Jill Faudree
Department of Mathematics and Statistics
University of Alaska Fairbanks
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Research Interests:

Graph Theory, especially Structural Graph Theory, Path and Cycle Structures in Graphs, Hamiltonicity, Forbidden Subgraphs, Extremal Graph Theory, Highly Symmetric Configurations;

Mathematics Education especially at the introductory undergraduate level.

Education:

August 1998	PhD in Mathematics
	Emory University, Atlanta GA
May 1993	M.S. in Mathematics
	University of Memphis, Memphis TN
May 1991	B.S. in Mathematics
	Tulane University, New Orleans LA

Professional Experience:

2017-present	**Professor**
2004-2017	**Associate Professor**
1998-2004	**Assistant Professor**
	Department of Mathematics and Statistics
	University of Alaska Fairbanks
1993-1998	**Teaching Associate**
	Department of Mathematics and Computer Science
	Emory University
1991-1993	**Teaching Associate**
	Department of Mathematical Sciences
	University of Memphis

Awards:

Spring 2025	Distinguished Teaching Award
	Pacific Northwest Section
	Mathematics Association of America
2018-2019	CNSM Outstanding Teaching Award
	University of Alaska Fairbanks
2013-2014	Bonus for Extraordinary Performance
	CNSM, University of Alaska Fairbanks
2007-2008	CNSM Outstanding Teaching Award
	University of Alaska Fairbanks
2003-2004	Outstanding Academic Advisor
	University of Alaska Fairbanks

1997-1998	Marshall Hall Prize for Distinguished Undergraduate Instruction
	Emory University
1993-96,1997-98	Patricia Roberts Harris Fellow
	Emory University
1992-1993	Award for Excellence in Teaching
	University of Memphis

Research

PEER-REVIEWED JOURNAL PUBLICATIONS

1. J. Faudree, J. McIntyre, R. Bridges, *Using Data to Sustain and Measure Student Success Initiatives*, PRIMUS, 1-10, 2024.

2. B. Currie, J. Faudree, R. Faudree, J. Schmitt, *A Survey of Minimum Saturated Graphs* Electronic Journal of Combinatorics, dynamic survey 19. (updated in 2022)

3. L. Berman, G. Chappell, J. Faudree, J. Gimbel, C. Hartman, G. Williams, *On Graphs with Proper Connection Number 2*, Theory and Applications of Graphs, vol. 8, issue 2, article 2, (2021).

4. G. Araujo-Pardo, Z. Berikkyzy, J. Faudree, K. Hogenson, R. Kirsch, L. Lesniak and J. McDonald. *Finding Long Cycles in Balanced Tripartite Graphs: A First Step.* In Daniela Ferrero et al. (eds) Research Trends in Graph Theory, Association for Women in Mathematics Series (in production) Springer Nature, Cham, Switzerland (2021).

5. L. Berman, P. DeOrsey, J. Faudree, T. Pisanski, A. Zitnik, *Chiral Astral Realizations of Cyclic 3-Configurations*, Discrete Comput Geom (2020).

6. J. Faudree *Courage by Experiment, Rescue by Data*, PRIMUS (2020), 1-9.

7. J. Faudree, R. Faudree, R. Gould, P. Horn, M. Jacobson, *Degree Sum Conditions and Vertex Dominating Paths* J. Graph Theory 89 (2018), no. 3, 250-265.

8. L. Berman, G. Chappell, J. Faudree, J. Gimbel, C. Hartman, G. Williams, *Graphs with Obstacle Number Greater than One*, J. Graph Algorithms Appl. 21 (2017), no. 6, pp. 1107-1119.

9. J.R. Faudree, R.J. Faudree, R.J. Gould, M.S. Jacobson, B. Thomas, *Saturation Spectrum of Paths and Stars*, Discuss. Math. Graph Theory 37 (2017), no. 3, 811-822.

10. L. Berman, J. Faudree, T. Pisanski *Polycyclic Movable 4-Configurations are Plentiful*, Discrete Comput. Geom. 55 (2016), no. 3, 688-714.

11. L. Berman, G. Chappell, J. Faudree, J. Gimbel, C. Hartman, *Uniquely Tree-Saturated Graphs*, Graphs & Comb., 32 (2016), no. 2, 463-494.

12. G. Chen, J. Faudree, R.J. Faudree, R.J. Gould, M.S. Jacobson, C. Magnant, *Results and Problems on Saturation Numbers for Linear Forests.* Bull. Inst. Combin. Appl. 75 (2015), 29-46.

13. J. Faudree, R. Faudree, *Weak Saturation Numbers of Graphs*, Congr. Numer 217 (2013), 65-81.

14. L. Berman, J. Faudree, *Highly Incident Configurations with Chiral Symmetry*, Discrete Comput. Geom. 49 (2013), no.3, 671-679.

15. K. Amin, J. Faudree, R. Gould, E. Sidorowicz, *On the non-$(p-1)$-partite K_p-free graphs*, Discuss. Math. Graph Theory 33(2013), no. 1, 9-23.

16. J.R. Faudree, R.J. Faudree, Z. Ryjacek, P. Vrana, *On Forbidden Pairs Implying Hamilton Connectedness*, J. Graph Theory 72 (2013), no. 3, 327-345.

17. J.R. Faudree, R.J. Faudree, J.R. Schmidt, *A Survey of Minimum Saturated Graphs*, Electronic Journal of Combinatorics, dynamic survey 19.

18. K. Amin, J.R. Faudree, R.J. Gould, *Edge Spectrum of K_4-Saturated Graphs*, J. Combin. Math. Combin. Comput. 81 (2012), 233-242.

19. J.R. Faudree, R.J. Faudree *Forbidden Subgraphs that Imply 2-Factors with Specified Numbers of Components*, Bull. Inst. Combin. Appl. 64 (2012), 4-20.

20. J.R. Faudree, R.J. Faudree, R.J. Gould, M.S. Jacobson, C. Magnant *Chvatal-Erdos Type Theorems*, Discussiones Mathematicae Graph Theory 30 (2010), no.2, 245-256.

21. J.R. Faudree, R.J.Faudree, R.J. Gould, M.S. Jacobson, *Saturation Numbers for Trees*, Electon. J. Comb. 16 (2009), research paper 91, 19 pp.

22. J.R. Faudree, R.J. Faudree *Hamiltonian Cycles Containing Ordered Linear Forests*, Bull. Inst. Combin. Appl. 55 (2009), 78-104.

23. J.R. Faudree, R.J. Faudree, Z. Ryjacek, *Forbidden Subgraphs that Imply 2-Factors*, Discrete Math. 308 (2008), no. 9, 1571–1582.

24. J.R. Faudree, R.J. Gould, *A Note on Neighborhood Unions and Independent Cycles*, Ars Combinatoria, 76 (2005) 29-31.

25. J.R. Faudree, R.J. Faudree, R.J. Gould, M. Jacobson, and L. Lesniak, *Variations on Pancyclic Graphs*, J. Combin. Math. Combin Comput. 51 (2004) 33-48.

26. J.R. Faudree, R.J. Gould, F. Pfender, and A. Wolf, *k-Ordered Bipartite Graphs*, Electron. J. Combin., 10 (2003), no. 1, research paper 11, 12 pp. (electronic).

27. J.R. Faudree, R.J. Faudree, *Forbidden Subgraphs that Imply k-Ordered and k-Ordered Hamiltonian*, Discrete Math., 243 (2002), no. 1-3, 91-108.

28. G. Chen, J.R. Faudree, R.J. Gould, A. Saito, *2-Factors in Claw-Free Graphs*, Discuss. Math. Graph Theory, 20 (2000), no. 2, 165-172.

29. J.R. Faudree, R.J. Faudree, R.J. Gould, M. Jacobson, and L. Lesniak, *On k-Ordered Graphs*, J. Graph Theory, 35 (2000), no. 2, 69-82.

30. J.R. Faudree, *2-Factors and k-orderability in graphs*, Thesis (Ph.D.) Emory University. 1998. 93pp. ISBN:978-0591-98943-4.

MANUSCRIPTS

1. M. Islam, J. Faudree, J. McIntyre *Implementing a Proctored ALEKS-based Test to Evaluate Student Preparedness and Predict Success in Calculus I*, submitted to Journal for Research in Mathematics Education.

2. L. Berman, G. Chappell, J. Faudree, J. Gimbel, J. Gossel, G. Williams *On Induced Saturated Graphs*, in progress.

Recent Research Presentations

- *What the Research Actually Says about Corequisite Instruction*, Math Department Seminar, University of Alaska Fairbanks, Fairbanks AK, September 2025.

- *The Calculus I Project*, Chemistry Seminar, University of Alaska Fairbanks, Fairbanks AK, February 2024.

- *A Quasi-Experimental Study of Embedded Precalculus Instruction in Calculus I*, Joint Mathematics Meeting, San Francisco CA, January 2024.

- *Embedded Corequisite Instruction for All: An Experiment in Calculus I*, MAA Math Fest, Tampa FL, August 2023.

- *Open Problems in Saturation Theory*, SIAM Annual Meeting, July 2022 (invited talk)

- *Chiral Astral Realization of Cyclic 3-Configurations*, Erdos Conference, University of Memphis, Memphis TN, September 2019 (invited talk)

- *Cycle Structure and Edge Conditions in Simple Graphs*, WIGA, IMA, Minneapolis MN, August 2019

- *Saturation of Brooms*, AMS Fall Western Sectional Meeting, Special Session on Recent Advances in Structural and Extremal Graph Theory, October 2016. (invited talk)

- *From Dominating Paths to Saturation Spectrum: Some Recent Results with Ron*, Atlanta Lecture Series in Combinatorics and Graph Theory XVII, May 2016. (invited talk)

- *Results and Problems on Saturation Numbers for Linear Forests*, AMS Fall Southeastern Section Meeting, Special Session on Extremal Graph Theory, October 2015.

- *Uniquely Tree-Saturated Graphs*, Forty-sixth Southeastern International Conference on Combinatorics, Graph Theory, and Computing, March 2015 (contributed talk)

Grant Funding

J. Faudree (Lead PI), J. McIntyre, Testing the Use of Co-requisite Precalculus Instruction to Improve Undergraduate Students' Success in Calculus 1, NSF-DUE #2044072 ($300 K) 07/2021-06/2025.

Workshop Travel Grant ($1000) Simons Laufer Mathematical Sciences Institute on Critical Issues in Mathematics Education 2024: Bringing Innovation to Scale: Teaching-Focused Faculty as Change Agents April 2024.

Instructional Activities

Calculus 2 Coordinator, Department of Mathematics and Statistics, Fall 2025

Calculus Coordinator, Department of Mathematics and Statistics, 2017-2018, 2019-2020, 2021- 2023.

UAF SOTL Working Group. Including attending the Symposium on Transforming the Foundational Postsecondary Experience by the Gardner Institute Symposium in Asheville SC, June 2023.

Organizer, University of Alaska State-wide Math Summit, Fairbanks AK, May 2023.

Honors Faculty Advisory Council Member 2022-present.

PEER Chicago Workshop, Spring 2021.

AAAS-IUSE Summer Workshop, Summer 2021, Summer 2022.

SEMINAL Fullerton Mini-meeting (on incorporating active learning in the classroom), March 2019, California State University Fullerton.

University of Alaska Statewide Entry-wide/Developmental Math Workshop, May 2019, May 2022 University of Alaska Anchorage.

MAA Conference on Precalculus to Calculus: Insights & Innovations, June 16-20, 2016, University Saint Thomas, St. Paul MN.

> This was both a conference and workshop discussing recent scholarship concerning student success in Precalculus through Calculus courses at colleges and universities in the United States. In addition to detailed examination of recent research from the MAA study of Calculus programs, participating institutions shared detailed course models, logistics of support programs, and institutional data.

Math Bridge Program Co-Director (with L. Bowman) 2011-2014, 2015-2016

> This is a year-round program designed to provide extra support for students in UAF math courses with traditionally high failure rates. It includes a pre-semester preparatory program and auxiliary tutorials during the semester.

Major Advisor of Graduate Students

- Levi McClurg, M.S. Mathematics, M.S. Mathematics, Project: Introduction to the Saturation Spectrum of Nearly Complete Graphs, graduated Fall 2025.

- Everett Masterman, M.S. Statistics, Project: Comparison of Student Success between Asynchronous Online and In-Person Sections of Calculus 1 Using Multiple Statistical Methods, graduated Spring 2025

- Glen Woodworth, M.S. Mathematics, Project: The Graph Isomorphism Problem: An Introduction, graduated Fall 2023

- Ryan Bridges, M.S. Statistics, Project: Active Learning and Co-requisite Instruction in Calculus 1: A Preliminary Analysis, graduated Spring 2023.

- Beth Zirbes, M.S. Statistics, Project: Examining Success in Differential Equations by Student Performance in Prerequisite Courses, graduated Spring 2022

- Md. Azizal Islam, M.S. Statics, Project: Implementing a Proctored ALEKS-based Adaptive Learning Strategy to Evaluate Student Preparedness and Predict Success in Calculus I at the University of Alaska Fairbanks, graduated Fall 2021

- Erika Burr, M.S. Mathematics, Project: Graph Saturation, graduated Summer 2017

- Larry Huff, M.S. Mathematics, Project: The Eudoxus Reals, graduated Spring 2009

- James Lawless, M.S. Mathematics, Project: An Overview of Distinguishing Colorings, graduated Spring 2008

- Amy Barnsley, M.A.T Mathematics, graduated Spring 2008

Recent Courses Taught

      Professors in our department teach a variety of courses from introductory, precalculus courses to graduate courses.

- Support Courses: Pre-semester Prep for Calculus and Precalculus, Semester-long Workshops for Calculus and Precalculus

- Introductory & Service Courses: Math in Society (aka Math for Liberal Arts Majors), Precalculus, Calculus I, II, III, Introduction to Proofs, Discrete Mathematics, Linear Algebra, Differential Equations

- Advanced Undergraduate Courses: Combinatorics, Number Theory, Probability, History of Mathematics, Real Analysis, Abstract Algebra, Senior Seminar (Graphs and Matrices, Graph Theory)

- Graduate Courses: Teaching Seminar, Graph Theory, Algebra, Graph Theory Seminar

Professional Service

PUBLIC

Instructor for Osher Lifelong Learning Institute (OLLI)

      (Spring 2017, Spring 2018) I taught a course called *History of Math for Everyone.*

Math Content Leadership Team Member (for the Fairbanks North Star Borough School District)

      (2012-2014) This committee was tasked with approving new mathematics standards for K-12 classes in the District, aiding implementation of these standards, and choosing materials aligned to the new standards.

MATHCOUNTS Competition

      MATHCOUNTS is a national program that provides students the opportunity engage in mathematical topics that are different than the standard curriculum and to compete a variety of contests against and alongside their peers. It is open to all sixth-, seventh- and eighth-grade students.

Judge, Grader, and Proctor; Fairbanks North Star Borough-wide Math Counts Competition (2000-2016)
Math Counts Lead Coach (University Park Elementary School) 2012-2014

A variety of K-12 outreach programs such as:
      Science Fair Judge, Ryan Middle School
      Teaching Alaskans Science Knowledge (TASK) mentor (2006-2008). This program supported teams of three (one faculty member, one graduate student, one elementary school teacher) working to improve science education in K-6 classrooms.
      Alaska Summer Research Academy (ASRA), mentor teacher (2008). ASRA brings high school students to the UAF campus for a two-week intensive course on a select topic.

At the departmental level, I have experience working on: curriculum development, program assessment, math placement, hiring, directing the math tutoring lab, coordinating teaching assistants, acting as assistant chair, advising, and as the faculty sponsor of the math club and modeling contest.

At the university level, I have experience as a member of the UAF Faculty Senate, an advisor in our Academic Advising Center, an advisor for Student Support Services, university-wide assessment of core baccalaureate curriculum, college-level program review, and other committees focused on student success.

TO THE PROFESSION

I regularly referee research articles for a number of journals such as: Discrete Mathematics, Graphs and Combinatorics, Journal of Combinatorial Mathematics and Combinatorial Computing, Utilitas Math., and Math Reviews.

I have experience as a panelist for the National Science Foundation and mentoring faculty at a variety of levels.

PROFESSIONAL MEMBERSHIPS:

American Mathematical Society, Association for Women in Mathematics, Mathematical Association of America