ANGELA LYNN PEACE

Professor, Department of Mathematics, Virginia Tech
angelapeace@vt.edu

RESEARCH INTERESTS

Mathematical Modeling, Applied Dynamical Systems, Differential Equations, Population dynamics, Theoretical Ecology, Mathematical Biology, Ecological Stoichiometry

EDUCATION

Ph.D. Applied Mathematics Aug 2014
Arizona State University, Tempe, AZ
Advisor: Yang Kuang

M.A. Mathematics May 2011
Arizona State University, Tempe, AZ

B.S. Computational Mathematical Sciences May 2009
Arizona State University, Tempe, AZ

PROFESSIONAL EXPERIENCE

Professor Since 2026
Department of Mathematics
Virginia Tech, Blacksburg, VA

Professor 2025
Associate Chair for Research and Engagement 2024-2025
Associate Professor 2021-2025
Assistant Professor 2015-2021
Department of Mathematics and Statistics
Texas Tech University, Lubbock, TX

iDiv Sabbatical Fellow July 2022– Jan 2023
German Centre for Integrative Biodiversity Research
Leipzig, Germany

Postdoctoral Fellowship Aug 2014–July 2015
NIMBioS: National Institute for Mathematical and Biological Synthesis

University of Tennessee, Knoxville
Project Title: Stoichiometric food web models: How food quality affects population structures

Laboratory Research Assistant 2009–2012
Jim Elser Lab, School of Life Science, Arizona State University

Research in the Elser on the stoichiometric population growth and the interactions between species.

JOURNAL EDITOR

Mathematical Biosciences Since 2023

Mathematical Biosciences and Engineering (MBE) 2018-2019, 2023

Special Issue: Dynamical system models of biology, ecology, toxicology, and epidemiology
Special Issue: Resource Explicit Population Models, Vol: 16(1) 2019

AWARDED GRANTS

John Wesley Powell Center for Analysis and Synthesis, USGS 2024-2026
Role: Co-Pi, Amount: Travel expenses for 17 people to annual meetings, postdoctoral fellow

Working group: Defining subsidystress gradients for metals and relevance for US surface waters
PI: David Costello, Co-PIs: Elizabeth Herndon, Travis Schmidt

NSF Division of Mathematical Sciences Sept. 2023-Aug. 2026
Role: PI Amount: $249,798.00

Title: Structured Population Dynamics Subject to Stoichiometric Constraints
Co-PI: Gregory Mayer, The Department of Environmental Toxicology, TTU

Davis College of Agricultural Sciences & Natural Resources, TTU July 2023-July 2024
Role: Co-PI, Amount: $50,000

Title: Math and Ecology Synthesis for Agriculture (MESA) Network
PI: Matthew Barnes, Co-PIs: Amanda Laubmeier, Nicholas Smith, Texas Tech University

NSF Division of Mathematical Sciences Sept. 2021-Aug. 2024
Role: Senior Personnel, Amount: $275,585

Title: REU Site: Mathematical, Statistical and Computational Methods for Problems in the Life Sciences
PIs: Linda Allen, Leif Ellingson, Texas Tech University

NSF Division of Mathematical Sciences Fall 2020
Role: PI, Amount: $17,750

Title: XVIII Red Raider Minisymposium on Modeling in a Heterogeneous World
Co-PIs: Linda Allen, Kenneth Schmidt, Joshua Padgett, Wenjing Zhang, Texas Tech University

NSF EEID Directorate for Biological Sciences June 2018 - May 2023
Role: Senior Personnel, Amount: $2,494,511 (my TTU budget: $165,356)

Title: Transmission pathways and immunological factors that affect invasion potential of the recently discovered pathogen, *Batrachochytrium salamandrivorans*
PI: Matt Gray, University of Tennessee, Knoxville

NSF Division of Mathematical Sciences Sept. 2018 - Aug. 2021
Role: Co-PI, Amount: $80,000, additional $36,843 in student supporting supplemental grant

Title: Collaborative Research: Linking Pharmacokinetics to Epidemiological Models of Vector-Borne Diseases and Drug Resistance Prevention

NSF Division of Mathematical Sciences Sept. 2016 - Aug. 2019
Role: PI, Amount: $341,316

NSF Grant #: 1615697
Title: Robust Mathematical Models of Ecotoxicological Dynamics Subject to Stoichiometric Constraints
Co-PI: Gregory Mayer, The Department of Environmental Toxicology, TTU

Texas Tech University Seed Grants for Interdisciplinary Research June. 2017 - Dec. 2018
Role: Co-PI, Amount: $75,000

Title: TTURTLES: TTU Research Team Linking Education and Sciences
PI: Celine Godard, Department of Environmental Toxicology, TTU; Co-PI: Jerry Dwyer, College of Education, TTU

National Institute for Mathematical and Biological Synthesis, NSF January 2018
Role: Workshop Organizer, Amount: travel expenses for 34 people

Investigative Workshop: Modeling Ecotoxicological Dynamics Subject to Stoichiometric Constraints
Co-Organizer: Paul Frost, Trent University, Canada

AWARDS

President's Excellence in Teaching Award 2021
Texas Tech University

Excellence in Research Award 2018
College of Arts & Sciences Distinguished Alumni & Faculty Excellence program

W. Dayawansa Award for Research and Teaching 2021
Department of Mathematics and Statistics, TTU

SIAM Graduate Professor Award 2024
TTU Chapter of Society of Industrial and Applied Mathematics

Best Mentor Award 2018
Department of Mathematics and Statistics, TTU

Excellence in Applied Math Research W. Dayawansa Award 2017
Department of Mathematics and Statistics, TTU

JOURNAL PUBLICATIONS

* denotes students authors

58. González AL, Merder J, Andraczek K, et al. Nitrogen deposition reveals global patterns in plant and animal stoichiometry. Nat Commun. 2025;16

57. Ain* MQ, Peace A. Predicting the burden of co-infections in seasonally driven dynamics of pediatric Rotavirus and Norovirus. Infectious Disease Modelling. 2025;

56. Chesnais Q, Bahlai CA, Peace A, Crowder DW, Bosque-Pérez NA, Mauck KE. Meta-analysis reveals strong evidence for adaptive host and vector manipulation by plant viruses. Functional Ecology. 2025;00:1–18

55. Oladepo* O, Peace A. Nutrient-Driven Adaptive Evolution of Foraging Traits Impacts Producer-Grazer Dynamics. Bulletin of Mathematical Biology. 2025;87(8):102

54. Hridoy* MB, Peace A. An exploration of the interplay between treatment and vaccination in an Age-Structured Malaria Model using non-linear ordinary differential equations. Healthcare Analytics. 2025;7:100386

53. Chowdhury* MM, Gray MJ, Carter ED, Woodhams DC, Mccartney JA, Surles JG, et al. Fungal pathogen transmission dynamics in North American salamanders: Mathematical insights for disease management. Ecological Modelling. 2025;501:111028

52. Gray MJ, Brunner JL, Earl JE, Wirth W, Peace A, Ariel E. Design and analysis of ranavirus studies: insights into planning surveillance, modeling host-pathogen dynamics, and performing risk analyses. In: Ranaviruses: Emerging Pathogens of Ectothermic Vertebrates. Springer; 2024. p. 313–371

51. Van de Waal DB, White LA, Everett R, Asik L, Borer ET, Frenken T, et al. Reconciling contrasting effects of nitrogen on host immunity and pathogen transmission using stoichiometric models. Ecology. 2023;p. e4170

50. Everett RA, Lewis AL, Kuerbis A, Peace A, Li J, Morgenstern J. Data driven mixed effects modeling of the dual process framework of addiction among individuals with alcohol use disorder. PLoS one. 2023;18(8):e0265168

49. Seabloom EW, Peace A, Asik L, Everett RA, Frenken T, González AL, et al. Dead or alive: carbon as a currency to integrate disease and ecosystem ecology theory. Oikos. 2023;p. e09880

48. Prosper O, Gurski K, Teboh-Ewungkem M, Peace A, Feng Z, Reynolds M, et al. Modeling Seasonal Malaria Transmission. Letters in Biomathematics. 2023;10(1):3–27

47. Gurski K, Peace A, Prosper O, Stepien T, Teboh-Ewungkem M. Mathematicians Navigating Parenthood: Lessons Learned, Methodologies, and Useful Solutions That Were Beneficial During the COVID-19 Pandemic. Notices of the American Mathematical Society. 2022;69(11):1918–1922

46. Li J, Broussard M, Tomer N, Jochym M, Fonseka* D, Peace A, et al. Honey bee (Apis mellifera) hive placement is more influential than orchard layout on the fruit set of a dioecious crop. Ecological Modelling. 2022;472:110074

45. Chowdhury* MM, Islam MR, Hossain MS, Tabassum* N, Peace A. Incorporating the mutational landscape of SARS-COV-2 variants and case-dependent vaccination rates into epidemic models. Infectious Disease Modelling. 2022;7(2):75–82

44. Borer ET, Paseka RE, Peace A, Asik L, Everett R, Frenken T, et al. Disease-mediated nutrient dynamics: Coupling host–pathogen interactions with ecosystem elements and energy. Ecological Monographs. 2022;92(2):e1510

43. Ibragimov A, Peace A. Light driven interactions in spatial predator-prey chemotaxis model in the presence of chemical agent. TWMS Journal of pure and applied mathematics. 2022;13(2):222–244

42. Islam* MR, Gray MJ, Peace A. Identifying the dominant transmission pathway in a multi-stage infection model of the emerging fungal pathogen Batrachochytrium Salamandrivorans on the Eastern Newt. In: Infectious Diseases and Our Planet. Springer; 2021. p. 193–216

41. Frenken T, Paseka R, González AL, Asik L, Seabloom EW, White LA. Borer ET, Strauss AT, Peace A, Van de Waal, DB. Changing elemental cycles, stoichiometric mismatches, and consequences for pathogens of primary producers. Oikos. 2021;

40. Borer ET, Asik* L, Everett RA, Frenken T, Gonzalez AL, Paseka RE. Peace A, Seabloom EW, Strauss AT, Van de WaalDB. Elements of disease in a changing world: modelling feedbacks between infectious disease and ecosystems. Ecology Letters. 2021;

39. Peace A, Frost PC, Wagner ND, Danger M, Accolla C, Antczak P, et al. Stoichiometric Ecotoxicology for a Multisubstance World. BioScience. 2021;71(2):132–147

38. Shakiba N, Edholm CJ, Emerenini BO, Murillo AL, Peace A, Saucedo O, et al. Effects of environmental variability on superspreading transmission events in stochastic epidemic models. Infectious Disease Modelling. 2021;6:560–583

37. Higgins R, Mills* CJ, Peace A. A Time Scales Approach for Modeling Intermittent Hormone Therapy for Prostate Cancer. Bulletin of Mathematical Biology. 2020;82(11):1–16

36. Ledder G, Russo SE, Muller EB, Peace A, Nisbet RM. Local control of resource allocation is sufficient to model optimal dynamics in syntrophic systems. Theoretical Ecology. 2020;p. 1–21

35. Paseka RE, White LA, Van de Waal DB, Strauss AT, González AL, Everett RA. Peace A, Seabloom EW, Frenken T, Borer ET. Disease-mediated ecosystem services: Pathogens, plants, and people. Trends in Ecology & Evolution. 2020;

34. Awoyemi* OM, Subbiah S, Velazquez* A, Thompson* KN, Peace AL, Mayer GD. Nitrate-N-mediated toxicological responses of Scenedesmus acutus and Daphnia pulex to cadmium, arsenic and their binary mixture (Cd/Asmix) at environmentally relevant concentrations. Journal of Hazardous Materials. 2020;p. 123189

33. Asik* L, Chen M, Peace A. The effects of excess food nutrient content on a tritrophic food chain model in the aquatic ecosystem. Journal of Theoretical Biology. 2020;491:110183

32. Awoyemi* OM, Subbiah S, Thompson* K, Velazquez A, Peace A, Mayer GD. Trophic-level interactive effects of phosphorus availability on the toxicities of cadmium, arsenic, and their binary mixture in media-exposed Scenedesmus acutus and media and dietary-exposed Daphnia pulex. Environmental Science & Technology. 2020;

31. Islam* MR, Peace A, Medina D, Oraby T. Integer Versus Fractional Order SEIR Deterministic and Stochastic Models of Measles. International Journal of Environmental Research and Public Health. 2020;17(6):2014

30. Peace A, Pattemore D, Broussard M, Fonseka D, Tomer N, Bosque-Pérez NA, et al. Orchard layout and plant traits influence fruit yield more strongly than pollinator behaviour and density in a dioecious crop. PloS one. 2020;15(10):e0231120

29. Chen M, Asik* L, Peace A. Stoichiometric knife-edge model on discrete time scale. Advances in Difference Equations. 2019;2019(1):1–16

28. Peace A, Wang H. Compensatory Foraging in Stoichiometric Producer–Grazer Models. Bulletin of mathematical biology. 2019;81(12):4932–4950

27. Hassan* MN, Peace A. Mechanistically derived Toxicant-mediated predator-prey model under Stoichiometric constraints. Mathematical biosciences and engineering: MBE. 2019;17(1):349–365

26. Peace A, ORegan SM, Spatz JA, Reilly PN, Hill RD, Carter ED, et al. A highly invasive chimeric ranavirus can decimate tadpole populations rapidly through multiple transmission pathways. Ecological Modelling. 2019;410:108777

25. Asik* L, Kulik* J, Long KR, Peace A. Seasonal Variation of Nutrient Loading in a Stoichiometric Producer–Consumer System. Bulletin of Mathematical Biology. 2019;p. 1–15

24. Hassan* MN, Asik* L, Kulik* J, Long K, Peace A. Environmental Seasonality on Predator–Prey Systems under Nutrient and Toxicant Constraints. Journal of theoretical biology. 2019;

23. Shaw AK, Igoe M, Power AG, Bosque-Pérez NA, Peace A. Modeling Approach Influences Dynamics of a Vector-Borne Pathogen System. Bulletin of mathematical biology. 2019;p. 1–18

22. Asik* L, Peace A. Dynamics of a Producer–Grazer Model Incorporating the Effects of Phosphorus Loading on Grazers Growth. Bulletin of mathematical biology. 2019;p. 1–17

21. Dissanayake* C, Juan L, Long KR, Peace A, Rana* MM. Genotypic Selection in Spatially Heterogeneous Producer-Grazer Systems Subject to Stoichiometric Constraints. Bulletin of mathematical biology. 2019;p. 1–17

20. Manore CA, Teboh-Ewungkem MI, Prosper O, Peace A, Gurski K, Feng Z. Intermittent Preventive Treatment (IPT): Its role in averting disease-induced mortality in children and in promoting the spread of antimalarial drug resistance. Bulletin of mathematical biology. 2019;81:193–234

19. Hassan* MN, Thompson* K, Mayer G, Peace A. Effects of Excess Food Nutrient on Producer-Grazer Model under Stoichiometric and Toxicological Constraints. Mathematical biosciences and Engineering. 2018;16(1):150–167

18. Rana* MM, Dissanayake* C, Juan L, Long KR, Peace A. Mechanistically derived spatially heterogeneous producer-grazer model subject to stoichiometric constraints. Mathematical biosciences and Engineering. 2018;16(1):222–233

17. Chen M, Fan M, Xie C, Peace A, Wang H. Stoichiometric Food Chain Model on Discrete Time Scale. Mathematical Biosciences and Engineering. 2018;16(1):101–118

16. Asik* L, Kulik* J, Long KR, Peace A. Dynamics of a Stoichiometric Producer-Grazer System with Seasonal Effects on Light Level. Mathematical Biosciences and Engineering. 2018;16(1):501–514

15. Edholm CJ, Emerenini BO, Murillo AL, Saucedo O, Shakiba N, Wang X, et al. Searching for superspreaders: Identifying epidemic patterns associated with superspreading events in stochastic models. In: Understanding Complex Biological Systems with Mathematics. Springer; 2018. p. 1–29

14. Murphy CA, Nisbet RM, Antczak P, Garcia-Reyero N, Gergs A, Lika K, et al. Incorporating suborganismal processes into dynamic energy budget models for ecological risk assessment. Integrated environmental assessment and management. 2018;

13. Murphy CA, Nisbet RM, Antczak P, Garcia-Reyero N, Gergs A, Lika K, et al. Linking Adverse Outcome Pathways to Dynamic Energy Budgets: A Conceptual Model. In: A Systems Biology Approach to Advancing Adverse Outcome Pathways for Risk Assessment. Springer; 2018. p. 281–302

12. Shaw AK, Peace A, Power AG, Bosque-Pérez NA. Vector population growth and condition-dependent movement drive the spread of plant pathogens. Ecology. 2017;98:2145–2157

11. Peace A, Poteat MD, Wang H. Somatic Growth Dilution of a toxicant in a predator–prey model under stoichiometric constraints. Journal of theoretical biology. 2016;407:198–211

10. Elser JJ, Kyle M, Learned J, McCrackin ML, Peace A, Steger L. Life on the stoichiometric knife-edge: effects of high and low food C: P ratio on growth, feeding, and respiration in three Daphnia species. Inland Waters. 2016;6(2):136–146

9. Peace A. Effects of light, nutrients, and food chain length on trophic efficiencies in simple stoichiometric aquatic food chain models. Ecological Modelling. 2015;312:125–135

8. Yamamichi M, Meunier CL, Peace A, Prater C, Rúa MA. Rapid evolution of a consumer stoichiometric trait destabilizes consumer–producer dynamics. Oikos. 2015;124(7):960–969

7. Teboh-Ewungkem MI, Prosper O, Gurski K, Manore CA, Peace A, Feng Z. Intermittent Preventive Treatment (IPT) and the Spread of Drug Resistant Malaria. In: Applications of Dynamical Systems in Biology and Medicine. Springer; 2015. p. 197–233

6. Peace A, Wang H, Kuang Y. Dynamics of a Producer–Grazer Model Incorporating the Effects of Excess Food Nutrient Content on Grazers Growth. Bulletin of mathematical biology. 2014;76(9):2175–2197

5. Burgess C, Peace A, Everett R, Allegri B, Garman P. Computational modeling of interventions and protective thresholds to prevent disease transmission in deploying populations. Computational and mathematical methods in medicine. 2014;2014

4. Diakite I, Edwards DA, Emerick B, Panaggio M, Peace AL, Raymond C, et al. Improving a Fuel Cell Assembly Process. Mathematics-in-Industry Case Studies. 2014;6(1)

3. Peace A, Zhao Y, Loladze I, Elser JJ, Kuang Y. A stoichiometric producer-grazer model incorporating the effects of excess food-nutrient content on consumer dynamics. Mathematical biosciences. 2013;244(2):107–115

2. Elser JJ, Loladze I, Peace AL, Kuang Y. Lotka re-loaded: modeling trophic interactions under stoichiometric constraints. Ecological Modelling. 2012;245:3–11

1. Elser JJ, Peace AL, Kyle M, Wojewodzic M, McCrackin ML, Andersen T, et al. Atmospheric nitrogen deposition is associated with elevated phosphorus limitation of lake zooplankton. Ecology letters. 2010;13(10):1256–1261

COMPLETED DOCTORAL STUDENTS

Md Nazmul Hassan PhD August 2019
Department of Mathematics and Statistics, Texas Tech University

Dissertation Title: Ecotoxicological Dynamics Subject to Stoichiometric Constraints
Committee members: Angela Peace (chair), Linda Allen, Wenjing Zhang
Following position: Research postdoc at North Carolina State

Lale Asik PhD May 2020
Department of Mathematics and Statistics, Texas Tech University

Dissertation Title: Environmental Variations in Stoichiometric Predator-Prey Models
Committee members: Angela Peace (chair), Linda Allen, Wenjing Zhang, Katharine Long
Following position: Tenure-track assistant professor at the University of the Incarnate Word

Md Rafiul Islam PhD August 2020
Department of Mathematics and Statistics, Texas Tech University

Research: Analyzing Epidemic Models with Multiple Stages of Infection
Committee members: Angela Peace (chair), Linda Allen, Wenjing Zhang
Following position: Postdoc at the Department of Mathematics at Iowa State University

Dilini Fonseka PhD August 2020
Department of Mathematics and Statistics, Texas Tech University

Dissertation title: Modeling Approaches to Understand Plant-Pollinator-Herbivore Interactions
Committee members: Angela Peace (chair), Linda Allen, Wenjing Zhang

Following position: Instructor and the director of the Quantitative Literacy Center at Southwestern college in Kansas

Ramiro Ramirez PhD August 2020
Department of Mathematics and Statistics, Texas Tech University

Dissertation title: Stoichiometric Aquatic Food-Web Models Coupling Pelagic and Benthic Zones
Committee members: Angela Peace (chair), Amanda Laubmeier, Raegan Higgins
Following position: Postdoc at UT Health San Antonio

Mihrab Chowdhury PhD May 2024
Department of Mathematics and Statistics, Texas Tech University

Dissertation title: Data Integrated Mathematical Modeling Approaches to Explore the Complexities of Amphibian Fungal Transmission Dynamics
Committee members: Angela Peace (chair), Amanda Laubmeier, Linda Allen
Following position: Postdoc at Clemson University

Hridoy Bari PhD August 2025
Department of Mathematics and Statistics, Texas Tech University

Dissertation title: Infectious Disease Dynamics in Heterogeneous Populations: Stochastic, Seasonal, and Structured Epidemic Models with Intervention Strategies
Committee members: Angela Peace (chair), Linda Allen (co-chair), Sophia Jang
Following position: Postdoc at Virginia Tech

CURRENT GRADUATE STUDENTS

Dhruba Pariyar PhD expected 2026
Department of Mathematics and Statistics, Texas Tech University

Research Topic: Ecological modeling, plant pathogens and stage-structured populations

Mohammadi Ain PhD expected 2026
Department of Mathematics and Statistics, Texas Tech University

Research Topic: Modeling pediatric epidemics

Oluwagbemisola Oladepo PhD expected 2027
Department of Mathematics and Statistics, Texas Tech University

Research Topic: Adaptive foraging behaviors subject to stoichiometric constraints

COMPLETED MASTERS STUDENTS

Bridget Mann MS Summer 2023
Department of Mathematics and Statistics, Texas Tech University

Report title: Modeling Spider Populations using Differential Equations
Committee members: Angela Peace (chair), Amanda Laubmeier

Randall Karr MS Fall 2019
Department of Mathematics and Statistics, Texas Tech University

Report title: Trophic transfer efficiencies in competitive food chains under light and nutrient gradients
Committee members: Angela Peace (chair), Victoria Howle

Monir Uz Zaman MS Summer 2018
Department of Mathematics and Statistics, Texas Tech University

Report title: Parameter Sensitivity Analysis on a Delay Differential Equation Model of Cancer
Committee members: Angela Peace (chair), Victoria Howle

Md Shah Alam MS Fall 2018
Department of Mathematics and Statistics, Texas Tech University

Report title: Parameter Sensitivity Analysis of Dynamics of Ovarian Tumor Growth Model
Committee members: Angela Peace (chair), Aminur Rahman

UNDERGRADUATE RESEARCH MENTOR

Rachel Wissenbach, Nate Ward, Nicolette Gaston Summer 2023 REU
Department of Mathematics and Statistics, Texas Tech University

Research Topic: Food Webs Subject to Stoichiometric Constraints, Coral-Zooxanthellae Symbiosis

Joel Garza Summer 2020- Summer 2021
Texas Tech University, Honors College

Project: Mathematical models of Covid-19

Reagan Collins Summer 2017- May 2020
Department of Mathematics and Statistics, Texas Tech University, Honors College

Project: Anti-angiogenic treatment of tumors using Agent-Based models in NetLogo.

Adam Harper 2015-2016
Department of Mathematics and Statistics, Texas Tech University, PRISM REU

Poster: Predicting how Ranavirus Affects the Chiricahua Leopard Frog

TEACHING EXPERIENCE

Professor
Department of Mathematics and Statistics, Texas Tech University

Higher math for engineers and scientists I, Undergraduate honors Fall 2025

Associate Professor
Department of Mathematics and Statistics, Texas Tech University

Stochastic Models in Ecology and Epidemiology, graduate level Summer 2025
Ordinary differential equations online, class size 112 Summer 2025
Ordinary differential equations (engineers), class size 52 Spring 2025
Calculus III, class size 94 Spring 2024
Interdisciplinary graduate course: Mathematical Ecology Fall 2023
Calculus III, class size 49 Fall 2023
Ordinary differential equations (engineers), class size 116 Spring 2022
Differential equations, Graduate prelim course Fall 2021
Higher math for engineers and scientists I, Undergraduate honors Fall 2021

Assistant Professor
Department of Mathematics and Statistics, Texas Tech University

Calculus II, synchronize online, class size 96 Spring 2021

Calculus II, asynchronize online, class size 52	Fall 2020
Calculus II, class size 112	Spring 2020
Biomathematics for Undergraduates, Honors	Spring 2019
Calculus I, class size 124	Fall 2018
Calculus II, class size 110	Spring 2018
Honors Calculus II	Fall 2017
Graduate Course: Biomathematics I, Stochastic Models	Spring 2017
Graduate Course: Biomathematics II, Deterministic Models	Fall 2016
Honors Calculus II	Spring 2016
Honors Calculus I	Fall 2015

SELECTED CONFERENCE/SEMINAR PRESENTATIONS

SMB Annual Meeting July 2025
Society of Mathematical Biology *Edmonton, Alberta*

Talk: Nutrient-Driven Adaptive Foraging Behaviors
Talk: Teaching Mathematical Ecology across disciplines

Applied Mathematics Seminar Nov 15, 2024
California State University, Northridge *Northridge, CA*

Talk (Invited): Limitations, Stressors, and Constraints in Population Dynamics

SMB-KSMB Annual Meeting July 2024
Society of Mathematical Biology/ Korean Society of Mathematical Biology *Seoul, Korea*

Talk: Size of exposure dose drives infections dynamics of amphibian fungal pathogens
Talk: Elemental constraints on stage-structured populations

ASLO 2024 Meeting April, 2024
Association for the Sciences of Limnology and Oceanography *Madison, WI*

Talk: Understanding Nitrogen Fixation in Phototrophic Diazotrophs: Insights from a Stoichiometric model

Applied Mathematics Seminar April 19, 2024
Mathematics Colloquium, Oklahoma State *Stillwater, OK*

Talk (Invited): Limitations, Stressors, and Constraints in Theoretical Ecology

Applied Mathematics Seminar Feb. 20, 2024
Math Biology Seminar, University of Maryland *CollegePark, Md*

Talk (Invited): Limitations, Stressors, andConstraints in Theoretical Ecology

Mathematical Biology Seminar September 2023
Arizona State University *Tempe, AZ*

Talk (Invited): Nutrient-mediated pathogen transmission and host immunity in a stoichiometric disease model

SMB Annual Meeting July 2023
Society of Mathematical Biology *Columbus OH*

Organized session: The 10th anniversary of MBIs 2013 Workshop for Young Researchers
Talk: Adaptive foraging behaviors in food web models

Conference of Biological Stoichiometry March 2022
University of Nebraska-Lincoln *Lincoln, Nebraska*

Talk: Exploring stoichiometric foraging behaviors with models

BioMath Seminar Sept 7, 2022
German Centre for Integrative Biodiversity Research *Leipzig, Germany*

Talk (Invited): Population Dynamics Subject to Stoichiometric Constraints

BioMath Seminar March 2, 2022
Virginia Tech University *Blacksburg, VA*

Talk (Invited): Dynamical systems coupling disease and ecosystem ecology

Math Seminar Series Nov. 9, 2021
Cameron University *Virtual*

Talk: Modeling Frameworks that Integrate Disease and Ecosystem Ecology

2021 SIAM Conference on Dynamical Systems May 24, 2021
Society for Industrial and Applied Mathematics *Virtual*

Talk: Population dynamics of daphnia interacting with nutrients and light in a water column

Biomathematics Seminar February 8, 2021
University of Alberta *Alberta, CA*

Talk (Invited): Stoichiometric Ecotoxicology: modeling frameworks unifying ecotoxicology with ecological stoichiometry

SELECTED WORKSHOPS AND TUTORIALS ATTENDED

Research Collaborative Network: Nitrogen Fixation across aquascapes Oct. 2023
Michigan Technological University *Houghton, MI*

Working group member on stoichiometric drivers and constraints on N2-fixation to develop conceptual and quantitative models of the stoichiometric controls on autotrophic and heterotrophic N2-fixers from populations to individual ecosystems.

Modeling approaches to super-spreading disease dynamics across animal and plant systems. June 2024, July 2025
American Institute of Mathematics, SQuaRE *Pasadena, CA*

Collaborative team working to synthesize novel understanding generated in parallel systems of pathogens in plant vs. animal communities

Superspreaders and their role in epidemics: a stochastic approach Jan 2019, July 2023
American Institute of Mathematics, SQuaRE *San Jose, CA*

Working with collaborators to explore the effect of demographic and environmental variability on human-to-human disease transmission rates among superspreaders.

Optimizing pollination strategies Jan 2019, June 2019
The New Zealand Institute for Plant & Food Research Limited *New Zealand*

External collaborator team member

SESYNC workshop on disease and ecosystem processes Nov 2018, Nov 2019, June 2019
National Socio-Environmental Synthesis Center *Annapolis, MD*

Member of multi-disciplinary group working to create models that couple disease and nutrient ecology

WAMB! Women Advancing Mathematical Biology: Understanding Complex Biological Systems with Mathematics April 2017
Mathematical Biology Institute *The Ohio State University*

Co-leader with Dr. Linda Allen of a project entitled: Stochastic modeling of infectious diseases

Dynamic models to link molecular perturbations to individual impacts for ecological risk assessment of chemicals April 2016
NIMBioS National Institute for Mathematical and Biological Synthesis *University of Tennessee*

Member of multi-disciplinary group of molecular biologists, systems biologists, DEB and AOP modelers, ecotoxicologists and mathematicians with interest and expertise in developing dynamic, mechanistic models to predict impacts on individuals from high throughput assays used to screen chemicals for potential risk.

Vector Movement and Disease Working Group March 2015, March 2016
NIMBioS National Institute for Mathematical and Biological Synthesis *University of Tennessee*

The goals of this working group are to (i) develop a general understanding of how vector movement is driven by vector population dynamics, characteristics of host plants and landscapes, and community dynamics, and (ii) investigate the implications of vector movement for the dispersal of vector-borne plant pathogens.

Malaria-Leishmania Co-infection Investigative Workshop May 2015
NIMBioS National Institute for Mathematical and Biological Synthesis *University of Tennessee*

The focus of this workshop was to identify challenges for the control of malaria-leishmaniasis co-infections in South Asian and the African continent. The workshop also modeled the complexity involved in the propagation of these co-infections in resource limited regions

Woodstoich August 2014
5 days of peace and stoichiometry *Sydney, Australia*

A workshop on ecological stoichiometry and the related framework nutritional geometry. I participated on a team project on exploring connections between ecological stoichiometry and rapid evolution. Travel support awarded by NSF.

SELECTED MATH OUTREACH

Society of Mathematical Biology Early Career Workshop and Mentor 2022-2024
Workshop speaker, panel moderator, early career mentor

Talk: Thriving your way through Graduate School given in 2025 Edmonton Alberta, 2024 Seoul Korea, and 2023 Columbus Ohio
Talk: Navigating the early years: surviving the post doc years given in 2022 Heidelberg, Germany

***Association for Women in Mathematics (AWM)* student chapter, faculty mentor** 2019-2025
Texas Tech University

Main faculty mentor for the AWM Raiders, a local chapter of the AWM.

Enhancing Diversity in Graduate Education (EDGE) Program Instructor Summer 2018
Texas Tech University

Linear Algebra Instructor for young women preparing for graduate school in Mathematics

Emmy Noether High School Mathematics Days May 2017-2025
Texas Tech University, Department of Mathematics and Statistics

Annually participate in organizing and conducting educational workshops for high school girls and lead a collaborative math-a-thon