

Robert A. Beeler, Ph.D.

Professor

Department of Mathematics and Statistics
East Tennessee State University
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Education

Ph.D. Clemson University (August 2007)

Major: Mathematical Sciences

Dissertation: "Automorphic Decompositions of Graphs"

Advisor: Prof. Robert E. Jamison

M.S. University of Tennessee, Knoxville (August 2002)

Major: Mathematics, Minor: Statistics

Project: "The History of e ," Advisor: Prof. William R. Wade

B.S. University of Tennessee, Knoxville (May 2001)

Major: Mathematics, Statistics

A.A.S. Pellissippi State Technical Community College (May 1999)

Major: Mathematics

Professional Experience

- Professor (August 2019 to present)
Associate Professor (August 2013 to August 2019)
Assistant Professor (August 2007 to August 2013)
Department of Mathematics and Statistics, East Tennessee State University.
Courses Taught: Calculus I, Calculus II, Intro to Probability and Statistics, Combinatorics, Graph Theory, Undergraduate Research, Elementary Number Theory, Linear Algebra, Supervised Teaching, Honors Thesis, Introduction to Modern Algebra I, Introduction to Modern Algebra II, Modern Algebra I (graduate)
Other: Supervised five Independent Study Courses, eleven Undergraduate Research projects, ten Honors-in-Discipline Sections, six Master's Theses, and two Undergraduate Honors Theses
- Graduate Teacher of Record, Department of Mathematical Sciences, Clemson University (August 2002 to May 2007). (864) 656-3434
Courses Taught: Business Calculus, Calculus I, Calculus II
Other Duties: Graded for Calculus III and substituted in Abstract Algebra
- Graduate Teaching Assistant, Department of Mathematics, (865) 974-2461, University of Tennessee, Knoxville (August 2001 to August 2002).
Recitation Classes: College Algebra and Business Calculus
Duties: Grading for Calculus II.

- Tutor of Mathematics, Math Tutorial Center, (865) 974-0469
University of Tennessee, Knoxville (August 2000 to August 2001).
Duties: Tutored undergraduate math students in subjects ranging from College Algebra to Differential Equations, Proctoring Duties for Intermediate Algebra.
- Peer Tutor - Mathematics, Department of Services for Students with Disabilities,
Pellissippi State Technical Community College (January 1999 to August 2000).
(865) 539-7153, Duties: Tutored students in Algebra, Calculus, and Statistics.

Research Interests

- Enumerative combinatorics and graph theory
- Edge decompositions of graphs, graceful labelings on graphs, intersection/representation theory, and combinatorial designs
- Combinatorial games and games on graphs - in particular, peg solitaire on graphs
- Pebbling and rubbing on graphs
- Mathematics of puzzles and games
- Other interests include: Number theory, applied algebra, pedagogy, history and philosophy of mathematics

Publications¹

Published manuscripts

1. "Peg Solitaire on Graphs with Merging and Jumping Allowed." *Involve* **15**, no 3, p. 433-446, 2022 (with A. L. Kilby*).
2. "Examples of Edge Critical Graphs in Peg Solitaire." *Proceedings of Mathematics and Statistics* **388**, p. 157-169, 2022 (with A.D. Gray).
3. "Deterministic Bootstrap Percolation on Trees." *The Art of Discrete and Applied Mathematics*. **Vol. 5, #2**: 19 pages, 2022 (with R. L. Keaton and R. Norwood).
4. "Major MacMahon's Revenge." *Metagrobologist Magazine*. **8**: 16-23, 2021.
5. "Double Jump Peg Solitaire on Graphs." *The Bulletin of the Institute of Combinatorics and its Applications*. **91**: 80-93, 2021 (with A.D. Gray).
6. "Total Domination Cover Rubbling." *Discrete Applied Mathematics*. **283**: 133-141, 2020 (with T. W. Haynes, M. A. Henning, and R. Keaton).
7. "Palindromic Graphs." *The Bulletin of the Institute of Combinatorics and its Applications*. **86**: 85-100, 2019.
8. "Domination Cover Rubbling." *Discrete Applied Mathematics*. **260**: 75-85, 2019 (with T. W. Haynes and R. Keaton).

^{1,*} denotes undergraduate co-author, 't' denotes graduate co-author

9. "1-restricted optimal rubbing on graphs." *Discussiones Mathematicae: Graph Theory* **39 (2)**: 575-588, 2019 (with T. W. Haynes and K. Murphy^t).
10. "Tic-Tac-Toe on Graphs." *Australasian Journal of Combinatorics*, **72 (1)**: 106-112, 2018.
11. "An Introduction to Peg Duotaire on graphs." *Journal of Combinatorial Mathematics and Combinatorial Computing*, **104**: 171-186, 2018 (with A. D. Gray).
12. "Hexagon Standoff." *The Bulletin of the Institute of Combinatorics and its Applications*, **82**: 11-18, 2018.
13. "An introduction to t -restricted optimal rubbing." *Congressus Numerantium*, **228**: 129-140, 2017 (with T. W. Haynes and K. Murphy^t).
14. "Peg Solitaire on the Caterpillar." *Integers*, **17**: 14 pages, 2017 (with H. Green* and R. T. Harper*).
15. "Curing Instant Insanity II." *Mathematics Magazine*, **4**: 252-261, 2016 (with A. J. Bentley^t).
16. "Extremal Results for Peg Solitaire on Graphs." *Bulletin of the Institute of Combinatorics and its Applications*, **77**: 30-42, 2016 (with A. D. Gray^t).
17. "Decomposition, Packings, and Coverings of the Complete Digraph with Orientations of $K_3 \cup \{e\}$." *Utilitas Mathematica*, **100**: 153-167, 2016 (with R. Gardner, C. Gwellem, and J. Lewenczuk).
18. "Double Roman Domination." *Discrete Applied Mathematics*, **211**: 23-29, 2016 (with T. W. Haynes and S. T. Hedetniemi).
19. "The Apprentices' Tower of Hanoi." *Journal of Mathematical Sciences*, **3**: 1-6, 2016 (with C. B. H. Ball^t).
20. "Peg Solitaire on trees of diameter four." *Australasian Journal of Combinatorics*, **63**: 321-332, 2015 (with C. A. Walvoort^t).
21. *How to Count: An Introduction to Combinatorics and its Applications*. Springer, New York, 2015.
22. "Polish mathematics in the first half of the twentieth century." *The Mathematical Scientist*, **39**: 1-10, 2014 (with R. Norwood).
23. "Packages and Purges for Peg Solitaire on Graphs." *Congressus Numerantium*, **218**: 33-42, 2013 (with C. A. Walvoort^t).
24. "Freely Solvable Graphs in Peg Solitaire." *ISRN Combinatorics*, **2013**, 6 pages, 2013 (with A. D. Gray^t).
25. "Fool's Solitaire on Graphs." *Involve*, **5**, No. 4: 473-480, 2012 (with T. K. Rodriguez*).
26. "Peg Solitaire on Graphs with Seven Vertices or Less." *Congressus Numerantium*, **211**: 151-159, 2012 (with A. D. Gray^t).

27. "Constructing Solvable Graphs in Peg Solitaire." *The Bulletin of the Institute of Combinatorics and its Applications*, **66**: 89-96, 2012 (with A. D. Gray^t and D. P. Hoilman*).
28. "Fully Automorphic Decompositions of Graphs." *The Journal of Combinatorial Mathematics and Combinatorial Computing*, **83**: 87-96, 2012.
29. "Peg Solitaire on the Windmill and the Double Star Graphs." *The Australasian Journal of Combinatorics*, **52**: 127-134, 2012 (with D. P. Hoilman*).
30. "Mathematics in Movies." In *The Encyclopedia of Mathematics and Society*, Salem Press 2012: 681-684.
31. "SMARTBoard." In *The Encyclopedia of Mathematics and Society*, Salem Press 2012: 920-921.
32. "Units of Length." In *The Encyclopedia of Mathematics and Society*, Salem Press 2012: 1021-1023.
33. "A Note on the Number of Ways to Compute a Determinant Using Cofactor Expansion." *The Bulletin of the Institute of Combinatorics and its Applications*, **63**: 36-38, 2011.
34. "Peg Solitaire on Graphs." *Discrete Mathematics*, **311**, No. 20: 2198-2202, 2011 (with D. P. Hoilman*).
35. "The Simple Astrid and its Variations." *The International Journal of Pure and Applied Mathematics*, **66**, No.2: 137-144, 2011 (with E. Harris* and S. Milam^t).
36. "Automorphic Decompositions of Graphs." *Graphs and Combinatorics*, **27**: 149-160, 2011 (with R.E. Jamison).
37. "Decompositions of the Directed Complete Graph with Orientations of P_4 with a Pendant Edge." *Congressus Numerantium*, **202**: 211-218, 2010 (with A. Rockney^t).
38. "The 2-Star Spectrum of Caterpillars." *Congressus Numerantium*, **202**:7-16, 2010.
39. "The Infinigon and its Properties." *Congressus Numerantium*, **198**:39-49, 2009 (with A. Rockney* and C. Yearwood*).
40. "Decompositions of Mixed Graphs using Partial Orientations of $P_3 \cup K_2$ and $K_2 \cup K_2 \cup K_2$." *Congressus Numerantium*, **197**:153-160, 2009 (with A. M. Meadows^t).
41. "Valuations on Graphs and Their Direct Products." *Congressus Numerantium*, **197**:107-119, 2009.
42. "Distinguishing Chromatic Numbers for Cartesian Products of Graphs." *Congressus Numerantium*, **197**:21-31, 2009 (with J. Everhardt*).
43. "Decompositions of Mixed Graphs using Partial Orientations of P_4 and S_3 ." *The International Journal of Pure and Applied Mathematics*, **56**, No. 1:63-67, 2009 (with A. M. Meadows^t).
44. "The 2-Star Spectrum of Stars." *Australasian Journal of Combinatorics*, **45**:303-308, 2009 (With R.E. Jamison and E. Mendelsohn).

45. “Finding Vertex Induced Cycles Within Circulant Graphs.” *Congressus Numerantium*, **191**:33-49, 2008 (with T. M. Wooten^t).
46. “Rulers, Valuations, and Cyclic Decompositions of Graphs.” *Congressus Numerantium*, **183**:109-127, 2006 (with R. E. Jamison).

Submitted articles/Articles under revision

- “Connect Four on Trees” Submitted to *Art of Discrete and Applied Mathematics*, November 2022 (with R. Keaton)
- “Peg Duotaire on Graphs: Jump Versus Merge” Submitted to *Bulletin of the Institute of Combinatorics and its Applications*, July 2022 (with A.D. Gray)
- ”Jump versus Merge Duotaire: Competitive Graph Parameters” Submitted to *Bulletin of the Institute of Combinatorics and its Applications*, December 2022 (with A.D. Gray).
- “Restricted Tic-Tac-Toe on Graphs”, In progress (with R. Keaton)
- “A star capturing game on graphs”, In progress (with R. Keaton)

Supplemental Material²

1. “The Fifteen Puzzle and its relatives” Supplemental Material for “Introduction to Modern Algebra I.”
2. “Instant Insanity.” Supplemental Material for “Introduction to Graph Theory.”
3. “Cops and Robbers on Graphs.” Supplemental Material for “Introduction to Graph Theory.”
4. “Decompositions and Graceful Labelings.” Supplemental Material for “Introduction to Graph Theory.”
5. “The Automorphism Group of Graphs.” Supplemental Material for “Introduction to Graph Theory” and “Introduction to Modern Algebra I.”

Presentations

1. “Fifteen Puzzle”
ETSU Abstract Algebra Club, April 2023
2. “Peg Solitaire on Graphs: A Retrospective with Open Problems”
Invited talk in the “Online Symposium for Peg Solitaire on Graphs”, June 2022.
3. “Major MacMahon’s Revenge”
Invited talk in the ETSU REU, July 2019
4. “Domination Cover Rubbling”
Invited talk in the “Special Session on Graph Theory in Honor of Robert Jamison’s 70th Birthday”
AMS Southeastern Sectional Meeting, Auburn University, March 2019

²All supplemental material is self-published on my personal webpage and on D2L.

5. “Pólya? But I Hardly Know Ya!”
ETSU Abstract Algebra Club, February 2019
6. “The Taxman Cometh!”
Invited talk in the Special Session,
“Engaging Activities in Coding Theory, Cryptography, and Number Theory”
MAA Southeastern Conference, Clemson University, March 2018
7. “Using Math to Make Puzzles”
ETSU Math and Stats Club, February 2018
8. “Graph Automorphism Groups”
ETSU Abstract Algebra Club, February 2018
9. “ e , the Younger, Less Popular, Cousin of π ”
CaRDS seminar ETSU, November 2017
10. “Group Theory and the Rubik’s Cube”
ETSU Abstract Algebra Club, November 2017, October 2016, November 2014
11. “Peg Solitaire on Graphs: Results, Variations, and Open Problems”
Invited talk at Western Carolina University, April 2017
12. “Enigma: The Unbreakable Nazi Code and How it Was Broken”
Departmental Seminar, ETSU, April 2011
Presentation to the ETSU Noyce interns, June 2011
Invited talk at Lincoln Memorial University, March 2012
Kappa Mu Epsilon meeting, February 2017
Invited talk at Western Carolina University, April 2017
13. “That’s Impossible!!!”
ETSU Math Department Seminar, February 2017
14. “Expand or Die!”
Recent Advances in Graph Theory and Linear Algebra,
University of Tennessee, Chattanooga, March 2016
15. “Tic-Tac-Toe on Graphs”
International Conference on Graph Theory and Applications,
Middle Tennessee State University, August 2015
16. “Peg Solitaire on Graphs: 2015 and Beyond!”
Invited to AMS Special Session on Graph Theory,
University of Alabama, Huntsville, March 2015
17. “Are You Still Insane?”
Invited talk at the Algebra and Discrete Math Seminar,
Clemson University, October 2014

18. “Games, Mathematics, and Other Harmless Diversions”
Invited Keynote Presentation
Third Annual Kennesaw Mountain Undergraduate Mathematics Conference,
Kennesaw State University, November 2013
19. “Peg Solitaire on Graphs: Current Results and Open Problems”
26th Cumberland Conference on Combinatorics, Graph Theory, and Computing,
Middle Tennessee State University, May 2013
20. “Peg Solitaire on Graphs: Progress and Problems”
Forty-Third Southeastern International Conference on Combinatorics, Graph Theory,
and Computing, Florida Atlantic University, March 2012
21. “Problems Relating to Peg Solitaire on Graphs”
Algebra and Discrete Math Seminar, Clemson University, September 2011
ETSU Discrete Folks, September 2011
22. “Discrete Mathematics for Teachers”
Presentation to the ETSU Noyce Interns, June 2011
23. “Generating Functions in Sage”
Hands-on Exploration of Algebra and Combinatorics Using Sage
MathFest Short Course, Pittsburgh, August 2010 (invited presentation)
24. “The 2-Star Spectrum of Caterpillars”
Forty-First Southeastern International Conference on Combinatorics, Graph Theory,
and Computing, Florida Atlantic University, March 2010
25. “Invisible Purple Unicorns and Other Imaginary Beasts”
Upper East Tennessee Council of Teachers of Mathematics, May 2009
26. “Transcendental Numbers”
Seminar on the History and Exploration of Mathematical Problems, East Tennessee
State University, April 2009
27. “Valuations on Graphs and Their Direct Products”
Fortieth Southeastern International Conference on Combinatorics, Graph Theory, and
Computing, Florida Atlantic University, March 2009
28. “Regression”
Upper East Tennessee Council of Teachers of Mathematics, October 2008
29. “Number Theoretical Applications to Graph Theory”
Clemson REU, Invited Speaker, June 2008
30. “Open Labelings on Graphs”
Thirty-Ninth Southeastern International Conference on Combinatorics, Graph Theory,
and Computing, Florida Atlantic University, March 2008
31. “Linear Diophantine Equations in Graph Decompositions”
AMS-MAA Joint Meeting, San Diego, January 2008

32. "Introduction to Latex"
Departmental Seminar, ETSU, September 2007
33. "The Academic Job Search"
Graduate Student Seminar, Clemson University, April 2007
34. "Intersection Graphs Generated By An Edge Decomposition"
AMS-MAA Joint Meeting, New Orleans, January 2007
35. "The $\{K_{1,s}, K_{1,t}\}$ -Spectrum of Stars and Caterpillars"
ACES Workshop, Emory University, December 2006
36. "Simple Automorphic Decompositions of Graphs"
Algebra and Discrete Math Seminar, Clemson University, September 2006
37. "Mathematical Resources on the Web"
Graduate Student Seminar, Clemson University, September 2006
38. "Decompositions of Graphs"
Thirty-Seventh Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2006
39. "Fully Automorphic Decompositions of Graphs"
Graduate Student Seminar, Clemson University, February 2006
40. "Automorphic Decompositions of Graphs"
Algebra and Discrete Math Seminar, Clemson University, October 2005
Graduate Student Seminar, Clemson University, April 2005
41. "Problems Relating to the Chromatic Decomposition of Graphs"
Algebra and Discrete Math Seminar, Clemson University, November 2004
42. "The History of e "
Graduate Student Seminar, Clemson University, September 2004, October 2002
43. "Pascal's Wager - The Search for God in a Mathematical World"
Graduate Student Seminar, Clemson University, October 2003
44. "Transcendental Numbers"
Informal Number Theory Seminar, Clemson University, April 2003
45. "Mental Illness and the Mathematician"
Graduate Student Seminar, Clemson University, March 2003

Grants

- "Permutation Patterns Conference," (with A. P. Godbole)
NSF Conferences in the Mathematical Science Grant. Awarded \$21600.
- "Threshold Results for Peg Solitaire on Graphs,"
ETSU Research Development Comittee Grant. Awarded \$9970.

- “NSF Robert Noyce Scholarship Grant,” (with J. Knisley, A. Govett, and D. Stephens). Awarded \$894066.
- “Distinguishing Chromatic Numbers of Graphs,” ETSU Research Development Committee Grant. Awarded \$8333.33.

Student Advisement

Master’s/Honors Thesis Committees Chaired

1. Ms. Amanda McKinney, Honors Thesis Advisor, “Peg Solitaire on Graphs with Merging and Jumping Allowed.” Graduated May 2021.
2. Mr. Nathan Molder, Master’s Committee Chair, “Taking Notes - Using Group Theory to Construct Twelve-Tone Music.” Graduated May 2019.
3. Mr. Kyle Murphy, Master’s Committee Co-Chair, “1-Rubbling on Graphs.” Graduated May 2017.
4. Mr. Cory Ball, Master’s Committee Chair, “Apprentices’ Tower of Hanoi.” Graduated May 2015.
5. Ms. Amanda N. Justus, Master’s Committee Chair, “The Mathematics of Instant Insanity II.” Graduated May 2014.
6. Mr. Aaron D. Gray, Master’s Committee Chair, “Extremal Results for Peg Solitaire on Graphs.” Graduated December 2013.
7. Mr. Clayton Walvoort, Master’s Committee Chair, “Peg Solitaire on Trees of Diameter Four.” Graduated May 2013.
8. Mr. D. Paul Hoilman, Honors Thesis Advisor, “Graph Theorizing Peg Solitaire.” Graduated May 2011.
9. Mr. Adam Meadows, Master’s Committee Chair, “Decompositions of Various Mixed Graphs with Partial Orientations of P_4 .” Graduated May 2009.
10. Ms. Trina Wooten, Master’s Committee Chair, “Finding Edge Induced and Vertex Induced Cycles Within Circulant Graphs.” Graduated August 2008.

Master’s Committee Service

1. Mr. Olalekan Peter Ogeunmefun, Master’s Committee, “Roots of Quaternionic Polynomials and Automorphisms of Roots.” Graduated May 2023.
2. Mr. Kazeem Kosebinu, Master’s Committee, “Partially Oriented 6-Star Decomposition of Some Complete Mixed Graphs.” Graduated August 2021.
3. Mr. Chancé Culver, Master’s Committee, “Decompositions of the Complete Mixed Graph by Mixed Stars.” Graduated May 2020.
4. Mr. Nicholas Carney, Master’s Committee, “Roman Domination Cover Rubbling.” Graduated August 2019.

5. Mr. Ayotunde Egunjobi, Master's Committee, "Perfect Double Roman Domination in Trees." Graduated May 2019.
6. Mrs. Kaeli Gardner, Master's Committee, "Italian Domination in Prisms." Graduated December 2018.
7. Mr. Presley Chukwekere, Master's Committee, "2-domination of a Caterpillar." Graduated August 2018.
8. Mrs. Haley Russell, Master's Committee, "Italian Domination in Complementary Prisms." Graduated May 2018.
9. Mrs. Jennifer French, Master's Committee, "Partition Functions on Arrays." Graduated May 2018.
10. Mr. Alawi Alhashim, Master's Committee, "Roman Domination in Complementary Prisms." Graduated December 2016.
11. Mr. Dustin Chandler, Master's Committee, "Neighborhood-restricted $[\leq 2]$ -Achromatic Colorings." Graduated May 2016.
12. Mr. Christian Moore, Master's Committee, "Global Supply Sets in Graphs." Graduated May 2016.
13. Mr. Stephen Barker, Master's Committee, "Changing Between Two Notations for Double Torus Links." Graduated December 2015.
14. Mr. Derek Bryant, Master's Committee, "The Number of Zeroes of a Polynomial in a Disk Using a Monotonicity Condition with Reversals." Graduated August 2015.
15. Mr. Derek Kiser, Master's Committee, "Distance-2 Domatic Numbers of Graphs." Graduated May 2015.
16. Ms. Connie Blalock, Master's Committee, "Weighted Vertex Trees." Graduated August 2014.
17. Mr. Tony Rodriguez, Master's Committee, "Very Cost Effective Domination in Graphs." Graduated May 2014.
18. Mr. Wesley Surber, Master's Committee, "Restricted and Unrestricted Coverings of Complete Bipartite Graphs with Hexagons." Graduated May 2013.
19. Ms. Tabitha McCoy, Master's Committee, "Cost Effective Domination in Graphs." Graduated May 2013.
20. Ms. Inna Vasylieva, Master's Committee, "Very Cost Effective Partitions in Graphs." Graduated May 2013.
21. Mr. Josh Brooks, Master's Committee, "Nested $(2, r)$ -regular Graphs and Their Network Properties." Graduated August 2012.
22. Ms. Elizabeth Harris, Master's Committee, "Global Domination Stable Graphs." Graduated August 2012.

23. Mrs. Martha Liendo, “Preferential Arrangement Containment in Strict Superpatterns.” Graduated May 2012.
24. Mr. Kelechukwu Alu, Master’s Committee, “Solving the Differential Equation for the Probit Function Using a Variation of the Carleman Embedding.” Graduated May 2011.
25. Mr. Michael Deren, Master’s Committee, “Universal Hypergraphs.” Graduated May 2011.
26. Ms. Denise Koesler, Master’s Committee, “A Predictive Model for Secondary RNA Structure Using Graph Theory and a Neural Network.” Graduated May 2010.
27. Mr. Ernest Jum, Master’s Committee, “The Last of the Mixed Triple Systems.” Graduated August 2009.
28. Mrs. Kristin Holmes, Master’s Committee, “Locating-Domination in Complementary Prisms.” Graduated May 2009.
29. Mr. Daniel Cantrell, Master’s Committee, “ f -cyclic and Bicyclic Decompositions of the Complete Graph into 4-Cycles with a Pendant Edge.” Graduated December 2008.
30. Mr. Tracy Holt, Master’s Committee, “On the Attainability of Upper Bounds for Circular Chromatic numbers of K_4 -Minor-Free Graphs.” Graduated May 2008.
31. Ms. Melody Cooper, Master’s Committee, “Packings and Coverings of Various Complete Digraphs with Orientations of a 4-Cycle.” Graduated December 2007.

Service

Departmental Service

- Departmental Committee to review Tenure and Promotion Guidelines, Spring 2023.
- Chair of Tenure and Promotion Review Committee for Dr. Rodney Keaton, September 2021.
- Chair of Mid-tenure Review Committee for Dr. Rodney Keaton, April 2019.
- Chair of Committee to revise the Tenure and Promotion Guidelines, Spring 2015 and Spring 2019.
- Chair of Mid-tenure Review Committee for Dr. Nicole Lewis, April 2016.
- Assistant Professor in Analysis/Applied Math Search Committee, August 2015 to March 2016.
- Honors-in-Discipline Coordinate, May 2013 to August 2016.
- Assistant Professor in Statistics Search Committee, August 2012 to March 2013.
- Noyce Recruitment and Selection, August 2009 to 2014.
- Writer/Grader for Calculus Comprehensive exam, August 2007 to present.

- Kappa Mu Epsilon Advisor, August 2010 to present.
- Mathematical Sciences Advisor, August 2009 to present.
- Writer/Grader for “Franklin Math Bowl,” East Tennessee State University, November 2007 to 2011.
- Advisor for Student Chapter of the Mathematical Association of America (renamed Math Club in August 2010), August 2007 to May 2011.
- Department Chair Selection Committee, November 2010.
- Website Redesign Committee, January 2010.
- Responsible for several pages in the departmental self-study, January 2010.
- Instructor Selection Committee, East Tennessee State University, August 2008.
- STEP/Symbiosis Recruitment at Central High School, Halls High School, Karns High School, and Powell High School in Knoxville, TN, October 2007.
- Runner/Grader for “Clemson Calculus Challenge,” Clemson University, April 2007.
- Co-Organizer for Graduate Student Seminar, Clemson University, 2007-2008.
- Participant in “Pro2serve Tennessee Math Contest,” University of Tennessee, Knoxville, 2002.

College and University Service

- College of Arts and Sciences Tenure and Promotion Committee, August 2021 to December 2022. Chaired in 2022.
- Graduate School Representative for Master’s Defense - Ms. Brianna Lynn, “Policing Farm Crime: An Exploratory Study of Agricultural Crime Units,” October 2020.
- College of Arts and Science Committee charged with revising Strategic Plan item #4 (Teaching), August 2018 to August 2019.
- Educational Affairs Committee, College of Arts and Sciences, ETSU, August 2009 to May 2011, August 2017 to May 2019.
- Graduate School Representative for Dissertation Defense - Mr. Md Mahbubur Rahman, “Characterization of Acltransferases and WRINKLED Orthologs Involved in TAG Biosynthesis in Avocado,” July 2018.
- Graduate School Representative for Dissertation Defense - Ms. Michelle Johnson, “Design and Validation of a Scale for Preschoolers: Measuring Nutrition Knowledge, Beliefs, and Behaviors,” October 2017.
- Graduate School Representative for Master’s defense - Mr. Cameron Griggs, “Relationship Between Lower Body Strength, Countermovement Jump Height, and Optimal Drop Jump Drop Height,” June 2016.

- Graduate School Representative for Master's defense - Mr. Raheem Ariwoola, "Use of Drone and Infrared Camera for a Campus Building Envelope Study," March 2016.
- Grade Appeal Committee
- Academic Misconduct Committee
- Graduate School Representative for Master's defense - Ms. Marijana Stojkovic, "Re-defining the Unrepentant Prostitute in Victorian Poetry," March 2015.
- Faculty Senate, May 2013 to May 2016.
- General Education Advisory Council, August 2012 to August 2016.
- Research Development Committee Review Panel, April 2013.
- Graduate School Representative for Master's defense - Mr. George Beckham, "Physical and Anthropometric Factors Influencing Isometric Strength in Key Positions of the Conventional Deadlift on Powerlifters," June 2012.
- Faculty Council, College of Arts and Sciences, ETSU, August 2011 to May 2013.
- Graduate School Representative for Master's defense - Mr. James T. Friske, "Western Media Use of the 'Third World' Construct: A Framing Analysis of its Validity," March 2011.
- Graduate Representative for Master's defense - Mr. Daniel L. Lawson, "Automation and Its Effect on the Workforce," November 2010.
- Graduate Representative for Master's Defense - Ms. Jennifer M. Cooke, "Molecular Mechanism of Ferrisiderophore Transport via the Outer Membrane Receptor FhuA in *Escherichia coli*," March 2009.
- Member of "Teaching Excellence Award for Graduate Teaching Associates Committee," March 2009.
- Member of "Honors Selection Committee," East Tennessee State University, 2008 to 2013.

Service to the Profession

- Referee for *Proceedings of Mathematics and Statistics* (one paper).
- Referee for *Journal of Combinatorics* (one paper).
- Referee for *The Bulletin of the Institute of Combinatorics and its Applications* (three papers).
- Referee for *Involve* (two papers).
- Referee for *The Art of Discrete and Applied Mathematics* (one paper).
- Referee for *Mathematics Magazine* (one paper).

- Referee for *Integers* (one paper).
- Organizer of “Special Session on Graph Theory in Honor of Robert Jamison’s 70th Birthday” at the AMS Meeting in Auburn, March 2019.
- Project NExT consultant, May 2015 to August 2018.
- Referee for *Journal of Combinatorial Mathematics and Combinatorial Computing* (four papers).
- Referee for *AKCE International Journal of Graphs and Combinatorics* (one paper).
- Judge at Third Annual Kennesaw Mountain Undergraduate Mathematics Conference
- Referee for *Discrete Mathematics* (two papers).
- Referee for *Journal of Mathematical Research with Applications* (one paper).
- Referee for *Australasian Journal of Combinatorics* (three papers).
- Guest editor for special issue of *Journal of Combinatorial Mathematics and Combinatorial Computing*.
- Organizing committee for Twenty-fifth Cumberland Conference on Combinatorics, Graph Theory, and Computing, East Tennessee State University, May 2012.
- Chaired Session at Forty-Third Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2012.
- Reviewer for *Mathematical Reviews*. November 2011 to present (twenty papers).
- Referee for *Ars Combinatoria* (two papers).
- Chaired Session at Forty-First Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2010.
- Chaired Session at Fortieth Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March 2009.
- Referee for *Graphs and Combinatorics* (one paper).
- Organizer and Co-Chair of “Special Session on Graph Decompositions” at the AMS meeting in Huntsville, October 2008.
- Referee for Special Issue of *The Journal of Statistical Planning and Inference*, February 2008 (two papers).
- Chaired “AMS Session on Combinatorics, IV” at the AMS-MAA Meeting in San Diego.
- Judge for Undergraduate Poster Session at the AMS-MAA Joint Meeting in San Diego.

Professional Development

- Noyce Southeastern Conference, Greenville, SC, March 2011.

- NSF Robert Noyce Teacher Scholarship Program Conference, Washington D.C., July 2010.
- Collaborative Institutional Training Initiative, July 2009.
- Departmental Representative to Faculty Diversity Seminar, November 2009.
- Robert Noyce Preparation Workshop, Atlanta, October 2009.
- Teacher Preparation Grant Workshop, Pellissippi State Technical Community College, August 2008.
- Participant in several Project NExT Workshop at Mathfest in Madison, August 2008.
- Participant in “Teaching Introductory Statistics” presented by the Consortium for the Advancement of Undergraduate Statistics Education at East Tennessee State University, July 14-17, 2008.
- Enrolled in “GRAD 7850 - Mentoring Student Research” at East Tennessee State University, Spring 2008.
- Teacher Preparation Grant Workshop, Pellissippi State Technical Community College, February 2008.
- Participant in several Project NExT Workshop at AMS-MAA Joint Meeting in San Diego, January 2008.
- Attended TIMBER Conference, Appalachian State University, November 2007.
- Participant in several Project NExT Workshop at Mathfest in San Jose, August 2007.

Honors and Awards

- Mace Bearer at ETSU Graduation, December 2017, May 2018, May 2019.
- Student Choice Award for “Most Creative.” Presented by the ETSU Student Government Association, April 2018.
- ETSU Commencement Speaker, December 2017.
- ETSU Faculty award for Distinguished Achievement in Teaching, 2017.
- College of Arts and Sciences award for Distinguished Teaching, 2017.
- Departmental Award for Outstanding Faculty in Research, 2009 and 2016.
- College of Arts and Sciences award for Outstanding New Faculty, 2010-2011.
- Project NExT Fellow, 2007-2008.
- Faculty Award for Excellence in Teaching, Clemson University, April 2004.
- Eagle Scout Award, 1993.

Professional Memberships

- Mathematical Association of America
- American Mathematical Society
- Institute of Combinatorics and its Applications

Technical Skills

- Software: Matlab, C, NCSS, Sage, R
- Computing Platforms: Windows, Unix/Linux
- Text Formatting and Office Computing: LaTeX, Word, Excel, PowerPoint