal, presented by the student at an international conference as an invited talk, and selected for the Wiley Poster Prize for Overall Best Undergraduate Student Researcher at SMB Annual Meeting (2020-21)
- *Modeling intersectionality in academic STEM hierarchies*, presented by the student at an international conference as an invited talk (2020-21)
- *Effect of antibiotic resistance on phage-antibiotic synergy*, published in a peer-reviewed journal, and presented by students at several international conferences (2020-21)
- *Natural selection and the bystander effect* (2019)
- *Evaluating models of social group competition* (2019)
- *Modeling the prevalence of JUUL and other e-cigarette use* (2019)
- *Mathematical model of gender bias and homophily in professional hierarchies*, published in a peer-reviewed journal, selected as a Featured Article, and selected for the Illinois Geometry Lab Research Award (2018-19)
- *Exploring physiological rhythms using genetic algorithms* (2018)
- *Analysis of multi-dimensional Lotka-Volterra food web models* (2018)
- *Will restaurant tipping reach a tipping point?*, published in peer-reviewed journal and selected as an Editor's Pick (2016-18)

Graduate research projects (2-3 students per project)

- *Impact of incarceration and release rates on prison gang membership* (2019-20)
- *Understanding the coevolution of marriage and religion using social group competition* (2019)
- *Political party affiliation swapping among majority and minority groups* (2019)

Mentoring (cont.)

- *Role of mentoring towards achieving gender parity in professional hierarchies* (2019)
- *Tracking changes in gender bias and homophily in professional hierarchies* (2019)
- *Effect of inherent gender differences on gender dynamics in professional hierarchies* (2019)

CONFERENCE & WORKSHOP ORGANIZATION

Research

- *Mathematics of complex social systems* minisymposium at the Joint SIAM/CAIMS Annual Meetings, with Nicholas Landry, University of Virginia (2025)
- *Dynamics of Complex Social Systems* minisymposium at the SIAM Conference on Applications of Dynamical Systems, with Joseph Johnson, Carleton College (2023)
- *Modeling Collective Behavior in Human Systems* minisymposium at the SIAM Conference on Applications of Dynamical Systems, with Vicky Yang, Sante Fe Institute (2021)
- *Modeling to conquer: Understanding and controlling deleterious diseases using dynamical systems* minisymposium at the Society of Mathematical Biology Annual Meeting, with Zoi Rapti, University of Illinois Urbana-Champaign (2019)
- *Modeling Female and Minority Representation in Society* minisymposium at the SIAM Conference on Applications of Dynamical Systems, with Kaitlin Hill, University of Minnesota (2019)

Pedagogical

- Project NExT session *Incorporating Coding into All Levels of the College Math Curriculum* at the Joint Math Meetings (2018)
- *Applied Math in Action* active learning workshops and outreach events (2017)
- *Communicating Science Conference (ComSciCon-Chicago)* workshop that empowers scientists to communicate complex scientific concepts to a diverse audience (2016)

OUTREACH & SERVICE

Service to students underrepresented in STEM fields

- Judged AWM Graduate Student Poster Session at JMM (2022, 2024, 2025)
- Established and served as faculty sponsor of the St. Olaf College Association of Women in Mathematics (AWM) student chapter (2019-23)
- Invited panelist at TRIO Student Support Services for Students with Disabilities (SSSD) orientation, including Q&A and role-playing exercises (2022)
- Served on AWM panels on writing effective research statements and communicating mathematics (2018, 2019)
- Served as invited panelist and mentor at Graduate Research Opportunities for Women (GROW), a conference for undergraduate women considering academic careers in math or statistics (2015, 2016, 2017, 2019)
- Co-facilitated Girls Do Science Club (K-5) meeting on ecological modeling, including hands-on Monte Carlo simulation of a wetland system (2017)

Service (cont.)

- Conducted teaching-as-research project in EXCEL Calculus I to explore the relationship between mathematical self-efficacy and course performance for underrepresented, low-income, and/or first-generation students (2016)
- Led the Women in Engineering Sciences and Applied Mathematics (WESAM), a group of students, postdocs, and professors who promote equal opportunity for women in the mathematical sciences (2015-16)
- Coordinated Applied Math in Action events to introduce underserved high school and community college students to the real-world applications of math (2013, 2015, 2016)

College and department service

- Served on St. Olaf Health Professions Committee (2021-23)
- Organized the St. Olaf Mathematical Biology Symposium (2022, 2023)
- Established and served as faculty sponsor of the interdisciplinary St. Olaf College Society of Industrial and Applied Mathematics (SIAM) student chapter (2021-23)
- Served on Mathematics, Statistics, and Computer Science hiring committee in Analysis (2022-23)
- Served on UMN Computational Biology Summer Internship finalist selection committee (2022, 2023)
- Served on Mathematics, Statistics, and Computer Science term hiring committee in Math (2022)
- Served on Mathematics, Statistics, and Computer Science hiring committee in Algebra (2021-22)
- Co-organized Math Across the Cannon speaker series with Carleton College (2021, 2022)
- Organized Mathematics, Statistics, and Computer Science Research Seminar at St. Olaf College (2019-20)
- Co-organized BioMathematics seminar at the University of Illinois (2017-19)

Professional service

- AMS Mathematics Research Communities (MRC) Complex Social Systems workshop Assistant (2023)
- Session moderator at Midstates Consortium Undergraduate Research Symposium (2020)
- Session chair at 39th Annual Dynamics Days (2020)
- Reviewed manuscripts for *American Mathematical Monthly*, *Proceedings of the Royal Society B*, *Royal Society Open Science*, *Chaos: An Interdisciplinary Journal of Nonlinear Science*, *Mathematics in Medical and Life Sciences*, *Communications in Applied Analysis*, *Journal of Theoretical Biology*, *PLOS ONE*, and *SIAM Undergraduate Research Online* (2017-24)

Service to graduate students

- Represented graduate students on departmental Student Leadership Board (2012-17)
- Coordinated preliminary exam review sessions for first-year graduate students (2013-14)
- Co-organized First-year Foundations Workshop, a student-organized workshop and orientation for incoming applied math graduate students (2013-15)

Service (cont.)

- Organized departmental student tea seminars, a weekly professional development activity for graduate students (2014-15)

Service to undergraduates

- Served as computing seminar consultant for two senior projects in image analysis and agent-based modeling (2024)
- Served as capstone consultant for two senior projects in pattern formation and numerical methods (2023)
- Served as Math Modeling contest liaison and coach for students competing in SCUDEM, MCM and/or IM^{2}C (2023-24)
- Co-organized the Graduate School Info Night for students considering grad school in pure or applied math (2019, 2020, 2021)
- Co-organized Senior Celebration for graduating MSCS seniors (2020)
- Served as Research Experiences for Undergraduates (REU) liaison for St. Olaf mathematics majors (2019-20)
- Served as math placement advisor for incoming Northwestern engineering students (2015, 2016)
- Served as treasurer for SIAM Colorado School of Mines Student Chapter (2011-12)
- Represented undergraduate student body on Calculus Development Committee (2010-11)

K-12 service

- Volunteered at the McCormick Graduate Leadership Council's Science Pentathlon, a friendly science and engineering competition for middle schoolers (2014-15)
- Organized inaugural *Integra-Bowl* calculus competition for high school students (2012)
- Volunteered as a tutor for Golden High School students in math and science classes, including algebra, geometry, physics, chemistry, computer science, and calculus (2010-12)

SELECTED PRESS

Marketplace, "Why do Americans tip when people in other countries don't have to?" (2024)

Notices of the AMS, "Institute for the Quantitative Study of Inclusion, Diversity, and Equity" (2020)

SIAM News, "Modeling Bias and Self-Segregation in Promotion" (2019)

New York Post, "Many men think the gender pay gap is fake news: poll" (2019)

Phys.org, "Gender parity: Not a foregone conclusion in all fields" (2019)

The Daily Illini, "Model predicts gender parity in workplace" (2019)

UI Liberal Arts and Sciences, "The Problem of Parity" (2019)

Math Times, "The tipping point" (2018)

The News-Gazette, "Are gratuities at C-U restaurants reaching a tipping point?" (2018)

The Daily Illini, "University professor explores prejudice in tipping culture" (2018)

Press (cont.)

The News-Gazette, "UI research: Gratuity rate nears tipping point" (2018)

How Stuff Works, "When Will We Reach the Tipping Point for Tipping?" (2018)

Phys.org, "American service industry approaching a tipping point" (2018)

UI Liberal Arts and Sciences, "Mathematician: Tips could bite into restaurant profits" (2018)

SIAM News, "Data-driven Chronic Pain Management Using Hybrid Mathematical Methods" (2017)

Earth Magazine, "To find a mate, go big or go small, just don't go medium" (2017)

PBS NewsHour, "Big antlers shouldn't exist. This math model explains why they do" (2016)

Smithsonian Magazine, "Go Big or Go Generic: How Sexual Selection Is Like Advertising" (2016)

Phys.org, "Study explains evolution phenomenon that puzzled Darwin" (2016)

Chicago Reader, "In a collaborative college project, the medium is the data" (2013)

PROFESSIONAL MEMBERSHIPS

Society of Industrial and Applied Mathematics (SIAM)

Mathematical Association of America (MAA)

American Mathematical Society (AMS)

Society for Mathematical Biology (SMB)

Association for Women in Mathematics (AWM)

Institute for the Quantitative Study of Inclusion, Diversity, and Equity (QSIDE)

The Center for the Integration of Research, Teaching and Learning (CIRTL)

TECHNICAL SKILLS

Expert: MATLAB, Mathematica, LaTeX, Mac OS

Proficient: Python, R, Maple, NetLogo, Illustrator, Linux, Windows

Some experience: Java, FORTRAN, C/C++, OpenGL, MPI, OpenMP