

QUINN A. MORRIS

121 Bodenheimer Drive
Boone, NC 28608

828-262-2365
morrisqa@appstate.edu

ACADEMIC APPOINTMENTS	Assistant Professor Department of Mathematical Sciences Appalachian State University, Boone, NC Faculty Affiliate Math & Science Education Center Appalachian State University, Boone, NC Visiting Assistant Professor Department of Mathematics & Statistics Swarthmore College, Swarthmore, PA	AUG. 2018 – PRESENT AUG. 2021 – PRESENT AUG. 2017–JULY 2018
EDUCATION	Ph.D., Computational Mathematics Department of Mathematics & Statistics University of North Carolina at Greensboro, Greensboro, NC Advisor: Professor R. Shivaji M.A., Mathematics Department of Mathematics & Statistics Wake Forest University, Winston-Salem, NC Advisor: Professor Stephen Robinson B.S., Mathematics Wake Forest University, Winston-Salem, NC	AUG. 2017 MAY 2012 MAY 2010
RESEARCH INTERESTS	Partial Differential Equations, Computational Mathematics, Mathematical Ecology.	
JOURNAL PUBLICATIONS IN PROGRESS	<ul style="list-style-type: none">[1] T. Lewis, Q. Morris, A. Munthunyake. (2022). Computational generation of approximate bifurcation diagrams for semipositone problems on a disk. <i>In preparation</i>.[2] C. Carpenter, T. Scott, G. Stern, B. Long, Q. Morris, D. Crocker. (2022). Humanizing mathematics through interprofessional book clubs. <i>In preparation</i>.	
REFEREED JOURNAL PUBLICATIONS	<ul style="list-style-type: none">[1] N. Mavinga, Q. Morris, & S. Robinson. (2022). Fucik Spectrum with weights and existence of solutions for nonlinear elliptic equations with nonlinear boundary conditions. <i>To appear in Electron. J. Differential Equations</i>.[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. <i>J. Comput. Appl. Math.</i> 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. <i>Involve</i>. 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.

FELLOWSHIPS
& OTHER
PROGRAMS

PREPARE , Appalachian State University Office of Research Preparation for Appalachian Research Experiences	2018–2019
Project NExT Fellowship , MAA Blue '17 Cohort	2017–2018

INVITED
CONFERENCE
TALKS

Joint Mathematics Meetings Special Session on Advances in Nonlinear Boundary Value Problems	JAN. 2023
AIMS Conference on Dynam. Syst., Differential Equations, and Appl. Advances in the Theory & Application of Reaction Diffusion Equations (Cancelled due to COVID-19.)	JULY 2020
AMS Spring Southeastern Sectional Meeting Special Session on Nonlinear Reaction-Diffusion Equations & Their Applications	MAR. 2019
Variational & Topological Methods Theory, Applications, Numerical Simulations & Open Problems	JUNE 2018
Joint Mathematics Meetings Special Session on Mathematical Modeling, Analysis and Applications in Population Biology	JAN. 2018

	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	JAN. 2016
	Special Session on Advances in the Theory & Application of Reaction Diffusion Models	
	AMS Western Sectional Meeting	APR. 2015
	Special Session on Nonlinear PDE and Variational Methods	
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	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	<p>Co-organizer (with B. Long) of the <i>Asked and Answered: Dialogues on Advocating for Students of Color in Mathematics</i> Book Club through the Appalachian State University Math & Science Education Center in Fall 2021.</p> <p>Organizer of the MAA panel session “Leveraging Social Media for the Greater Good of Mathematics” at the 2020 Joint Mathematics Meetings.</p> <p>Co-organizer (with B. Long) of the <i>Mathematics for Human Flourishing</i> Book Club through the Appalachian State University Math & Science Education Center in Fall 2020.</p> <p>Co-presenter (with B. Smith) of “The Mathematics of Social Justice Through Equitable Practice”, a two-day professional development session at 2019 SEMathSummit.</p> <p>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.</p>	
RESEARCH CONFERENCE ORGANIZATION	<p>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.</p> <p>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.</p> <p>Co-organizer (with N. Mavinga) of the special session “Nonlinear Reaction-Diffusion Equations and Their Applications” at the Spring 2018 AMS Eastern Sectional Meeting.</p>	
EXTERNAL GRANTS	<p>National Science Foundation (Not funded)</p> <p>Research Experiences for Undergraduates (REU) (\$361,001)</p> <p><i>REU Site: Undergraduate Research on Numerical and Computational Methods in Applied Mathematics</i></p> <p>Center for Undergraduate Research in Mathematics (Awarded)</p> <p>Minigrant (\$15,700)</p> <p><i>Modeling density-dependent dispersal within a patch and on the boundary</i></p>	<p>2021–2024</p> <p>2019–2020</p>
INTERNAL GRANTS	<p>Appalachian State University (Awarded)</p> <p>University Academic Assessment Council Assessment Grant (\$2,000)</p> <p><i>Calculus I Common Assessment Design</i></p>	2021–2022

	Appalachian State University (Awarded)	2020–2021
	COVID-19 Interdisciplinary Research Cluster (\$5,750)	
	<i>Modeling the Spread of COVID-19 at a University Situated in a Seasonally Variable Community.</i>	
	Swarthmore College (Awarded)	2017–2018
	Faculty Research Support Award (\$1725)	
TEACHING EXPERIENCE	Appalachian State University, Boone, NC	2018–PRESENT
	Undergraduate Courses Taught: <i>Calculus I, Calculus II, Introduction to Proofs, Linear Algebra, Differential Equations, Real Analysis, Junior Honors Seminar, Numerical Methods</i>	
	Graduate Courses Taught: <i>Real Analysis I, Real Analysis II</i>	
	Swarthmore College, Swarthmore, PA	2017–2018
	Courses Taught: <i>Calculus II, Multivariable Calculus, Differential Equations</i>	
	University of North Carolina at Greensboro, Greensboro, NC	2012–2017
	Courses Taught: <i>Contemporary Topics in Mathematics, College Algebra, Precalculus I, Business Calculus, Calculus I, Ordinary Differential Equations</i>	
UNIVERSITY SERVICE	Provost's Spring 2021 COVID-19 Planning Committee, Member	2020
DEPARTMENTAL SERVICE	Web & Social Media Committee, Member	2021–present
	Assessment Objectives Committee, Member	2021–present
	Tenure-Track Search Committee, Member	2020–2021
	Departmental Personnel Committee, Member	2019–2021
	Colloquium Committee, Co-chair	2018–2021
	Tenure-Track Search Committee, Member	2019–2020
	Curriculum Committee, Member	2018–2019
SOFTWARE PROFICIENCIES	MATLAB, Python, R, Mathematica, \LaTeX, HTML/CSS.	
PROFESSIONAL AFFILIATIONS	American Mathematical Society	2010–PRESENT
	Mathematical Association of America	2017–PRESENT