

Jerome Goddard II

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Auburn University Montgomery
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Education

Ph.D. in Mathematical Sciences

August 2011

Mississippi State University

- Concentration: Differential Equations (Nonlinear Boundary Value Problems)
- Major Advisor: Prof. Ratnasingham Shivaji
- Dissertation: "Classes of reaction diffusion equations with nonlinear boundary conditions"

Master of Science in Mathematics

May 2006

Mississippi College

- Graduated *Summa Cum Laude*
- Major Advisor: Prof. John Travis
- Thesis: "Mathematical estimation of potential risk of Lyme disease in Mississippi"

Bachelor of Science in Mathematics

May 2004

Mississippi College

- Graduated *Summa Cum Laude*
- Minor: Computer Science

Academic Positions

Professor of Mathematics

2021 - present

Auburn University Montgomery

Distinguished Research Associate Professor of Mathematics

2019 - 2022

Auburn University Montgomery

Assistant to the Chair (Mathematics)

2018 - present

Auburn University Montgomery

Associate Professor of Mathematics (with Tenure)

2015 - 2019

Auburn University Montgomery

Director of Mathematical Studies

2015 - 2018

Auburn University Montgomery

Assistant Professor of Mathematics

2011 - 2015

Auburn University Montgomery

Research Interests

- Partial differential equations
- Reaction diffusion equations
- Nonlinear boundary value problems with nonlinear boundary conditions
- Mathematical biology-especially population modeling

Awards and Honors

- **2024 Distinguished Alumnus for the Dept. of Mathematics at Mississippi College** 2024
- **College of Sciences Research Award (Post-Tenure) (\$500)** 2023
- **Distinguished Research Associate Professor Award (2019 – 2022, \$3,000), AUM** 2019
- **2017 Outstanding Faculty Award, Dept. of Math & Comp. Sci., AUM** 2018
- Excellence in Service to Students Award, the National Society of Leadership and Success (Sigma Alpha Pi), *AUM* 2014
- **School of Sciences Junior Faculty award (2012 – 2013, \$1,000), AUM** 2013
- 2011 Graduate Doctoral Student Research award, *MSU* 2011
- Graduate student travel award, for travel to 2011 AMS JMM (\$1,000), *MSU* 2010
- Outstanding Graduate Teaching award, Dept. of Mathematics and Statistics, *MSU* 2010
- Nominated for Donald Zacharias Teaching Assistant of the Year award, *MSU* 2010
- Graduate student travel award, for travel to 2010 AMS JMM (\$1,000), *MSU* 2009
- Outstanding Graduate Teaching award, Dept. of Mathematics and Statistics, *MSU* 2009
- Outstanding Graduate Student award, Dept. of Mathematics and Statistics, *MSU* 2007
- Junior District Award of Merit, Andrew Jackson Council, *Boy Scouts of America* 2007
- Who's Who among American Colleges and Universities, *Mississippi College* 2004
- Alpha Chi, *Mississippi College* 2004
- Secretary, Pi Mu Epsilon, *Mississippi College* 2004
- Burnside Mathematics Scholarship award (\$1,000), *Mississippi College* 2003
- Finalist, Persuasive Speaking Contest, *Hinds Community College* 2002
- Mu Alpha Theta, *Hinds Community College* 2002
- Phi Theta Kappa, *Hinds Community College* 2002
- Eagle Scout, Troop 99, *Boy Scouts of America* 1998

Research Publications

Authored Books:

1. Goddard's Physician's Guide to Arthropods of Medical Importance, Seventh Edition, CRC/Taylor & Francis Group, with Gail Moraru, Spring 2019.

Note: Previous editions of this book are world-renowned and authored by Jerome Goddard (<https://www.crcpress.com/Physicians-Guide-to-Arthropods-of-Medical-Importance-Sixth-Edition/Goddard/p/book/9781439850855>). For this edition, Jerome Goddard has stepped down from the role of author, giving the authorship and responsibility of maintaining and updating this and future editions to Jerome Goddard II and Gail Moraru.

Journal Articles (Peer-Reviewed):

2. "Estimating populations of adult *Ixodes scapularis* in Mississippi using a sequential Bayesian algorithm," with J. Goddard, **Journal of Medical Entomology**, vol. 45, no. 3, 556-562(2008).

- [http://dx.doi.org/10.1603/0022-2585\(2008\)45\[556:EPOAIS\]2.0.CO;2](http://dx.doi.org/10.1603/0022-2585(2008)45[556:EPOAIS]2.0.CO;2)
3. “A double S-shaped bifurcation curve for a reaction-diffusion model with nonlinear boundary conditions,” with E. K. Lee & R. Shivaji, **Boundary Value Problems**, vol. 2010, Article ID: 357542: 23 pages.
<http://dx.doi.org/10.1155/2010/357542>
4. “Diffusive logistic equation with non-linear boundary conditions,” with E. K. Lee & R. Shivaji, **Journal of Mathematical Analysis and Applications**, vol. 375, no. 1, (2011): 365-370.
<http://dx.doi.org/10.1016/j.jmaa.2010.09.057>
5. “Population models with diffusion, strong Allee effect, and nonlinear boundary conditions,” with E. K. Lee & R. Shivaji, **Nonlinear Analysis: Theory, Methods & Applications**, vol. 74, no. 17, (2011): 6202-6208.
<http://dx.doi.org/10.1016/j.na.2011.06.001>
6. “Ecological systems, nonlinear boundary conditions, and Σ -shaped bifurcation curves,” with K. Ashley & V. Sincavage, **Involve: A Journal of Mathematics**, vol. 6, no. 4, (2013): 399-430.
<http://dx.doi.org/10.2140/involve.2013.6.399>
7. “Existence results for classes of infinite semipositone problems,” with E. K. Lee, L. Sankar, & R. Shivaji, **Boundary Value Problems**, vol. 2013, no. 97, 1-9.
<http://dx.doi.org/10.1186/1687-2770-2013-97>
8. “Diffusive logistic equation with constant yield harvesting and negative density dependent emigration on the boundary,” with R. Shivaji, **Journal of Mathematical Analysis and Applications**, vol. 414, no. 2 (2014), 561-573.
<http://dx.doi.org/10.1016/j.jmaa.2014.01.016>
9. “Halo-shaped bifurcation curves in ecological systems,” with R. Shivaji, **Electronic Journal of Differential Equations**, vol. 2014, no. 88 (2014), 1-27.
<http://ejde.math.txstate.edu/Volumes/2014/88/abstr.html>
10. “Diffusion Rates and Dispersal Patterns of Starved Versus Recently Fed Bed Bugs (*Cimex lectularius* L.),” with M. Caprio & J. Goddard, **Insects**, vol. 6, no. 4 (2015), 792-804.
<https://www.mdpi.com/2075-4450/6/4/792>
11. “Biomedical researchers should declare their assumptions (research letter),” with J. Goddard, **Journal of the Mississippi Academy of Sciences**, vol. 60, no. 3 (2015).
<https://msacad.org/wp-content/uploads/2016/01/MAS-July-2015-Number-Vol-60-3a.pdf>
12. “Stability and instability of positive solutions for classes of semilinear elliptic boundary value problems with nonlinear boundary conditions,” with R. Shivaji, **Royal Society of Edinburgh Proceedings A: Mathematics**, vol. 147, no. 5 (2017).
<https://doi.org/10.1017/S0308210516000408>
13. “Bifurcation curves for some singular and nonsingular problems with nonlinear boundary conditions,” with Q. Morris, R. Shivaji, & B. Son, **Electronic Journal of Differential Equations**, vol. 2018, no. 26 (2018), 1-12.
<https://ejde.math.txstate.edu/Volumes/2018/26/abstr.html>
14. “An exact bifurcation diagram for a reaction diffusion equation arising in population dynamics,” with Q. Morris, S. Robinson, & R. Shivaji, **Boundary Value Problems**, vol. 2018, no. 1, (2018), 170.
<https://doi.org/10.1186/s13661-018-1090-z>
15. “A diffusive logistic equation with U-shaped density dependent dispersal on the boundary,” with Q. Morris, C. Payne, & R. Shivaji, **Topological Methods in Nonlinear Analysis**, vol. 53, no. 1, (2019), 335-349.
<https://projecteuclid.org/euclid.tmna/1547434818>
16. “Effects of patch-matrix composition and individual movement response on population persistence at the patch-level,” with J. Cronin & R. Shivaji, **Bulletin of Mathematical Biology**, vol. 81, no. 10, (2019), 3933-3975.
<https://link.springer.com/article/10.1007/s11538-019-00634-9>
17. “Modeling the effects of density dependent emigration, weak Allee effects, and matrix hostility on patch-level population persistence”, with J. T. Cronin, N. Fonseka, R. Shivaji, & B. Son, **Mathematical Biosciences and Engineering**, vol. 17, no. 2, (2019), 1718-1742.
<https://www.aimspress.com/article/10.3934/mbe.2020090/fulltext.html>

18. “On the effects of the exterior matrix hostility and a U-shaped density dependent dispersal on a diffusive logistic growth model,” with N. Fonseca, Q. Morris, R. Shivaji, & B. Son, **Discrete and Continuous Dynamical Systems Series S**, vol. 13, no. 12, (2020), 3401-3415.
<http://www.aims sciences.org/article/doi/10.3934/dcdss.2020245>
19. “Frequency of Occurrence and Population-Dynamic Consequences of Different Forms of Density-Dependent Emigration,” with J. T. Cronin, R. Harmon, & R. Shivaji, **The American Naturalist**, 195:5, (2020), 851-867.
<https://doi.org/10.1086/708156>
20. “Modeling the effects of trait-mediated dispersal on the coexistence of mutualists,” with J. T. Cronin, A. Muthunayake, & R. Shivaji, **Mathematical Biosciences and Engineering**, vol. 17, no. 6, (2020), 7838-7861.
<http://www.aimspress.com/article/10.3934/mbe.2020399>
21. “A diffusive weak Allee effect model with U-shaped density dependent dispersal and hostile matrix effects,” with N. Fonseca, R. Shivaji, & B. Son, **Discrete and Continuous Dynamical Systems Series B**, vol. 26, no. 10 (2021), 5509-5517.
<https://www.aims sciences.org/article/doi/10.3934/dcdsb.2020356>
22. “Modeling effects of matrix heterogeneity on a single species,” with N. Fonseca, A. Henderson, D. Nichols, & R. Shivaji, **Mathematical Biosciences and Engineering**, vol. 19, no. 12 (2022), 13675-13709.
<http://www.aimspress.com/article/doi/10.3934/mbe.2022638>
23. “The diffusive Lotka-Volterra competition model in fragmented landscapes I: Coexistence,” with A. Acharya, B. Bandyopadhyay, J. T. Cronin, A. Muthunayake, & R. Shivaji, **Nonlinear Analysis: Real World Application**, vol. 70, (2023), 103775
<https://www.sciencedirect.com/science/article/pii/S1468121822001584>
24. “Ecological release and patch geometry can cause nonlinear density-area relationships,” with J. T. Cronin & R. Shivaji, **Journal of Theoretical Biology**, vol. 557, no. 21, (2023), 111325.
<https://doi.org/10.1016/j.jtbi.2022.111325>
25. “Density-dependent within-patch movement behavior of two competing species,” with J. T. Cronin, A. Krivchenia, & R. Shivaji, **Ecology and Evolution**, 13, e10753 (2023).
<https://doi.org/10.1002/ece3.10753>
26. “Predator-induced prey dispersal can cause hump-shaped density-area relationships in prey populations,” with J. T. Cronin, A. Muthunayake, J. Quiroa, & R. Shivaji, **Journal of Mathematical Biology**, Vol. 88, no. 20, (2024), 1-31.
<https://doi.org/10.1007/s00285-023-02040-1>
27. “On the effects of density-dependent dispersal on ecological models with logistic and Allee effect type growth terms,” with A. Acharya, N. Fonseca, A. Henderson, & R. Shivaji, **Discrete and Continuous Dynamical Systems: Series B**, Vol. 29, no. 3, (2024), 1501-1524.
<https://www.aims sciences.org//article/doi/10.3934/dcdsb.2023142>
28. “A Σ -shaped bifurcation curve for a class of reaction diffusion equations and an application to an ecological model,” with A. Acharya, J. T. Cronin, N. Fonseca, A. Henderson, V. Munoz, & R. Shivaji, **Numerical Algebra, Control and Optimization**. (2024), 1-17.
<https://www.aims sciences.org//article/doi/10.3934/naco.2024051>
29. “Effects of Predation-Induced Emigration on a Landscape Ecological Model,” with A. Acharya, J. T. Cronin, N. Fonseca, R. Shivaji, & X. Xue, **Axioms** Vol. 14(1), no. 63 (2025), 1-33.
<https://doi.org/10.3390/axioms14010063>
30. “Modeling the effects of trait-mediated dispersal on coexistence of two species: competition and nonconsumptive predator-prey” with A. Acharya, E. Cosgrove, J. T. Cronin, E. Lindsey, A. Muthunayake, & R. Shivaji, **Mathematical Biosciences and Engineering** Vol. 23, no. 5, (2026), 1461-1500
<https://www.aimspress.com/article/doi/10.3934/mbe.2026054>
31. “Functional trait differences between *Tribolium* species shape responses to the shared pathogen, *Beauveria bassiana*,” with A. Krivchenia, J. T. Cronin, & R. Shivaji, **Journal of Invertebrate Pathology** Vol. 218, no. 108687, (2026), 1-10.
<https://www.sciencedirect.com/science/article/pii/S0022201126001631>

32. “Effects of predator-induced emigration on a weak Allee effect growth model,” with M. Cook, J. T. Cronin, N. Fonseka, R. Shivaji, & X. Xue, **Submitted to DCDS-B**.
33. “Exact bifurcation diagrams for a nonlinear eigenvalue problem with parameter-dependent reaction and boundary conditions,” with M. Cook, T. Lewis, R. Shivaji, & X. Xue, **Submitted to EJDE**.
34. “On the effects of density-dependent emigration on landscape models with strong-Allee growth terms,” with J. T. Cronin, I. Hammond, R. Patel, & R. Shivaji, **Submitted to DCDS-B**.
35. “Inter- and intraspecific density effects on emigration and long-term stability for two competing species of *Tribolium*” with A. Krivchenia, J. T. Cronin, & R. Shivaji, **In Preparation**.

Conference Proceedings (Peer-Reviewed):

36. “Relative risk of acquiring Black-legged ticks, *Ixodes scapularis*, in Central Mississippi,” with Jerome Goddard, **Midsouth Entomologist**, Vol. 3 (2010): 97-100.
http://www.midsouthentomologist.org.msstate.edu/Volume3/Vol3_2_html_files/Vol3_2_004.html
37. “Population models with nonlinear boundary conditions,” with Eun Kyoung Lee & R. Shivaji, **Electronic Journal of Differential Equations**, Conf. 19 (2010): 135-149.
<http://ejde.math.txstate.edu/conf-proc/19/g2/abstr.html>
38. “A population model with nonlinear boundary conditions and constant yield harvesting,” with R. Shivaji, **Proceedings of Dynamic Systems and Applications**, vol. 6 (2012): 150-157.
<http://www.dynamicpublishers.com/dynamic.htm>

Technical Reports (Not Peer-Reviewed):

39. “Stability of Extending Films,” with Olus, N. Boratav, Li Taebeom Kim, Jill Klentzman, Dias Kurmashev, Mauricio Osorio, & Gregory Richards. **IMA Mathematical Modeling in Industry Workshop XII**, (2008): 1-26.
<http://citeseer.uark.edu:8080/citeseerx/viewdoc/summary;jsessionid=92C034DAB79E1D157051B2CC4BB906D9?doi=10.1.1.140.6689>
40. “Proportion of Adult Lone Star ticks (*Amblyomma americanum*) questing in a tick population,” with Jerome Goddard & Xueyan Wang, **Journal of Mississippi Academy of Sciences**, Vol. 54 No 3-4 (2009): 206-209.
<https://pdfs.semanticscholar.org/0c94/404adbd6f08914a666e7ad0fd8c7a6150f3a.pdf#page=20>

In Preparation:

41. “Analysis of steady states for classes of reaction-diffusion equations with U-shaped density dependent dispersal on the boundary,” with J. Price & R. Shivaji, in preparation.
42. “Landscape level modeling of habitat fragmentation via reaction diffusion equations,” with A. Barnett, D. Harrell, & R. Shivaji, in preparation.
43. “Movement behavior of *Ischnodemus falcus* (Say) (Hemiptera: Blissidae) in fragmented salt-marsh habitats,” with R. R. Harman, R. Shivaji, and J. T. Cronin, in preparation.
44. “The diffusive Lotka-Volterra competition model in fragmented landscapes II: Competitive reversal,” with A. Acharya, J. T. Cronin, & R. Shivaji, in preparation.
45. “When is competition better than having the whole patch to yourself?”, with Z. Blume-Babcock, J. T. Cronin, S. Fields, J. Mills, & R. Shivaji, in preparation.
46. “Harvesting-mediated emigration can affect community structure in a competitive system,” with J. T. Cronin, H. Abusammour, J. Garrett, S. Humphries, R. Shivaji.
47. “Effects of trait-mediated dispersal on a weakly coupled competitive system,” with A. Acharya, S. Bandyopadhyay, A. Muthunayake, & R. Shivaji.

Grants

External Funding:

* Continuously funded by NSF since 2015 (4 collaborative grants): \$2,180,550 (Goddard’s portion: \$464,462)

- NSF Mathematical Biology/Population and Community Ecology Grant. “Collaborative Research: Mathematical and experimental analysis of the interaction between competitors and a shared predator - from patches to landscapes” (DMS- 2246725). Principal Investigator (Co-PIs: James T. Cronin, LSU and R. Shivaji, UNCG) April 2023
Awarded: \$715,710 (Goddard’s portion: \$155,710), 8/1/2023 – 7/31/2027 (expected)
- NSF Mathematical Biology Grant. “Collaborative Research: Mathematical and Experimental Analysis of Competitive and Predator-Prey Models: Conditional Dispersal from Patches to Landscapes” (DMS-2150946). Principal Investigator (Co-PIs: James T. Cronin, LSU and R. Shivaji, UNCG) Aug 2022
Awarded: \$200,000 (Goddard’s portion: \$50,000), 8/1/2022 – 7/31/2024
- NSF Mathematical Biology/Population and Community Ecology Grant. “Collaborative Research: Mathematical and Experimental Analysis of Competitive Ecological Models: Patches, Landscapes, and Conditional Dispersal on the Boundary” (DMS-1853372). Principal Investigator (Co-PIs: James T. Cronin, LSU and R. Shivaji, UNCG) Aug 2019
Awarded: \$670,000 (Goddard’s portion: \$120,930), 8/1/2019 – 7/31/2023
- NSF Mathematical Biology Grant. “Collaborative Research: Mathematical & Experimental Analysis of Ecological Models: Patches, Landscapes, and Conditional Dispersal on the Boundary” (DMS-1516560). Principal Investigator (Co-PIs: James T. Cronin, LSU and R. Shivaji, UNCG) Aug 2015
Awarded: \$594,840 (Goddard’s portion: \$137,822), 8/15/2015 – 7/31/2019
- NSF Grant (DMS-1438811) as Co-PI in the Applied Mathematics Program, entitled “The Tenth Mississippi State Conference on Differential Equations and Computational Simulations” April 2014
Awarded: \$35,000
- NSF Grant (DMS-1237586) as Co-PI in the Applied Mathematics Program, entitled “The Ninth Mississippi State - UAB Conference on Differential Equations and Computational Simulations” July 2012
Awarded: \$35,000

Internal Grant Awards:

- AUM Research Grant-in-Aid: “Finding Allee: Uncovering patterns in ecological population time series using machine learning,” Nov 2021
Awarded: \$7,500, 12/1/21 – 11/30/23
- AUM School of Sciences Supplemental Travel Grant to attend the *2015 Joint Mathematics Meetings* Jan 2015
Awarded: \$1,000
- AUM Faculty Research Conference Fund Travel Grant to attend the *2015 Joint Mathematics Meetings* Jan 2015
Awarded: \$252
- AUM School of Sciences Supplemental Travel Grant to attend the *2014 Joint Mathematics Meetings* Jan 2014
Awarded: \$1,000
- AUM Lecturer Program Grant to support the 2013 SK Day keynote speaker’s travel expenses (Dr. Katie Johnson, Florida Gulf Coast University) Nov 2013
Awarded: \$804
- AUM Faculty Research Conference Fund Travel Grant to attend the *2013 Joint* Jan 2013

*Mathematics Meetings***Awarded: \$290**

- AUM School of Sciences Supplemental Travel Grant to attend the *2013 Joint Mathematics Meetings* Jan 2013
Awarded: \$1,000
- AUM Faculty Research Conference Fund Travel Grant to attend the *2012 AIMS 9th International Conference on Dynamical Systems and Differential Equations* May 2012
Awarded: \$290
- AUM School of Sciences Supplemental Travel Grant to attend the *2012 AIMS 9th International Conference on Dynamical Systems and Differential Equations* April 2012
Awarded: \$1,000
- AUM Research Grant-in-Aid proposal, “Population models with diffusion, harvesting, and nonlinear boundary conditions” Jan 2012
Awarded: \$1,100
- AUM Lecturer Program Grant to bring Prof. R. Shivaji to campus to present a lecture, Oct 2011
Awarded: \$500

Ph.D. Student Mentorship

For the following students, I co-directed their dissertation with Prof. R. Shivaji at UNCG, as a significant portion of their dissertations derived from my three NSF grants on habitat fragmentation and served as a member of their Ph.D. Committee:

- **Melissa Glass**, University of North Carolina Greensboro 2024 – present
Dissertation: TBD
Current position: Fifth year PhD student at UNCG.
<https://mathstats.uncg.edu/people/graduate-students/>
- **Xiaohuan “Max” Xue**, University of North Carolina Greensboro 2024 – 2025
Dissertation: “Computational Analysis for Classes of Nonlinear Elliptic Equations and Applications,” *successfully defended in Summer 2025*.
Current position: Assistant Professor of Mathematics (tenure-track) at Jacksonville State University
<https://www.jsu.edu/mcis/people/xxue.html>
- **Alketa “Keta” Henderson**, University of North Carolina Greensboro 2020 – 2024
Dissertation: “Multiplicity results for classes of steady state reaction diffusion equations with nonlinear boundary conditions,” *successfully defended in Summer 2024*.
Current position: Visiting Assistant Professor of Mathematics at Elon University.
<https://mathstats.uncg.edu/people/directory/alketa-henderson/>
- **Dustin Nichols**, University of North Carolina Greensboro 2020 – 2024
Dissertation: “Existence and Uniqueness of Positive Solutions for Steady State Reaction Diffusion Equations,” *successfully defended in Summer 2024*.
Current position: Assistant professor of Mathematics (tenure-track) at High Point University.
<https://mathstats.uncg.edu/people/directory/dustin-nichols/>
- **Ananta Acharya**, University of North Carolina Greensboro 2018 – 2023
Dissertation: “Analysis of Steady States to Classes of Reaction Diffusion Equations and Systems,” *successfully defended in Summer 2023*.

Current position: Postdoc at Utah State University.

<https://mathstats.uncg.edu/people/directory/ananta-acharya/>

- **Amila Muthunayake**, University of North Carolina Greensboro 2017 – 2021
Dissertation: “Analysis of positive solutions for classes of nonlinear reaction diffusion equations and systems,” *successfully defended in Summer 2021*.
Current position: Assistant Professor of Mathematics (tenure-track), Department of Mathematics, Weber State University
<https://scholar.google.com/citations?user=AzCjigMAAAAJ&hl=en>
- **Nalin Fonseka**, University of North Carolina Greensboro: 2016 - 2020
Dissertation: “Positive solutions for classes of steady state reaction diffusion equations,” *successfully defended in Summer 2020*.
Current position: Assistant Professor of Mathematics (tenure-track), School of Arts and Sciences, Carolina University
<https://carolinau.edu/faculty-staff/fonseka-nalin>

For the following students, I served as a member of their Ph.D. Committee:

- **Quinn Morris**, University of North Carolina Greensboro: 2013 - 2017
Dissertation: “Analysis of classes of superlinear semipositone problems with nonlinear boundary conditions,” *successfully defended in Summer 2017*.
Current position: Assistant Professor of Mathematics (tenure-track), Department of Mathematical Sciences, Appalachian State University
<https://mathsci.appstate.edu/people/quinn-morris>
- **Byungje Son**, University of North Carolina Greensboro: 2013 - 2017
Dissertation: “Analysis of classes of singular steady state reaction diffusion equations,” *successfully defended in Summer 2017*.
Current position: Postdoc at University of Maine
<http://www.byungjaeson.epizy.com/>

Undergraduate Student Mentorship

- **NSF UGR in Differential Equations**, Auburn University Montgomery 2025 - 2026
 Students: Sarah Belcher ('26) & Levi Lowery ('26)
 Title: *Exploring species survival in a spatial model of competing flour beetles*
 1. Presented contributed talk at the 2026 AUM Undergraduate Research Symposium Apr 2026
 * Team won **first place** in the oral presentation category and overall **People's Choice Award** for undergraduate students.
- **NSF UGR in Differential Equations**, Auburn University Montgomery 2024 - 2025
 Students: Peyton Baker ('25), Jaron Acreman ('25), & Damien Bogan ('25)
 Title: *Exploring effects of patch size, matrix quality, and functional response on prey populations*
 2. Presented contributed talk at the 2025 Joint Mathematics Meetings in Seattle, WA Jan 2025
 3. Presented contributed talk at the 2025 AUM Undergraduate Research Symposium Apr 2025
 * Team won **second place** in the oral presentation category

- **NSF UGR in Differential Equations**, Auburn University Montgomery 2024 - 2025
 Students: Cleveland Stockman ('25) & Jonathan VanErmen ('25)
 Title: *Modeling effects of explicit trade-offs on the evolution of dispersal*

 4. Presented contributed talk at the 2025 Joint Mathematics Meetings in Seattle, WA Jan 2025
 5. Presented contributed talk at the 2025 AUM Undergraduate Research Symposium Apr 2025

- **NSF UGR in Differential Equations**, Auburn University Montgomery 2023 - 2024
 Student: Jacob Garrett ('24)
 Title: *Understanding how harvesting-mediated emigration can affect minimum patch size in quail populations*

 6. Presented contributed talk at the 2024 Joint Mathematics Meetings in San Francisco, CA Jan 2024
 7. Presented contributed talk at the 2024 Southeastern Sectional Meeting of the Mathematical Association of America, University of Tennessee, Knoxville, TN Mar 2024
 * Team one of only 3 Patterson Awards for Best Undergraduate Talk
 8. Presented contributed talk at the 2024 Troy University Math Fest Apr 2024
 9. Presented contributed talk at the 2024 AUM Undergraduate Research Symposium Apr 2024
 * Team won first place in the oral presentation category

- **NSF UGR in Differential Equations**, Auburn University Montgomery 2023 - 2024
 Students: Safa Motallebi ('23) & Rodney Easter ('24)
 Title: *Exploring effects of patch size and matrix quality on the evolution of dispersal*

 10. Presented an invited talk in special session, "Exploring Spatial Ecology via Reaction Diffusion Models: New Insights and Solutions" at the 2024 Joint Mathematics Meetings in San Francisco, CA. Jan 2024
 11. Presented a contributed talk at the 2024 Troy University MathFest. Apr 2024

- **NSF UGR in Differential Equations**, Auburn University Montgomery 2022 - 2023
 Students: Hamza Abusammour ('23), Jacob Garrett ('24), & Savannah Humphries ('24)
 Title: *Harvesting-mediated emigration can affect community structure in a competitive system*

 12. Presented an invited talk in the special session "Spatial ecology applications using reaction diffusion models" at the 2023 Joint Mathematics Meetings in Boston, MA Jan 2023
 13. Presented contributed talk at the 2023 Southeastern Sectional Meeting of the Mathematical Association of America, Coastal Carolina University, Conway, SC Mar 2023
 * Team one of only 4 Patterson Awards for Best Undergraduate Talk
 14. Presented contributed talk at the 2023 Troy University Math Fest Apr 2023
 15. Presented contributed talk at the 2023 AUM Undergraduate Research Symposium Apr 2023
 * Team won first place in the oral presentation category

- **NSF UGR in Differential Equations**, Auburn University Montgomery 2020 - 2021
 Students: Zane Blume-Babcock ('21), Sydney Fields ('21), & Dakota Mills ('20)
 Title: *Modeling trait-mediated dispersal among two competitors*

- **NSF UGR in Differential Equations**, Auburn University Montgomery 2018 - 2019
 Students: Kayla Luther ('20) & Joanna Sumner ('20)
 Title: *Modeling constant yield harvesting with density dependent dispersal*

- **NSF UGR in Differential Equations**, Auburn University Montgomery 2016 - 2018
 Students: Emily Cosgrove ('18) & Eddie Lindsey ('18)
 Title: *Modeling interaction-mediated dispersal*

 - 16. Presented a contributed talk at the *2017 Southeastern Section Meeting of the MAA*, Clayton State University, Macon, GA Mar 2017
 - 17. Presented a contributed talk at the *2017 This is Research*, Auburn University, Auburn, AL Apr 2017
 - 18. Presented a contributed talk at the *2017 Auburn Montgomery Undergraduate Research Symposium*, Montgomery, AL Apr 2017
 - 19. Presented a contributed talk at the *2017 NimBios Undergraduate Research Conference*, University of Tennessee, Knoxville, TN Nov 2017
 - 20. Presented a contributed talk at the *2018 Southeastern Section Meeting of the MAA*, Clemson University, Clemson, SC Mar 2018
 - 21. Presented a contributed talk at the *2018 This is Research*, Auburn University, Auburn, AL Apr 2018
 - 22. Presented a contributed talk at the *2018 Auburn Montgomery Undergraduate Research Symposium*, Montgomery, AL Apr 2018
 - 23. Presented a contributed talk at the *2018 Ecological Society of America Meeting*, New Orleans, LA Aug 2018

- **NSF UGR in Differential Equations**, Auburn University Montgomery 2015 - 2016
 Students: Alyssa Barnett ('16) & Dexter Harrell ('16)
 Title: *Landscape level modeling of habitat fragmentation via reaction diffusion equations*

 - 24. Presented a contributed talk at the *2016 Southeastern Section Meeting of the MAA*, University of Alabama Birmingham, Birmingham, AL Mar 2016
 - 25. Presented a contributed talk at the *2016 This is Research*, Auburn University, Auburn, AL Apr 2016
 - 26. Presented a contributed talk at the *2016 Auburn Montgomery Undergraduate Research Symposium*, Montgomery, AL Apr 2016

- **UGR in Differential Equations**, Auburn University Montgomery 2014 - 2015
 Students: Jordan Berry ('14) & Jordan Price ('16)
 Title: *Ecological systems with U-shaped density dependent dispersal*

 - 27. Presented a contributed talk at the *10th University of North Carolina Greensboro Regional Mathematics & Statistics Conference*, Greensboro, NC Nov 2014
 - 28. Presented a contributed talk at the *2015 Southeastern Section Meeting of the MAA*, University of North Carolina Wilmington, Wilmington, NC Mar 2015
 - 29. Presented a contributed talk at the *2015 This is Research*, Auburn University, Auburn, AL Apr 2015
 - 30. Presented a contributed talk at the *2015 Auburn Montgomery Undergraduate Research Symposium*, Montgomery, AL Apr 2015

- **UGR in Differential Equations**, Auburn University Montgomery 2013 - 2014
 Students: Lyndee Bobo ('14), Zach Burnett ('15), & Heather Pierce ('15)
 Title: *Ecological systems with aggregation, grazing, & Σ -shaped bifurcation curves*

 - 31. Presented a contributed talk at the *9th University of North Carolina Greensboro Regional Mathematics & Statistics Conference*, Greensboro, NC Nov 2013
 - 32. Presented a contributed talk at the *2014 Southeastern Section Meeting of the MAA*, Tennessee Tech University, Cookeville, TN Mar 2014
 - 33. Presented a contributed talk at the *2014 Auburn Montgomery Undergraduate Research Symposium*, Montgomery, AL Apr 2014

Research Symposium, Montgomery, AL

* **UGR Team** won Honorable Mention for their presentation

- **UGR in Differential Equations**, Auburn University Montgomery 2012-2013
Students: Kev Johnson ('15), Daniel McElveen ('13), & Katelyn Sanders ('14)
Title: *Diffusive logistic equation with nonlinear boundary conditions and Σ -shaped bifurcation curves*
 - 34. Presented a contributed talk at the 8th University of North Carolina Greensboro Regional Mathematics & Statistics Conference, Greensboro, NC Nov 2012
 - 35. Presented a contributed talk at the 2013 Southeastern Section Meeting of the MAA, Winthrop University, Rock Hill, SC Mar 2013
 - * **Kev Johnson** won one of only 8 Patterson Awards for Best Undergraduate Talk
 - 36. Presented a contributed talk at the 2013 Auburn Research Week, Auburn University, Auburn, AL Mar 2013
 - 37. Presented a contributed talk at the 2013 Auburn Montgomery Undergraduate Research Symposium, Montgomery, AL Apr 2013
- **NSF REU in Applied Mathematics and Biostatistics**, Mississippi State University 2010 - 2011
I had the opportunity to serve in *two* summer REU programs at multiple levels:
 1. served as a graduate student member of the organizing committee
 2. taught mini-courses on LaTeX and Mathematica® to the entire group
 3. helped mentor five undergraduates
 4. mentored a first year Ph.D. graduate student in how to lead/teach undergraduates
 5. helped design the REU website.

Conference/Workshop Presentations

Invited Plenary Presentations:

1. **Distinguished lecturer for students** at the *Mathematical Association of America Southeastern 2026 Section Meeting*, University of North Alabama, Florence, AL Mar 2026
2. **Distinguished lecturer for students** at the *Mathematical Association of America Southeastern 2016 Section Meeting*, University of Alabama Birmingham, Birmingham, AL Mar 2016
3. Plenary talk at the 10th University of North Carolina Greensboro Regional Mathematics & Statistics Conference, Greensboro, NC Nov 2014

Invited Seminar/Colloquium Presentations:

4. Seminar talk in the Wolfram Ecological Research Colloquium, Virtual Apr 2024
5. Seminar talk at *University of North Carolina Greensboro*, Greensboro, NC (virtual) Nov 2023
6. Seminar talk in the Wolfram Guest Speaker Series, Virtual Apr 2023
7. Seminar talk at *University of North Carolina Greensboro*, Greensboro, NC (virtual) Nov 2020
8. Seminar talk at *College of William & Mary*, Williamsburg, VA Jan 2017
9. Seminar talk at *Kennesaw State University*, Marietta, GA Nov 2016
10. Seminar talk on jobs in academia, *Mathematics and Statistics Professional Development Lecture Series*, University of North Carolina Greensboro June 2016
11. Colloquium talk at *College of Arts & Sciences Mini-College*, AUM June 2016
12. Commencement address at Prattville High School Mu Alpha Theta Induction, Prattville, AL Mar 2016

13. Colloquium talk at <i>University of Tennessee Knoxville</i> , Knoxville, TN	Mar 2016
14. Colloquium talk at <i>CUNY: Graduate Center</i> , New York City, NY	Oct 2015
15. Colloquium talk at <i>Winthrop University</i> , Rock Hill, SC	Jul 2015
16. Colloquium talk at Spring Fever, <i>Auburn University Montgomery</i>	Mar 2015
17. Colloquium talk at <i>Southern Polytechnic State University</i> , Marietta, GA	Sept 2014
18. Colloquium talk at <i>Birmingham Southern College</i> , Birmingham, AL	Nov 2013
19. Colloquium talk at the <i>2012 MS School for Math & Science's Math & Science Day</i> , Columbus, MS	Mar 2012
20. Colloquium talk at the <i>2012 Research Experience for Teachers (RET)</i> at Mississippi State University, Starkville, MS	Feb 2012
21. Colloquium talk at <i>University of North Carolina Greensboro</i> , Greensboro, NC	Oct 2011
22. Colloquium talk to the <i>SIAM Student Chapter</i> , Auburn University, Auburn, AL	Oct 2011
23. Colloquium talk at the <i>Mississippi College Mathematics Club</i> , Clinton, MS	Feb 2009

Invited Special Session Presentations:

24. Invited to present in the special session, "Dissipative Systems and Applications," at the 15 th <i>AIMS International Conference on Dynamical Systems and Differential Equations</i> , Athens, Greece	July 2026
25. Invited to present in the special session, "Differential, Difference, and Integral Equations: Techniques and Applications" at the 15 th <i>AIMS International Conference on Dynamical Systems and Differential Equations</i> , Athens, Greece	July 2026
26. Invited to present a talk in the special session, "Advances in Nonlinear Partial Differential Equations," at the <i>2026 Joint Mathematics Meetings</i> , Washington, DC	Jan 2026
27. Invited to present a talk in the special session, "Bridging Theory and Practice in Ecological Modeling with Reaction Diffusions," at the <i>2025 Joint Mathematics Meetings</i> , Seattle, WA	Jan 2025
28. Invited to present a talk in the BIRS Workshop, "Dynamical Models Inspired by Biology," Banff International Research Station, Banff, Canada	Oct 2024
29. Invited to present a talk in the special session, "Exploring Spatial Ecology via Reaction Diffusion Models: New Insights and Solutions," at the <i>2024 Joint Mathematics Meetings</i> , San Francisco, CA	Jan 2024
30. Invited to present a talk in the special session, "Dynamics and Management in Disease Or Ecological Models (associated with Gibbs Lecture by Suzanne Lenhart)," at the <i>2024 Joint Mathematics Meetings</i> , San Francisco, CA	Jan 2024
31. Invited to present a talk in the special session, "Special Session on Theory and Application of Parabolic PDEs," at the <i>2023 Fall Southeastern Sectional Meeting of the American Mathematical Society</i> , University of South Alabama, Mobile, AL	Oct 2023
32. Invited to present in the special session, "Recent Advances on Population Models in Ecology and Epidemiology," at the 13 th <i>AIMS International Conference on Dynamical Systems and Differential Equations</i> , Wilmington, NC	June 2023
33. Invited to present in the special session, "Reactions Diffusion Equations with Applications to Spatial Ecology and Infectious Disease," at the 13 th <i>AIMS International Conference on Dynamical Systems and Differential Equations</i> , Wilmington, NC	June 2023
34. Invited to present a talk in the special session, "Spatial Ecology Applications using Reaction Diffusion Equations," at the <i>2023 Joint Mathematics Meetings</i> , Boston, MA	Jan 2023
35. Invited to present a talk in the special session, "Recent Advances in Nonlinear Partial Diffusion Equations and their Applications," at the <i>2023 Joint Mathematics Meetings</i> , Boston, MA	Jan 2023
36. Invited to present a talk in the special session, "Recent Advances in Mathematical Biology Applications" at the <i>2022 Fall Southeastern Sectional Meeting of the American Mathematical Society</i> , University of Tennessee Chattanooga, Chattanooga, TN	Oct 2022

37. Invited to present a talk in the special session, “Reaction Diffusion Models with Applications in Spatial Ecology,” at the *2022 Joint Mathematics Meetings*, Virtual Jan 2022
38. Invited to present a talk in the special session, “Mathematical Studies of Biological and Ecological Systems” at the *2021 Fall Southeastern Sectional Meeting of the American Mathematical Society*, University of Southern Alabama, Mobile, AL Nov 2021
39. Invited to present a talk in the special session, “PDE, Dynamical Systems, and Applications” at the *44th SIAM Southeastern Atlantic Section (SIAM SEAS) Conference*, Auburn University, Auburn, AL Sep 2021
40. Invited to present a talk in the special session, “Evolution Equations and Applications” at the *2019 Spring Southeastern Sectional Meeting of the American Mathematical Society*, Auburn, AL Mar 2019
41. Invited to present a talk in the special session, “Nonlinear Reaction-Diffusion Equations and their Applications” at the *2019 Spring Southeastern Sectional Meeting of the American Mathematical Society*, Auburn, AL Mar 2019
42. Invited to present a talk & chaired a session at the *2018 Variational and Topological Methods Conference*, Northern Arizona University, Flagstaff, AZ June 2018
43. Invited to present a talk in the special session, “Nonlinear reaction diffusion equations and their applications” at the *2018 Fall Eastern Sectional Meeting of the AMS*, Boston University, Boston, MA Apr 2018
44. Invited to present a talk in the special session, “Nonlinear boundary value problems” at the *2016 Fall Southeastern Section Meeting of the AMS*, NC State University, Raleigh, NC Nov 2016
45. Invited to present a talk in *International Workshop on Recent Advances in Evolution Equations and Applications*, Auburn University, Auburn, AL Jul 2016
46. Chaired a session and presented invited talks in the special sessions, “Advances in theory and application of reaction diffusion equations” & “Dissipative systems and applications” at the *2016 AIMS 11th International Conference on Dynamical Systems and Differential Equations*, Orlando, FL Jul 2016
47. Chaired a session and presented an invited talk in the special session, “Advances in theory & application of reaction diffusion equations,” at the *2016 Joint Mathematics Meetings*, Seattle, WA Jan 2016
48. Chaired a session and presented an invited talk in the special session, “Theory & application of reaction diffusion equations,” at the *2015 Joint Mathematics Meetings*, San Antonio, TX Jan 2015
49. Chaired a session and presented invited talks in the special sessions, “Reaction diffusion equations and applications” & “Quasilinear elliptic and parabolic problems and their applications” at the *2014 AIMS 10th International Conference on Dynamical Systems and Differential Equations*, Madrid, Spain Jul 2014
50. Invited to present a talk in the special session, “Nonlinear elliptic PDE and applications,” *SIAM Southeastern Atlantic Sectional Meeting*, Florida Tech University, Melbourne, FL Mar 2014
51. Chaired a session and presented an invited talk in the special session, “Reaction diffusion equations and applications” at the *2014 Joint Mathematics Meetings*, Baltimore, MD Jan 2014
52. Invited to present a talk in the special session, “Nonlinear elliptic and wave equations and applications,” *AMS Fall Eastern Sectional Meeting*, Temple University, Philadelphia, PA Oct 2013
53. Presented an invited talk in the special session, “Mathematics of planet earth” at the *2013 Southeastern Section Meeting of the MAA*, Winthrop University, Rock Hill, SC Mar 2013
54. Chaired a session and presented an invited talk in the special session, “Understanding planet earth via reaction diffusion equations” at the *2013 Joint Mathematics Meetings*, San Diego, CA Jan 2013

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| 55. Chaird a session and presented an invited talk in the special session, “Reaction diffusion equations and applications” at the 2012 <i>AIMS 9th International Conference on Dynamical Systems and Differential Equations</i> , Orlando, FL | Jul 2012 |
| 56. Invited to present a talk & chaired a session at the 2012 <i>Variational and Topological Methods Conference</i> , Northern Arizona University, Flagstaff, AZ | June 2012 |
| 57. Chaird a session and presented an invited talk in the special session, “Reaction diffusion equations and applications” at the 2012 <i>Joint Mathematics Meetings</i> , Boston, MA | Jan 2012 |
| 58. Invited to present a talk in the special session, “Workshop on reaction diffusion equations and application,” at the <i>Sixth International Conference on Dynamic Systems and Applications</i> , Atlanta, GA | May 2011 |
| 59. Invited to present a talk in the special session, “Analysis of reaction-diffusion models,” at the 2011 <i>Joint Mathematics Meetings</i> , New Orleans, LA | Jan 2011 |

Contributed Presentations:

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| 60. 2024 <i>International Conference on Differential Equations</i> , Florida Gulf Coast University, Ft. Meyers, FL | June 2024 |
| 61. 2021 <i>UNC Greensboro Partial Differential Equations Conference</i> , University of North Carolina Greensboro, Greensboro, NC | July 2021 |
| 62. 2018 <i>Annual Meeting of the Ecological Society of America</i> , New Orleans, LA | Aug 2018 |
| 63. 2017 <i>AACTM (Association of Alabama College Teachers of Mathematics)</i> , Samford University, Birmingham, AL | Feb 2017 |
| 64. 2017 <i>Joint Mathematics Meetings</i> , Atlanta, GA | Jan 2017 |
| 65. <i>AMS Fall Eastern Sectional Meeting</i> , University of Alabama Huntsville, Huntsville, AL | Mar 2015 |
| 66. <i>Mathematical Association of America Southeastern 2015 Section Meeting</i> , University of North Carolina Wilmington, Wilmington, NC | Mar 2015 |
| 67. 2015 <i>AACTM (Association of Alabama College Teachers of Mathematics)</i> , University of Alabama, Tuscaloosa, AL | Feb 2015 |
| 68. <i>SEARCDE-2014 (Southeastern-Atlantic Regional Conference on Differential Equations)</i> , University of Memphis, Memphis, TN | Oct 2014 |
| 69. <i>Mathematical Association of America Southeastern 2014 Section Meeting</i> , Tennessee Tech University, Cookeville, TN | Mar 2014 |
| 70. 2014 <i>AACTM (Association of Alabama College Teachers of Mathematics)</i> , Auburn University, Auburn, AL | Feb 2014 |
| 71. <i>SEARCDE-2013 (Southeastern-Atlantic Regional Conference on Differential Equations)</i> , University of Tennessee, Knoxville, TN | Sept 2013 |
| 72. 2013 <i>Auburn Research Week</i> , Auburn University, Auburn, AL | Apr 2013 |
| 73. <i>First International Conference on Dynamics of Differential Equations</i> , Georgia Tech, Atlanta, GA | Mar 2013 |
| 74. 2013 <i>AACTM (Association of Alabama College Teachers of Mathematics)</i> , Birmingham Southern College, Birmingham, AL | Feb 2013 |
| 75. <i>SEARCDE-2012 (Southeastern-Atlantic Regional Conference on Differential Equations)</i> , Wake Forest University, Winston-Salem, NC | Oct 2012 |
| 76. <i>Mathematical Association of America Southeastern 2012 Section Meeting</i> , Clayton State University, Morrow, GA | Mar 2012 |
| 77. <i>SEARCDE-2011 (Southeastern-Atlantic Regional Conference on Differential Equations)</i> , Georgia Southern University, Statesboro, GA | Oct 2011 |
| 78. Chaird a contributed session and presented a talk at the 2011 <i>Differential Equations Weekend Conference</i> , Mississippi State University | May 2011 |
| 79. <i>Mathematical Association of America LA/MS 2011 Section Meeting</i> , Oxford, MS, | Mar 2011 |
| 80. <i>SEARCDE-2010 (Southeastern-Atlantic Regional Conference on Differential Equations)</i> , University of Mississippi, Oxford, MS | Oct 2010 |

- Equations*), Virginia Tech, Blacksburg, VA
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| 81. <i>2010 Joint Mathematics Meetings</i> , San Francisco, CA | Jan 2010 |
| 82. <i>2009 Differential Equations Weekend</i> , University of Memphis, Memphis, TN | Nov 2009 |
| 83. <i>SEARCDE-2009 (Southeastern-Atlantic Regional Conference on Differential Equations)</i> , Mercer University, Macon, GA | Oct 2009 |
| 84. Chaired a contributed session and presented a talk at the <i>8th Mississippi State and University of Alabama at Birmingham Differential Equations and Computational Simulations Conference</i> , Starkville, MS | May 2009 |
| 85. <i>Mathematical Association of America LA/MS 2009 Section Meeting</i> , Clinton, MS | Mar 2009 |
| 86. <i>SEARCDE-2008 (Southeastern-Atlantic Regional Conference on Differential Equations)</i> , University of Arkansas, Little Rock, AR | Oct 2008 |

Poster Presentations:

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| 87. <i>International Conference on Infectious Diseases</i> , Atlanta, GA, poster presentation | Oct 2006 |
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Conference/Workshop Attendance

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|---|-----------|
| 1. <i>2021 Joint Mathematics Meetings</i> , Virtual | Jan 2021 |
| 2. <i>2020 Joint Mathematics Meetings</i> , Denver, CO | Jan 2020 |
| 3. <i>10th Mississippi State Differential Equations and Computational Simulations Conference</i> , Starkville, MS | Oct 2014 |
| 4. <i>9th University of North Carolina Greensboro Regional Mathematics & Statistics Conference</i> , Greensboro, NC | Nov 2013 |
| 5. <i>8th University of North Carolina Greensboro Regional Mathematics & Statistics Conference</i> , Greensboro, NC | Nov 2012 |
| 6. <i>9th Mississippi State and University of Alabama at Birmingham Differential Equations and Computational Simulations Conference</i> , Starkville, MS | Oct 2012 |
| 7. <i>7th University of North Carolina Greensboro Regional Mathematics & Statistics Conference</i> , Greensboro, NC | Nov 2011 |
| 8. <i>AMS Southeastern Section Meeting, Special Session on Nonlinear Boundary Value Problems</i> , Wake Forest University, Winston-Salem, NC | Sept 2011 |
| 9. <i>Mini Workshop on Mathematical Biology and Computational Modeling</i> , High Performance Computing Collaboratory, Mississippi State University, Starkville, MS | Mar 2010 |
| 10. <i>IMA PI Summer Program for Graduate Students on The Mathematics of Inverse Problems</i> , University of Delaware, Newark, DE | Jun 2009 |
| 11. <i>Mathematical Applications in Ecology and Evolution Workshop</i> , High Performance Computing Collaboratory, Mississippi State University, Starkville, MS | Aug 2008 |
| 12. <i>IMA - Mathematical Modeling in Industry Workshop XII</i> , University of Minnesota Minneapolis, MN, (Submitted a report on <i>Stability of Extending Films</i>) | Aug 2008 |
| 13. <i>MBI Summer Program in Mathematical Bioengineering</i> , Mathematical Biosciences Institute, Ohio State University, Columbus, OH | Jul 2008 |
| 14. <i>7th Mississippi State and University of Alabama at Birmingham Differential Equations and Computational Simulations Conference</i> , Birmingham, AL | Nov 2007 |

Teaching Experience

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| Auburn University Montgomery | 2011 - present |
| <ul style="list-style-type: none"> Spring 2026: MATH 1610 – Calculus I & MATH 4950 – Senior Seminar Fall 2025: None (AUM Sabbatical) | |

- Summer 2025: MATH 1620 – Calculus II
- Spring 2025: MATH 1150 – Precalculus Algebra & Trig & MATH 4950 – Senior Seminar
- Fall 2024: MATH 3000 – Intro to Higher Math & MATH 3690 – Ordinary Differential Equations
- Summer 2024: MATH 1120 – Precalculus Algebra & MATH 1150 – Precalculus Algebra & Trig
- Spring 2024: MATH 4950 – Senior Seminar
- Fall 2023: MATH 1610 – Calculus I & MATH 1620 – Calculus II
- Summer 2023: MATH 1610 – Calculus I & MATH 1100 – Finite Mathematics
- Spring 2023: MATH 4210 – Analysis I, MATH 4950 – Senior Seminar, & MATH 4932 – Undergrad Research in ODEs
- Fall 2022: MATH 2630 – Calculus III, MATH 3000 – Intro to Higher Mathematics, & MATH 4932 – Undergrad Research in ODEs
- Summer 2022: MATH 1120 – Precalculus Algebra & MATH 1620 – Calculus II
- Spring 2022: MATH 4950 – Senior Seminar
- Fall 2021: MATH 1610 – Calculus I, MATH 3000 – Intro to Higher Mathematics, & MATH 3690 – Ordinary Differential Equations
- Summer 2021: MATH 1050 – College Algebra & MATH 1610 – Calculus I
- Spring 2021: MATH 3000 – Intro to Higher Mathematics, MATH 4950 – Senior Seminar, & MATH 4970 – Undergrad Research in ODEs
- Fall 2020: MATH 2630 – Calculus III, MATH 3000 – Intro to Higher Mathematics, & MATH 4970 – Undergrad Research in ODEs
- Summer 2020: MATH 1050 – College Algebra & MATH 1620 – Calculus II
- Spring 2020: MATH 3000 – Intro to Higher Mathematics & MATH 4950 – Senior Seminar
- Fall 2019: MATH 1620 – Calculus II, MATH 3000 – Intro to Higher Mathematics, & MATH 4210/5210 – Analysis I
- Summer 2019: MATH 1620 – Calculus II & MATH 1100 – Finite Mathematics
- Spring 2019: MATH 4950 – Senior Seminar & MATH 4970 – Special Topics in Differential Equations
- Fall 2018: MATH 1610 – Calculus I & MATH 2630 – Calculus III
- Summer 2018: None (NSF funded research)
- Spring 2018: MATH 1620 – Calculus II & MATH 4950 – Senior Seminar
- Fall 2017: CSCI 2000 – Structured Programming I (C++) & MATH 3690 – Ordinary Differential Equations
- Summer 2017: None (NSF funded research)
- Spring 2017: MATH 1610 – Calculus I, MATH 2660 – Linear Algebra, & MATH 4970 – Special Topics in Differential Equations
- Fall 2016: None (AUM Sabbatical)
- Summer 2016: None (NSF funded research)
- Spring 2016: MATH 1620 – Calculus II & MATH 4220/6220 – Analysis II
- Fall 2015: MATH 2690 – Ordinary Differential Equations & MATH 4210/6210 – Analysis I
- Summer 2015: MATH 0800 – Intermediate Algebra, MATH 1150 – Precalculus Algebra & Trig, & MATH 4970 – Special Topics in Differential Equations
- Spring 2015: CSCI 2000 – Structured Programming I (C++), MATH 1610 – Calculus I, & MATH 2660 – Linear Algebra
- Fall 2014: CSCI 2000 – Structured Programming I (C++), MATH 2630 – Calculus III, MATH 1120 – Precalculus Algebra, & HONR 4937 – UHP Independent Study
- Summer 2014: MATH 0800 – Intermediate Algebra (2 sections) & MATH 6970 – Ordinary Differential Equations I
- Spring 2014: MATH 4220/6220 – Analysis II & MATH 1620 – Calculus II
- Fall 2013: CSCI 2000 – Structured Programming I (C++), MATH 1620 – Calculus II, & MATH 4210/6210 – Analysis I
- Summer 2013: MATH 1100 – Finite Mathematics, MATH 0800 – Intermediate Algebra,

MATH 6970 – Ordinary Differential Equations I, MATH 4970 – Special Topics in Differential Equations

- Spring 2013: MATH 4220/6220 – Analysis II & MATH 2660 – Linear Algebra
- Fall 2012: MATH 1100 – Finite Mathematics (2 sections), MATH 1610 – Calculus I, & MATH 4210/6210 – Analysis I
- Summer 2012: MATH 1100 – Finite Mathematics, MATH 1610 – Calculus I, & MATH 4970 – Special Topics in Differential Equations
- Spring 2012: MATH 1150 – Precalculus Alg. & Trig., MATH 1620 – Calculus II, & MATH 2660 – Linear Algebra
- Fall 2011: MATH 1150 – Precalculus Alg. & Trig. and MATH 1610 – Calculus I

Instructor of Record at Mississippi State University

2007 - 2011

- Spring 2011: MA 1723 – Calculus II, 1 section
- Fall 2010: MA 1713 – Calculus I, 3 sections
- Spring 2010: MA 1713 – Calculus I, 2 sections
- Fall 2009: MA1713 – Calculus I, 2 sections
- Spring 2009: MA1713 – Calculus I and MA1313 – College Algebra
- Fall 2008: MA1713 – Calculus I, 2 sections
- Spring 2008: MA1713 – Calculus I, 2 sections
- Fall 2007: MA 1713 – Calculus I, 2 sections

Adjunct Instructor at Mississippi College

2005 - 2011

- Summer 2009: MAT 101 – College Algebra
- Summer 2007: MAT 101 – College Algebra
- Spring 2006: MAT 207 – Finite Mathematics
- Fall 2005: MAT 101 – College Algebra

Teaching Assistant at Mississippi State University

2006 - 2009

- Maymester 2009: Tutored in the Math Domain
- Maymester 2008: Tutored in the Learning Center
- Spring 2007: Tutored in the Learning Center and Mathematics Computer Lab
- Fall 2006: Tutored in the Learning Center and Mathematics Computer Lab

Faculty Development

- Completed the **AUM Faculty Development Institute**, for certification to teach online mathematics courses Nov 2011
- Completed the **Writing Across the Curriculum training**, for certification to teach writing intensive mathematics courses Oct 2011

Professional Service

Special Session Organization at Regional, National, and International Conferences:

1. **Co-organizer** of the special session, “Bridging theory and practice in ecological modeling with reaction diffusion equations” at the *2025 Joint Mathematics Meetings*, Seattle, WA 2024 - 2025
2. **Co-organizer** of the special session, “Exploring spatial ecology via reaction diffusion models: New insights and solutions” at the *2024 Joint Mathematics Meetings*, San Francisco, CA 2023 - 2024

3. **Co-organizer** of the special session, “Spatial ecology applications using reaction diffusion models” at the *2023 Joint Mathematics Meetings*, Boston, MA 2022 - 2023
4. **Co-organizer** of the special session, “Reaction diffusion models with applications in spatial ecology” at the *2022 Joint Mathematics Meetings*, Virtual 2021 - 2022
5. **Co-organizer** of the special session, “Nonlinear reaction diffusion models with applications in spatial ecology” at the *2021 Joint Mathematics Meetings*, Virtual 2020 - 2021
6. **Co-organizer** of the special session, “Future directions in theory & applications of nonlinear reaction-diffusion equations” at the *2020 Joint Mathematics Meetings*, Denver, CO 2019 - 2020
7. **Co-organizer** of the special session, “Nonlinear reaction-diffusion equations and their applications” at the *2019 Spring Southeastern Sectional Meeting of the American Mathematical Society*, Auburn, AL 2018 - 2019
8. **Co-organizer** of the special session, “Advances in theory & application of reaction diffusion equations” at the *11th AIMS International Conference on Dynamical Systems and Differential Equations*, Orlando, FL 2015 - 2016
9. **Co-organizer** of the special session, “Advances in theory & application of reaction diffusion equations” at the *2016 Joint Mathematics Meetings*, Seattle, WA 2015 - 2016
10. **Co-organizer** of the special session, “Theory & application of reaction diffusion equations” at the *2015 Joint Mathematics Meetings*, San Antonio, TX 2014 - 2015
11. **Co-organizer** of the special session, “Reaction diffusion equations and applications,” at the *10th AIMS International Conference on Dynamical Systems and Differential Equations*, Madrid, Spain 2013 - 2014
12. **Co-organizer** of the special session, “Reaction diffusion equations and applications” at the *2014 Joint Mathematics Meetings*, Baltimore, MD 2013 - 2014
13. **Co-organizer** of the special session, “Understanding planet earth via reaction diffusion equations,” at the *2013 Joint Mathematics Meetings*, San Diego, CA 2012 - 2013
14. **Co-organizer** of the special session, “Reaction diffusion equations and applications,” at the *Ninth AIMS International Conference on Dynamical Systems and Differential Equations*, Orlando, FL 2011 - 2012
15. **Co-organizer** of the special session, “Reaction diffusion equations and applications,” at the *2012 Joint Mathematics Meetings*, Boston, MA 2011 - 2012

Conference Organization:

16. **Main organizer**, MAA Southeastern Section Alabama State Dinner, AUM 2015 - 2016
<http://sections.maa.org/southeastern/>
17. **Main organizer/Program Chair**, Alabama Association of College Teachers of Mathematics’ Annual Meeting, AUM, <http://ajmonline.org/AACTM/AACTMmeetings.htm> 2015 - 2016
18. **Program chair/webmaster**, *10th Mississippi State Conference on Differential Equations & Computational Simulations*, Mississippi State University, Starkville, MS 2014 - 2015
<http://www.ccs.msstate.edu/deconf/de2014/>
19. **Main organizer/webmaster**, Department of Mathematics & Computer Science’s 2015 Sonia Kovalevsky Day (outreach program to encourage young women to explore mathematics-related careers), <http://sciences-srv.aum.edu/~jgoddard/skday2015/> 2014 - 2015
20. **Main organizer/webmaster**, Department of Mathematics & Computer Science’s 2013 Sonia Kovalevsky Day (outreach program to encourage young women to explore mathematics-related careers), <http://sciences-srv.aum.edu/~jgoddard/skday2013/> 2012 - 2013
21. **Program chair/webmaster**, *9th Mississippi State – University of Alabama Birmingham Conference on Differential Equations & Computational Simulations*, Mississippi State University, Starkville, MS <http://www.ccs.msstate.edu/deconf/de2012/> 2011 - 2012
22. **Local organizing committee member/webmaster**, *Differential Equations Weekend*, University of Memphis and Mississippi State University, <http://shivaji.math.msstate.edu/dew2011/> 2010 - 2011

23. **Local organizing committee member**, 8th Mississippi State – University of Alabama Birmingham Conference on Differential Equations & Computational Simulations, Mississippi State University, Starkville, MS <http://math.msstate.edu/events/de.conf/de2009/> 2008 - 2009

Professional Society & Miscellaneous Professional Service:

24. **Ad hoc reviewer**, NSF review panel in DMS 2025
 25. **Member**, NSF review panel in DMS 2025
 26. **Ad hoc reviewer**, NSF review panel in DMS 2024
 27. **Member**, NSF review panel in DMS 2024
 28. **Member**, NSF review panel in DMS 2023
 29. **Member**, Scientific Committee, *UNCG Regional Mathematics and Statistics Conference* 2014 - 2019
 30. **Alabama State Director**, *Mathematical Association of America*, Southeastern Section 2016 - 2019
 31. **President**, Alabama Association of College Teachers of Mathematics 2016 - 2017
 32. **Vice president**, Alabama Association of College Teachers of Mathematics 2015 - 2016
 33. **Co-founder/president**, *Pi Club* (Association of Mathematics and Statistics Ph. D. graduate students with the purpose of collaboration, service, and fellowship), Mississippi State University 2010 - 2011

Editorial and Reviewing Service:

34. **Co-Editor**, Special Issue: *Recent Advances in Theory & Application of Reaction Diffusion Models in Spatial Ecology* in *Mathematical Biosciences & Engineering*, Impact Factor: 2.080 <https://www.aimspress.com/mbe/article/6078/special-articles> 2021 - 2023
 35. **Main Editor**, Proceedings of the 10th Mississippi State Conference on Differential Equations & Computational Simulations <http://ejde.math.txstate.edu/> 2014 - 2016
 36. **Ad Hoc Reviewer** for:
 ○ *European Journal of Applied Mathematics*
 ○ *Electronic Journal of Qualitative Theory of Differential Equations*
 ○ *Electronic Research Archive*
 ○ *Discrete and Continuous Dynamical Systems*
 ○ *Mathematical Biosciences and Engineering*
 ○ *AMS Mathematical Reviews*
 ○ *Communications in Applied Analysis*
 ○ *Journal of Mathematical Analysis and Applications*
 37. Textbook **Reviewer** for Barnett/Ziegler/Byleen's, *Finite Mathematics for Business, Economics, Life Sciences and Social Sciences*, 12th edition, Pearson Fall 2012
 38. **Main Editor**, Proceedings of the 9th Mississippi State – University of Alabama Birmingham Conference on Differential Equations & Computational Simulations, Conference 20, 2013 <http://ejde.math.txstate.edu/conf-proc/20/toc.html/> 2012 - 2013

University Service

- **Chair**, AUM Mathematics Tenure & Promotion (Standing) Committee 2025 - present
- **Member**, AUM COS Research & Scholarship Committee 2023 - present
- **Faculty advisor** for the AUM Mathematics Club 2022 - 2025
- **Chair**, AUM COS Student Research Committee 2023 - present
- **Member**, AUM Mathematics Awards Committee 2017 - present
- **Chair**, AUM Mathematics Curriculum Committee 2017 - present
- **Chair**, AUM Mathematics MATH1020/0020 Committee 2023 - present

- **Member**, AUM COS HHMI: Peer Review Committee 2024 - 2025
- **Chair**, AUM Mathematics Hiring Committee for a Lecturer position in mathematics Spring 2026
- **Member**, AUM Online Course Integrity Review Committee Spring 2026
- **Member**, AUM Biology Promotion Committee Fall 2024
- **Chair**, AUM Mathematics Promotion Committee Fall 2024
- **Chair**, AUM Mathematics Developmental Mathematics Committee 2016 - 2024
- **Member**, AUM Biology Tenure & Promotion Committee Spring 2024
- **Chair**, AUM Mathematics Tenure & Promotion Committee Spring 2024
- **Chair**, AUM Mathematics Hiring Committee for an assistant professor position in mathematics Fall 2023
- **Member**, AUM COS Undergraduate Research Committee 2018 - 2023
- **Member**, AUM Mathematics Third Year Review Committee Spring 2023
- **Member**, AUM Administrator Evaluation Committee (university-wide) 2018 - 2021
- **Chair**, AUM Mathematics Tenure & Promotion Committee Fall 2020
- **Member**, AUM COS Hiring Committee for QEP director Spring 2020
- **Chair**, AUM Mathematics Grade Appeals Review Committee Spring 2020
- **Member**, AUM Computer Science Third Year Review Committee Spring 2020
- **Chair**, AUM Mathematics Tenure & Promotion Committee Fall 2019
- **Member**, AUM Mathematics Hiring Committee for a lecturer position in math Spring 2019
- **Chair**, AUM Mathematics Third Year Review Committee Spring 2019
- **Member**, AUM Mathematics Hiring Committee for an assistant professor position in mathematics Fall 2018
- **Member**, AUM Mathematics Hiring Committee for Math Lab Coordinator Summer 2018
- **Member**, AUM Mathematics Hiring Committee for QEP Director Summer 2018
- **Chair**, AUM Mathematics Third Year Review Committee Spring 2018
- **Member**, AUM Mathematics Master's Degree in Applied and Computational Mathematics Program Proposal committee 2017 - 2018
- **Chair**, AUM CAS Undergraduate Research Committee 2015 - 2018
- **Member**, AUM SACS Quality Enhancement Program Committee (university-wide) 2017 - 2018
- **Member**, AUM Administrator Evaluation Committee (university-wide) 2011 - 2017
- **Member**, AUM Mathematics Hiring Committee for an assistant professor position in computer science Fall 2017
- **Member**, AUM Mathematics Hiring Committee for an instructor's position Fall 2017
- **Member**, AUM Mathematics SK Day Organizing Committee Fall 2017
- **Member**, AUM Mathematics Hiring Committee for several instructor's positions Spring 2016
- **Co-advisor** for the AUM Mathematics/Pre-Engineering major 2012 - 2016
- **Faculty advisor** for the AUM Mathematics Club 2012 - 2016
- **Member**, AUM Mathematics Scholarship Committee 2015 - 2016
- **Member**, AUM CAS Undergraduate Research Committee 2014 - 2015
- **Member**, AUM Mathematics Hiring Committee for an instructor's position Fall 2015
- **Chair**, AUM Mathematics Hiring Committee for an assistant professor position in mathematics Fall 2015
- **Member**, AUM CAS Distinguished Teaching Award Nominations Committee Spring 2015
- **Member**, AUM CAS Advisory Committee for the SSRP Spring 2015
- **Chair/Webmaster**, AUM Mathematics SK Day Organizing Committee Fall 2015
- **Chair**, AUM Mathematics Hiring Committee for an assistant professor position in mathematics Fall 2014
- **Member**, AUM Mathematics Annual Assessment Committee Spring 2014
- **Member** of the AUM Mathematics SRAC 2014 Local Organizing Committee Spring 2014

- **Member** of the AUM Mathematics Calculus Textbook Selection Committee Spring 2014
- **Member**, AUM Mathematics Hiring Committee for an assistant professor position in computer science Fall 2013
- **Co-Chair/Webmaster**, AUM Mathematics SK Day Organizing Committee Fall 2013
- **Chair**, AUM Mathematics Hiring Committee for an instructor's position Spring 2013
- **Member**, AUM Mathematics ASPE Scholarship Selection Committee 2012 - 2015
- **Chair**, AUM Mathematics Hiring Committee for an instructor's position Fall 2012
- **Participated** in AUM Mathematics new student orientation 2012 - 2015
- **Member**, AUM Mathematics Hiring Committee for an instructor's position Summer 2012
- **Judge**, 2012 AUM SOS Undergraduate Research Symposium April 2012
- **Member**, AUM Mathematics Master's Degree in Computational Mathematics Program Proposal committee 2011 - 2012

Community Service

1. College student leader, Frazer UMC, Montgomery, AL 2020 - present
2. Senior high student small group leader and high school master teacher, Frazer UMC, Montgomery, AL 2017 - 2020
3. College student small group leader, Frazer UMC, Montgomery, AL 2013 - 2016
4. Invited speaker at the *2012 MS School for Math & Science Math & Science Day*, (presented 2 sessions for high school students) Columbus, MS Mar 2012
5. Assistant Scoutmaster, Troop 99, Boy Scouts of America, Jackson, MS 2001 - 2015
6. Board Member, Aldersgate Youth Retreat, Jackson, MS 2000 - 2016
7. Guest Speaker, Aldersgate Youth Retreat, Jackson, MS '10, '11, '15
8. Worship Leader, New Covenant UMC, Jackson, MS 1999 - 2010
9. Co-Director, Aldersgate Youth Retreat, Jackson, MS 2004 - 2009
10. Lay Leader, New Covenant UMC, Jackson, MS 2004 - 2009
11. Assistant Youth Minister, New Covenant UMC, Jackson, MS 2001 - 2008
12. Leadership Team, Baptist Student Union, Mississippi College, Clinton, MS 2003 - 2004
13. Assistant Director, Aldersgate Youth Retreat, Jackson, MS 2002 - 2004
14. Leadership Team, Baptist Student Union, Hinds Community College, Raymond, MS 2001 - 2002
15. Praise Band, Baptist Student Union, Hinds Community College, Raymond, MS 2000 - 2001

Professional Memberships

- Mathematical Association of America 2010 - present
- American Mathematical Society 2006 – present
- Society for Mathematical Biology 2024 – present

Computational and Technical Skills

- Programming Knowledge
 - C / C++
 - Visual and Quick Basic
 - HTML, PHP, and JavaScript
 - Java

- Operating Systems used: DOS, Windows 3.1, 95, 98, 2000, ME, XP, Vista, 7, 10, and Linux
- Mathematica, MatLab, and LaTeX
- Web designing in HTML with PHP server-side scripting

References

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