Jeffrey S. Powell

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Research Interests

Graph theory & Combinatorics
Specific Areas: Path and cycles, H-linkages, social network analysis, efficient network design

Academic Experience

Samford University, Birmingham, Alabama USA

Professor of Mathematics	August 2019-Present
Interim Chair, Mathematics & Computer Science	August 2017-August 2021
Associate Professor of Mathematics	August 2012-August 2019
Assistant Professor of Mathematics	August 2006 - August 2012

Emory University, Atlanta, Georgia USA

Teaching Associate	August 2001- August 2006

Education

Emory University, Atlanta, Georgia USA
Ph.D., Mathematics, August 2006.
Dissertation: "Two Questions About Connectivity in Graphs" (Advisor: Ron Gould)

Furman University, Greenville, South Carolina USA
B.S., Mathematics (*summa cum laude*), June 2001

Peer-Reviewed Publications

In Print: (Note that mathematical publications list authors alphabetically.)

1. Lydia E. Kenney and Jeffrey S. Powell. The H-linked Degree-Sum Parameter for Special Graph Families. *Involve* 10 (2017), no. 4, 707-720.

2. Michael Ferrara, Ronald Gould, Silke Gehrke, Colton Magnant, and Jeffrey Powell. Pancyclicity of 4-connected {Claw, Generalized Net}-Free Graphs. *Discrete Mathematics* 313 (2013), no. 4, 460-467.

3. Ralph Faudree, Ronald Gould, and Jeffrey Powell. Property $P_{d,m}$ and Efficient Design of Reliable Networks. *Networks* 60 (2012), no. 3, 167-178.

4. Michael Ferrara, Ronald Gould, Michael Jacobson, Florian Pfender, Jeffrey Powell and Thor Whalen. New Ore-Type Conditions for H-linked Graphs. *Journal of Graph Theory*, 71 (2012), 69-77.

5. Michael Ferrara, Michael Jacobson, and Jeffrey Powell. Characterizing Degree-Sum Maximal Nonhamiltonian Bipartite Graphs. *Discrete Mathematics*, 312 (2012), no. 2, 459-461.

6. Michael Ferrara, Colton Magnant, and Jeffrey Powell. Pan-H-linked Graphs. *Graphs and Combinatorics*, 26 (2010), 225-242.

7. Ronald Gould, Jeffrey Powell, Brian Wagner, and Thor Whalen. Minimum degree and Pan-k-Linked Graphs. *Discrete Mathematics*, 309 (2009), no. 10: 3013-3022.

8. Scott P. Martin, Jeffrey S. Powell, and Douglas F. Rall. On the independence number of the Cartesian product of caterpillars. *Ars Combinatoria*, 60 (2001): 73-84.

Conferences Attended

1. AMS-MAA Joint Mathematics Meeting, Virtual Conference, January 2021

2. 67th Annual Meeting of the Alabama Association of College Teachers of Mathematics (AACTM), Huntingdon College; March 2019

3. AMS-MAA Joint Mathematics Meeting, San Diego, CA, January 2018

4. 2017 American Association for Marriage and Family Therapy Annual Conference; Atlanta, GA October 2017

5. 65th Annual Meeting of the Alabama Association of College Teachers of Mathematics (AACTM), Samford University; February 2017

6. AMS-MAA Joint Mathematics Meeting, Atlanta, GA, January 2017

7. 17th Atlanta Lecture Series on Graph Theory and Combinatorics, Georgia State University, April 2016

8. MAA Southeastern Section Meeting, University of Alabama-Birmingham, March 2016

9. Recent Advances in Linear Algebra and Graph Theory, University of Tennessee-Chattanooga, March 2016

10. Troy Mathfest Undergraduate Conference, Troy University, April 2015.

11. AMS-MAA Joint Mathematics Meeting, San Antonio, TX; January 2015.

12. MAA Southeastern Section Meeting, Tennessee Tech University, March 2014

13. MAA Southeastern Section Meeting, Winthrop University, March 2013.

14. 61st Annual Meeting of the Alabama Association of College Teachers of Mathematics (AACTM), Birmingham Southern College; February 2013.

15. Cycles in Graphs Conference, Vanderbilt University, May 2012.

16. MAA Southeastern Section Meeting, Clayton State University, March 2012.

17. Southeastern Council on Family Relations (SECFR) Annual Conference, Chattanooga, TN, February 2012.

18. MAA Southeastern Section Meeting, University of Alabama, April 2011.

19. 61st Annual Meeting of the Alabama Association of College Teachers of Mathematics (AACTM), Huntingdon College; February 2011.

20. Southeastern REU Symposium (SeREUS), University of North Carolina-Asheville; July 2010.

21. MAA Southeastern Section Meeting, Elon University, March 2010.

22. 60th Annual Meeting of the Alabama Association of College Teachers of Mathematics (AACTM), Tuskegee University; February 2010.

23. 59th Annual Meeting of the Alabama Association of College Teachers of Mathematics (AACTM), Jacksonville State University; February 2009.

24. AMS Southeastern Section Meeting, University of Alabama in Huntsville; October 2008.

25. 21st Cumberland Conference on Combinatorics, Graph Theory, and Computing, Vanderbilt University; May 2008.

26. 58th Annual Meeting of the Alabama Assoc. of College Teachers of Math.(AACTM), Samford University; February 2008.

27. MAA Mathfest, San Jose, CA; August 2007.

28. 20th Cumberland Conference on Combinatorics, Graph Theory, and Computing, Emory University; May 2007.

29. 57th Annual Meeting of the Alabama Assoc. of College Teachers of Math.(AACTM), University of Alabama; February 2007.

30. AMS-MAA Joint Mathematics Meeting, New Orleans, LA; January 2007.

31. MAA Mathfest, Knoxville, TN; August 2006.

32. AMS-MAA Joint Mathematics Meeting, San Antonio, TX; January 2006.

33. 20th Mini-conference on Discrete Math. & Algorithms, Clemson University; October 2005.

34. AMS-MAA Joint Mathematics Meeting, Atlanta, GA; January 2005.

35. Vanderbilt Workshop on Graph Factors, Vanderbilt University; December 2003.

36. AMS-MAA Joint Mathematics Meeting, New Orleans, LA; January 2001.

37. AMS-MAA Joint Mathematics Meeting, Washington, D.C.; January 2000.

Scholarly Presentations

Conference and Invited Presentations:

1. MAA Session on Using Mathematics to Study Problems from the Social Sciences, AMS-MAA Joint Mathematics Meeting, January 2018; "Gatekeeping and the Professional Network of Therapist Supervisors."

2. Forum (with Dr. Jonathan Davis) for American Association for Marriage and Family Therapy (AAMFT), AAMFT Annual Conference, October 2017; "Supervisor Relationship Networks"; hour-long interactive talk; attendees eligible for continuing education credit.

3. MAA Session on Integrating Research into the Undergraduate Classroom, AMS-MAA Joint Mathematics Meeting, January 2017; "Mickey Mouse, Kevin Bacon, and How Undergraduate Research Opened a Whole New World For Me."

4. Special Session Talk, MAA Southeastern Section Meeting, March 2014; "My Trek into the Great Online Unknown"

5. Refereed Contributed Talk (with Dr. Jonathan Davis), Southeastern Council on Family Relations (SECFR) Annual Conference, February 2012; "Family Therapy Supervisor Networks."

6. Plenary Speaker, Southeastern REU Symposium (SeREUS), University of North Carolina-Asheville, July 2010; "Six Handshakes Away from the President?: An Introduction to Small-World Networks."

7. Special Session Talk, MAA Southeastern Section Meeting, March 2010; "Examining Life's Big Questions in Contemporary Math (?!)"

8. Contributed Paper, AMS Southeastern Section Meeting, November 2008; "Minimum Degree Conditions for Subdivision Extensions and Pan-H-linked Graphs."

9. 58th Annual Meeting of the AACTM, February 2008; "A Brief Introduction to Small-World Networks."

10. 57th Annual Meeting of the AACTM, February 2007; "Minimum Degrees and the Six Degrees of Kevin Bacon."

11. Contributed Paper, AMS-MAA Joint Mathematics Meeting, January 2007; "A New Ore-condition for H-linked Graphs."

12. Contributed Paper, AMS-MAA Joint Mathematics Meeting, January 2006; "Menger Path-Systems and Minimum Graph Size."

13. Contributed Paper, AMS-MAA Joint Mathematics Meeting, January 2001; "On the Independence Number of the Cartesian Product of Caterpillars."

University Presentations:

1. Panel (with six others), Samford University Mini-Conference on Teaching & Learning, August 2018; "Assessing Student Learning on General Education Outcomes: Process, Progress, and Early Results."

2. Kappa Mu Epsilon Invited Speaker, Birmingham Southern College, November 2011; "Six Handshakes Away from the President?: An Introduction to Small-World & Scale-free Networks."

3. Faculty Shop Talk, Samford University, October 19, 2010; "Crickets, Kevin Bacon, and Electrical Lines: The Mathematics of Small-world & Scale-free Networks."

4. Colloquium Talk, University of Akron, March 2009; "The Six Degrees of Small-World Networks."

5. Colloquium Talk, Samford University, November 2008; "Electrical Lines, Crickets, and Kevin Bacon: An Overview of Small-World Networks."

6. Colloquium, Furman University, November 2005; "Efficient Design of Reliable Networks."

Community Presentations:
1. Birmingham Darwin's Tavern Group, June 2016; "Is It a Small World After All? An Introduction to Networks"

2. General Talk, Hoover High Mathematics Team Camp, June 2008; "Flatland and the Euler Characteristic."

Honors, Awards, and Grants	• Howard College of Arts & Sciences Dean's Teaching Award	August 2020
	• Samford University Faculty Development Grant ($2,325)	January 2008
	Funded Activity: "Determining Minimum Degree Conditions for Pan-H-linked Graphs"	
	• Exxon-Mobil National Project NExT Fellow (Sepia Dot)	August 2006-August 2007
	NExT is an MAA Program for recent Ph.D. recipients	

Undergraduate Research & Senior Projects

- Senior Project — Spring 2020
  Title: *An Investigation of Game Theory*
  Students: Brooke Howard, Justin Young

- Senior Project — Spring 2019
  Title: *An Exploration of Mathematical Modeling Using Fluid Dynamics*
  Students: Lyra Lapuyade, Olivia Samples

- Senior Project — Spring 2018
  Title: *Teaching Mathematics Using History and Visual Proofs*
  Students: Mackenzie Epps, Kyla Kugler

- Senior Project — Spring 2015
  Title: *Minimizing Areas and Volumes with Lagrange Multipliers*
  Students: Jeff Dzugan, Aaron Pendleton, Meredith Robinson
  Presented at the Troy University Mathfest in April 2015

- Senior Project — Spring 2014
  Title: *Ramsey Numbers and Bounds*
  Student: Megan Reneau

- Senior Project — Spring 2013
  Title: *Wide Diameter, Hypercubes, and Network Design*
  Student: Nick Dzugan
  Presented at the MAA Southeastern Section Meeting in March 2013

- Senior Project — Spring 2012
  Title: *Counting Asymmetric Rhythms*
  Student: Lydia East

- Samford Undergraduate Research Program — Summer 2011
  Title: *Determining H-linked Degree-sum Parameters for Certain Classes of Graphs*
  Student: Lydia East
  Results accepted for publication in refereed journal *Involve*

- Senior Project   Spring 2011
    Topic: *Leontief Economic Models*
    Student: Brittany Ross

- Senior Project   Spring 2010
    Topic: *Vertex-Transitive Graphs in Network Design*
    Student: Jonathan Jenkins

- Senior & Honors Project   Spring 2009
    Topic: *Centrality Measures in Social Network Analysis*
    Student: Corley Henderson
    Presented at the MAA Southeastern Section Meeting in March 2009

- Senior Project   Spring 2009
    Topic: *Markov Chains and Baseball*
    Student: Andrew Crisp

- Samford Undergraduate Research Program   Summer 2008
    Title: *Using Mathematica to Model Small-World & Scale-Free Networks*
    Student: Jonathan Jenkins

Courses Taught (Through Spring 2022)

Samford University:
Undergraduate: MATH 110: Contemporary Math, MATH 150: Pre-Calculus, MATH 240: Calculus I, MATH 260: Calculus II, MATH 270: Calculus III, MATH 280: Introduction to Advanced Mathematics; MATH 330: Differential Equations; MATH 340: Linear Algebra, MATH 350: Vector Calculus, MATH 370: Mathematical Statistics, MATH 430: Abstract Algebra, MATH 485: Senior Seminar, MATH 495: Senior Project, COSC 200: Discrete Structures

Graduate: MATE 560: Discrete Mathematics for Teachers

Online: MATH 110: Contemporary Math (Developed the online version of this course through the Samford approval process)

Emory University:
Undergraduate: Introduction to Probability and Statistics, Games and Graphs, Calculus I, Calculus with Business Applications

Service

Professional:

- Review Writer, *American Mathematical Society (AMS) Mathematical Reviews*, February 2011-Present.

- Referee, *Involve* (April 2012-Present), *Acta Applicanda Mathematicae* (March 2011-Present), *Graphs and Combinatorics* (April 2011-Present), *Journal of Combinatorics and System Sciences* (August 2008-Present), *Discrete Mathematics* (January 2007-Present), *Discrete Applied Mathematics* (May 2007-Present), *SIAM Journal for Discrete Mathematics* (May 2021-Present).

- MAA Project NExT Consultant for 2018 Fellows, August 2018-Present

- Co-organizer & Question Writer, Math Jeopardy for the MAA Southeastern Section Meeting, Dates: March 2009, March 2010, April 2011, March 2012, March 2013, March 2014, March 2015, March 2016, March 2017, March 2018.

- Co-organizer, 61st Annual Meeting of the Alabama Association of College Teachers of Mathematics (AACTM), Huntingdon College; February 2011

- Officer, Alabama Association of College Teachers of Mathematics, Offices held & dates: President (Feb. 2010-Feb. 2011), Vice-President (Feb. 2009-Feb. 2010), Executive Council Member (Feb. 2007-Feb. 2009)

- Judge, Alabama Junior Academy of Science Paper Competition, Mathematics/Engineering and Paper Competition Finals, Samford University. March 21, 2008
- Co-organizer, Project NExT Session, "Increasing the Number of Majors." MAA Mathfest, August 2007
- Reviewer, Brooks/Cole Publishing. Reviewed *Calculus: Concepts and Contexts* 3e by James Stewart, April 2007.
- Judge, MAA Undergraduate Poster Session. AMS-MAA Joint Mathematics Meeting, January 2007.
- Chair, AMS Contributed Paper Session on Combinatorics IV. AMS-MAA Joint Mathematics Meeting, January 2007.
- Co-chair, AMS Contributed Paper Session on Combinatorics III. AMS-MAA Joint Mathematics Meeting, January 2006.

Departmental:
- Committee Member, Math. & CS Chair Search Committee, 2019-2020, 2020-2021 academic years.
- Co-Chair, Search Committee, CS Director Search, 2018-2019 academic year.
- Chair, Search Committee, Math Faculty Positions, 2017-2018 academic year.
- Sponsor, Math Club. Samford University, August 2007-Present.
- Math & CS Advisor, Summer Orientation. Samford University, Numerous times from Fall 2010 to Present.
- Proctor, Alabama Statewide Mathematics Contest (Round 1, District IV). Samford University, Dates: March 28, 2009; March 23, 2011; February 23, 2013, February 28, 2015.
- Committee Member, Math Faculty Search, 2014-2015 academic year.
- Student Supervisor, William Lowell Putnam Mathematical Competition. Samford University, December of each year: 2006-2017.
- Departmental Representative, Samford University Preview Day, Numerous times from Fall 2008 to Present

College & University:
- Search Committee Member, Accounting faculty position, 2019-2020 academic year.
- A & S Representative on the University Faculty Development and Evaluation Committee, Spring 2018.
- Co-chair; Howard College of Arts & Sciences Faculty Development and Evaluation Committee, Fall 2017 to Spring 2018.
- Member, Howard College of Arts & Sciences Faculty Development and Evaluation Committee, one term replacement in Fall 2013, Fall 2015 to Spring 2018.
- A & S Representative, Quality Matters Training, May 2017
- Member, General Education Assessment Pilot Group, Spring 2017
- Member, University General Education Committee, Spring 2015-Spring 2017
- Course Designer, Online Version of MATH 110 (Contemporary Math), Summer 2013
- Howard College of Arts & Sciences Representative, Faculty Senate, August 2010-August 2013.
- Mentor, New Faculty Mentoring Program. Samford University, Academic Years: 2007-2008, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015
- Speaker, Howard College of Arts and Sciences Assembly, August 2009-August 2010.

- Vice Speaker, Howard College of Arts and Sciences Assembly, August 2008-August 2009.
- Secretary, Howard College of Arts and Sciences Assembly, August 2007-August 2008.
- Faculty Participant, Samford Outdoor Summer Adventure (SOSA). Bayou La Batre, AL. August 2007.
- Student Advisor, Banner Student Information System Training and Mock II Registration, January 2007.

Miscellaneous:
- Auditor, Miss Samford Pageant, October 2013, October 2014, October 2015, October 2017.
- Host Home, University Ministry Home Groups, Fall 2014-Spring 2015.
- Judge, The Wright Stuff. 2007 Science Olympiad, Division C State Finals. Samford University. March 31, 2007.

Professional Societies	Mathematical Association of America (MAA), Alabama Association of College Teachers of Mathematics (AACTM)
Honor Societies	Phi Beta Kappa, Pi Mu Epsilon, Phi Eta Sigma, Upsilon Pi Epsilon