THE UNIVERSITY of NORTH CAROLINA
GREENSBORO

Applied Mathematics at UNCG

in the

Department of Mathematics & Statistics

http://www.uncg.edu/mat/applied

Pattern formation in fish is governed by processes which can be described using bifurcation theory.

Applied mathematics is a discipline that develops mathematical techniques and concepts that can be used to understanding the natural and social sciences. Researchers at UNCG carry out research in differential equations, control theory, game theory, and mathematical biology. Areas of application include modeling of reaction-diffusion processes, stealing behaviors, and the behavior of random networks. Faculty are actively involved in organizing conferences in specific research areas as well as annual conferences targeted only for students. Most faculty in this group have also worked with undergraduate students. The work resulted in journal publications as well as numerous conference presentations.

Reaction-diffusion equations can be used to model many problems in combustion theory.

Applied Math Programs and Activities at UNCG

- PhD in Computational Mathematics (Graduate Teaching Assistantships available at $18,000 + tuition waivers)
- M.A. in Mathematics
- B.A. or B.S. in Mathematics
- NSF-Funded Math Ecology Project

Meet the Applied Math Faculty

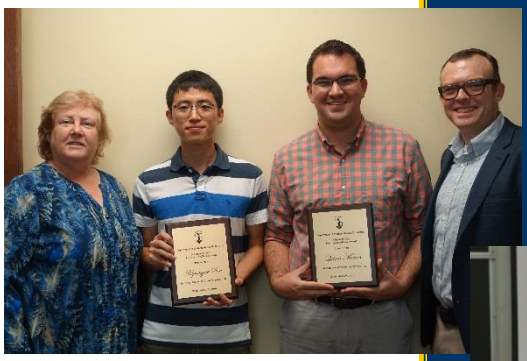
	Dr. Maya Chhetri Professor Email: maya@uncg.edu Webpage:www.uncg.edu/mat/faculty/m_chhetr Office: Petty 125	Dr. Chhetri earned a Ph.D. in 1999 from Mississippi State University, and she joined the UNCG faculty in 1999. Dr. Chhetri's research interest is in studying the solutions of nonlinear elliptic PDEs and ODEs. In particular, she studies the questions of existence, uniqueness and multiplicity of solutions of nonlinear boundary value problems in ODEs and elliptic PDEs. She is also interested in the mathematical analysis of single-species or multi-species population dynamics model with diffusion and harvesting.
	Dr. Richard Fabiano Professor Email: rhfabian@uncg.edu Webpage: www.uncg.edu/~rhfabian Office: Petty 140	Dr. Fabiano earned his Ph.D. in 1986 from Virginia Polytechnic Institute and he joined the UNCG faculty in 1996. He is interested in questions related to modeling, control, and approximation of infinite dimensional linear systems. In particular, he studies systems governed by either delay- differential equations or partial differential equations which arise in modeling flexible structures. He uses functional analysis, differential equations, and control theory as mathematical tools for his research.
	Dr. Thomas Lewis Assistant Professor Email: tllewis3@uncg.edu Webpage:www.uncg.edu/mat/faculty/tllewis3 Office: Petty 141	Dr. Lewis earned his Ph.D. in 2013 from the University of Tennessee in Knoxville, and he joined the faculty at UCNG the same year. Dr. Lewis is interested in the development of numerical methods for approximating partial differential equations. In particular, he is concerned with the development, implementation, and analysis of finite difference methods, finite element methods, and discontinuous Galerkin methods, finite element methods, and discontinuous Galerkin methods for approximating viscosity solutions of fully nonlinear PDEs. Nonlinear PDEs arise is stochastic optimal control, optimal mass transport, and materials science. His research has focused primarily on the Hamilton-Jacobi-Bellman equation, the Monge-Ampére equation, and the Cahn-Hilliard equation.

	Dr. Ratnasingham Shivaji Helen Barton Excellence Professor and Head Email: r_shivaj@uncg.edu Webpage: www.uncg.edu/~r_shivaj Office: Petty 118	Dr. Shivaji joined the University of North Carolina at Greensboro (UNCG) as H. Barton Excellence Professor and Head of the Department of Mathematics and Statistics in July 2011. Prior to joining UNCG, he served for twenty-six years at Mississippi State University (MSU), where he was honored as a W.L. Giles Distinguished Professor. He received his Ph.D in Mathematics from Heriot-Watt University in Edinburgh, Scotland in 1981 and his B.S (first class honors) from the University of Sri Lanka in 1977. Shivaji's area of specialization is partial differential equations, and in particular, nonlinear elliptic boundary value problems. His research work has applications in combustion theory, chemical reactor theory, and population dynamics, and has been funded by the National Science Foundation and the Simon's Foundation. Currently, he is serving as the PI on an NSF Math Ecology grant. He has authored over one hundred and thirty research papers. He is a member of the Editorial Board of several mathematics journals. To date, he has directed one postdoctoral student, fifteen Ph.D. students (11 graduates, 4 current), fourteen M.S. graduates and nineteen undergraduate research students (18 graduates, 1 current).

Meet the Additional Applied Math Faculty

		
Dr. Igor Erovenko Associate Professor Email: igor@uncg.edu Webpage:www.uncg.edu/~i_eroven/ Office: Petty 127	Dr. Jonathan Rowell Assistant Professor Email: jtrowell@uncg.edu Webpage:www.uncg.edu/mat/faculty/jtrowell Office: Petty 147	Dr. Jan Rychtář Professor Email: j_rychta@uncg.edu Webpage:www.uncg.edu/~j_rychta Office: Petty 130

PhD Students in Applied Mathematics



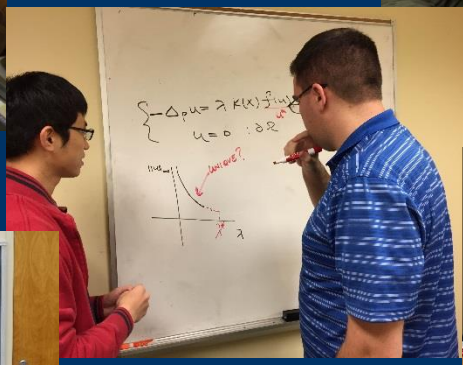
Byungjae Son and Quinn Morris were chosen recipients of our inaugural Department of Mathematics and Statistics Graduate Student Excellence Awards in Research and Teaching, respectively.

Ph.D. student Quinn Morris teaching class.

Ph.D. graduate Abraham Abebe receives his diploma from his advisor, Professor Maya Chhetri.

Byungjae Son, Quinn Morris, and Catherine Payne with Professor Shivaji.

Ph.D. student Catherine Payne with advisor, Professor Rich Fabiano.



Ph.D. students Quinn Morris and Byungjae Son working on an infinite positone problem.

Ph.D. student Nalin Fonseka, with his advisor, Professor Shivaji.

Ph.D. student, Byungjae Son, teaching class.