Quinn A. Morris

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Education

Ph.D., Computational Mathematics — aug. 2017
University of North Carolina at Greensboro, Greensboro, NC

M.A., Mathematics — may 2012
Wake Forest University, Winston-Salem, NC

B.S., Mathematics — may 2010
Wake Forest University, Winston-Salem, NC

Academic Appointments

Appalachian State University
Department of Mathematical Sciences
Associate Professor — july 2024 - present
Assistant Professor — aug. 2018 - jun. 2024

Math & Science Education Center
Faculty Affiliate — aug. 2021 - present

Swarthmore College
Department of Mathematics & Statistics
Visiting Assistant Professor — aug. 2017-july 2018

Administrative Appointments

Graduate Program Director — jul. 2023 - present
Department of Mathematical Sciences
Appalachian State University, Boone, NC
- *Developed graduate certificate to address NC Community College workforce needs.*
- *Increased online asynchronous graduate offerings to support growing distance enrollment.*
- *Improved applicant experience collaboratively with Graduate School and Admissions.*

Professional & Leadership Development

CIMER Mentor Training Program — may 2025
Appalachian State University Office of Research & Innovation, Cratis D. Williams School of Graduate Studies & Office of Student Research

Appalachian Leadership Development Program — 2024-2025
Appalachian State University Office of the Chancellor

PREPARE, Appalachian State University Office of Research & Innovation 2018-2019
Preparation for Appalachian Research Experiences

Project NExT Fellowship, MAA — 2017-2018
Blue '17 Cohort

University Service

Graduate Academic Polices & Procedures Committee, Member — 2024-present
Curriculum Subcommittee, Member — 2024-present

Appalachian State Student Media Advisory Board, Member — 2022-2024

Provost's Spring 2021 COVID-19 Planning Committee, Member — 2020

College Service	**CAS NTT Teaching Excellence Award Committee**, Member	2022
Departmental Service	**Tenure-Track Search Committees**	
	Chair	2024-2025
	Member	2023-2024
	Member	2020-2021
	Member	2019-2020
	Web & Social Media Committee, Member	2021-PRESENT
	Department Chair Search Committee, Member	2022-2023
	Major Assessment Objectives Committee, Member	2021-2023
	Departmental Personnel Committee, Member	2019-2021
	Colloquium Committee	
	Co-chair	2023-2024
	Co-chair	2018-2021
	Departmental Curriculum Committee, Member	2018-2019
Media Appearances	"Today is National Pi Day", *The Local Vibe*, Triad CW.	MAR. 2023
	"App State math professor celebrates Pi Day", *The Local Vibe*, Triad CW.	MAR. 2022

Research Interests **Partial Differential Equations, Computational Mathematics, Mathematical Ecology.**

Publications

[1] N. Mavinga, **Q. Morris**, & S. Robinson. (2023). Fucik Spectrum with weights and existence of solutions for nonlinear elliptic equations with nonlinear boundary conditions. *Electron. J. Differential Equations.* Special Issue 02 (2023): 209–230

[2] T. Lewis, **Q. Morris**, Y. Zhang. (2022). Convergence, stability analysis, and solvers for approximating sublinear positone and semipositone boundary value problems using finite difference methods. *J. Comput. Appl. Math.* 404:113880.

[3] **Q. Morris**, J. Nash, & C. Payne. (2020). Analysis of steady states for classes of reaction-diffusion equations with hump-shaped density dependent dispersal on the boundary. *Involve.* 13(1):9–19.

[4] N. Fonseka, J. Goddard II, **Q. Morris**, R. Shivaji, & B. Son. (2020). On the effects of the exterior matrix hostility and a U-shaped density dependent dispersal on a diffusive logistic growth model. *Discrete Contin. Dyn. Syst. Ser. S.* 13(12):3401–3415.

[5] J. Goddard II, **Q. Morris**, C. Payne, & R. Shivaji. (2019). A diffusive logistic equation with U-shaped density dependent dispersal on the boundary. *Topol. Methods Nonlinear Anal.* 53(1): 335–349.

[6] J. Goddard II, **Q. Morris**, S. Robinson, & R. Shivaji. (2018). An exact bifurcation diagram for a steady state reaction diffusion equation arising in population dynamics. *Bound. Value Probl.* 2018(1): 1–17.

[7] **Q. Morris,** R. Shivaji, & I. Sim. (2018). Existence of positive radial solutions for a superlinear semipositone p-Laplacian problem on the exterior of a ball. *Proc. Roy. Soc. Edinburgh Sec. A.* 148(2):409–428.

[8] J. Goddard II, **Q. Morris**, R. Shivaji, & B. Son. (2018). Bifurcation curves for some singular and nonsingular problems with nonlinear boundary conditions. *Electron. J. Differential Equations.* 2018(26):1–12.

[9] R. Dhanya, **Q. Morris**, & R. Shivaji (2016). Existence of positive radial solutions for superlinear, semipositone problems on the exterior of a ball. *J. Math. Anal. Appl.* 434(2):1533–1548.

[10] **Q. Morris** & S. Robinson. (2013). A Landesman-Lazer condition for the boundary-value problem $-u'' = au^+ + bu^- + g(u)$ with periodic boundary conditions. *Ninth MSU-UAB Conference on Differential Equations and Computational Simulations. Electro. J. Differential Equations Conf.*, Conference 20:103–117.

Invited Conference Talks

Joint Mathematics Meetings JAN. 2024
AMS-SLMath Special Session on Recent Trends in Nonlinear Boundary Value Problems

AIMS Conference on Dynam. Syst., Diff. Equations, and Appl. JUN. 2023
Special Session on Recent Advancements in the Numerical Analysis of Nonlinear Partial Differential Equations

Joint Mathematics Meetings JAN. 2023
Special Session on Advances in Nonlinear Boundary Value Problems

AIMS Conference on Dynam. Syst., Diff. Equations, and Appl. JULY 2020
Advances in the Theory & Application of Reaction Diffusion Equations
(Cancelled due to COVID-19.)

AMS Spring Southeastern Sectional Meeting MAR. 2019
Special Session on Nonlinear Reaction-Diffusion Equations & Their Applications

Variational & Topological Methods JUNE 2018
Theory, Applications, Numerical Simulations & Open Problems

Joint Mathematics Meetings JAN. 2018
Special Session on Mathematical Modeling, Analysis and Applications in Population Biology

AMS Fall Eastern Sectional Meeting SEPT. 2017
Special Session on Nonlinear Dispersive Partial Differential Equations

AMS Fall Southeastern Sectional Meeting NOV. 2016
Special Session on Nonlinear Boundary Value Problems

AIMS Conference on Dynam. Syst., Differential Equations, and Appl. JULY 2016
Special Session on Advances in Theory & Application of Reaction Diffusion Models

	Joint Mathematics Meetings Special Session on Advances in the Theory & Application of Reaction Diffusion Models	JAN. 2016
	AMS Western Sectional Meeting Special Session on Nonlinear PDE and Variational Methods	APR. 2015
CONTRIBUTED CONFERENCE TALKS	**AMS Spring Eastern Sectional Meeting**	MAY 2017
	Joint Mathematics Meetings	JAN. 2017
	Southeastern Atlantic Regional Conference on Differential Equations	NOV. 2016
	Intl. Symposium on Biomathematics and Ecology Education Research	OCT. 2016
	Southeastern Atlantic Regional Conference on Differential Equations	OCT. 2015
	Triangle Area Graduate Mathematics Conference	MAR. 2015
	MSU Conference on Differential Equations & Comp. Simulations	OCT. 2014
	MAA Southeastern Sectional Meeting	MAR. 2013
COLLOQUIUM & SEMINAR TALKS	**Kristu Jayanti College**, International Lecture Series	MAR. 2024
	Wake Forest University, Analysis Seminar	OCT. 2023
	Appalachian State University, Departmental Colloquium	AUG. 2023
	Western Carolina University, Departmental Colloquium	MAR. 2021
	Wake Forest University, Departmental Colloquium	SEPT. 2020
	Moravian College REU in Experimental Mathematics, Seminar	JUN. 2020
	University of Wisconsin - Whitewater, Departmental Colloquium	NOV. 2019
	Roanoke College, MCSP Conversation Series	OCT. 2019
	Appalachian State University, Departmental Colloquium	FEB. 2018
	Virginia Military Institute, Departmental Colloquium	FEB. 2018
	Drexel University, PDE & Applied Math Seminar	NOV. 2017
	Ohio University, Departmental Colloquium	MAR. 2017
	Stephen F. Austin State University, Departmental Colloquium	FEB. 2017
	Swarthmore College, Departmental Colloquium	FEB. 2017
	Kutztown University, Departmental Colloquium	FEB. 2017
	Spelman College, Departmental Colloquium	OCT. 2016
	UNC-Greensboro, REU in Mathematical Biology	JUL. 2016
	UNC-Greensboro, Applied Math Seminar	MAR. 2015
	Wake Forest University, Departmental Colloquium	OCT. 2014

Professional Development Organization

Co-organizer (with B. Long) of the *Asked and Answered: Dialogues on Advocating for Students of Color in Mathematics* Book Club through the Appalachian State University Math & Science Education Center in Fall 2021.

Organizer of the MAA panel session "Leveraging Social Media for the Greater Good of Mathematics" at the 2020 Joint Mathematics Meetings.

Co-organizer (with B. Long) of the *Mathematics for Human Flourishing* Book Club through the Appalachian State University Math & Science Education Center in Fall 2020.

Co-presenter (with B. Smith) of "The Mathematics of Social Justice Through Equitable Practice", a two-day professional development session at 2019 SEMathSummit.

Co-organizer (with A. Akers, K. Kosai, and M. Toledo-Gonzalez) of the special session "Technological Perspectives: Re-evaluating Teaching and Learning in the Digital Age" at the 2018 Joint Mathematics Meetings.

Research Conference Organization

Scientific Committee for the conference "International Conference on Differential Equations: Theory & Applications" held at Florida Gulf Coast University, May 31 - June 2, 2024.

Local Organizing Committee for the "MAA North Carolina State Dinner" held at Appalachian State University, November 2, 2023.

Co-organizer (with J. Goddard II and N. Mavinga) of the AMS special session "Future Directions in Theory & Applications of Nonlinear Reaction-Diffusion Equations" at the 2020 Joint Mathematics Meetings.

Co-organizer (with J. Goddard II, N. Mavinga, and R. Shivaji) of the special session "Nonlinear Reaction-Diffusion Equations and Their Applications" at the Spring 2019 AMS Southeastern Sectional Meeting.

Co-organizer (with N. Mavinga) of the special session "Nonlinear Reaction-Diffusion Equations and Their Applications" at the Spring 2018 AMS Eastern Sectional Meeting.

External Grants

American Mathematical Society - Simons Foundation (Not funded) 2022-2025
Research Enhancement Grants for Primarily Undergraduate Institution (PUI) Faculty ($8,997)
Computational Methods for Approximating Positive Solutions to Nonlinear PDEs

National Science Foundation (Not funded) 2022-2025
Research Experiences for Undergraduates (REU) ($356,162)
REU Site: Undergraduate Research on Numerical and Computational Methods in Applied Mathematics

National Science Foundation (Not funded) 2021-2024
Research Experiences for Undergraduates (REU) ($361,001)
REU Site: Undergraduate Research on Numerical and Computational Methods in Applied Mathematics

Center for Undergraduate Research in Mathematics (Funded) 2019-2020
Minigrant ($15,700)
Modeling density-dependent dispersal within a patch and on the boundary

Internal Grants

Appalachian State University (Funded) 2021-2022
University Academic Assessment Council Assessment Grant ($2,000)
Calculus I Common Assessment Design

Appalachian State University (Funded) 2020-2021
COVID-19 Interdisciplinary Research Cluster ($5,750)
Modeling the Spread of COVID-19 at a University Situated in a Seasonally Variable Community.

Swarthmore College (Funded) 2017-2018
Faculty Research Support Award ($1725)

Teaching Experience

Appalachian State University, Boone, NC 2018-present
Undergraduate Courses Taught: *Calculus I, Calculus II, Introduction to Proofs, Linear Algebra, Differential Equations, Real Analysis, Junior Honors Seminar, Numerical Methods, Advanced Differential Equations*
Graduate Courses Taught: *Real Analysis I, Real Analysis II, History of Mathematics, Directed Research*

Swarthmore College, Swarthmore, PA 2017-2018
Courses Taught: *Calculus II, Multivariable Calculus, Differential Equations*

University of North Carolina at Greensboro, Greensboro, NC 2012-2017
Courses Taught: *Contemporary Topics in Mathematics, College Algebra, Precalculus I, Business Calculus, Calculus I, Ordinary Differential Equations*

Software Proficiencies

MATLAB, Python, R, Mathematica, LaTeX, HTML/CSS.

Professional Affiliations

American Mathematical Society 2010-present
Mathematical Association of America 2017-present