

DENNIS HALL

Associate Professor, Mathematics

📍 MCS 220J ✉ ASU Station #10900, San Angelo, TX 76909-0900

EDUCATION

Ph.D. Mathematics, *Louisiana State University*, Baton Rouge, LA. 2014

Advisor: James Oxley, Dissertation Topics: Matroids and k -polymatroids.

M.S. Mathematics, *Louisiana State University*, Baton Rouge, LA. 2010

B.S. Mathematics, *University of Montevallo*, Montevallo, AL. 2008

EMPLOYMENT HISTORY

Associate Professor of Mathematics *Angelo State University*, San Angelo, TX. 2022-Present

Assistant Professor of Mathematics *Angelo State University*, San Angelo, TX. 2016-2022

Mathematics Instructor *SC Governor's School for Science and Math.*, Hartsville, SC. 2014-2016

Graduate Teaching Assistant *Louisiana State University*, Baton Rouge, LA. 2008-2014

PAPERS

Unavoidable Minors for 2-connected k -hypergraphs, *submitted with undergraduate.*

Unavoidable Minors for Connected k -polymatroids, *J. Combin. Theory Ser. B.* 139 (2019), 296–315

A Characterization of Tangle Matroids, *Ann. Comb.* 19 (2015), 125–130

Essential Elements in Connected k -polymatroids, *Adv. in Appl. Math.* 50 (2013), 281–291

RESEARCH INTERESTS

Matroids, Polymatroids, Graphs, Hypergraphs, Connectivity, Extremal Combinatorics.

HONORS AND AWARDS

Nominee for Rodgers Distinguished Faculty Award	2021
Nominee for ASU President's Award for Faculty Excellence in Scholarship	2020
Undergraduate Faculty Mentored Research Grant	2019–2020
Nominee for ASU President's Award for Faculty Excellence in Scholarship	2019
Undergraduate Faculty Mentored Research Grant	2017–2018
Texas Section NeXT Fellow	2017–2019

SPECIAL TOPICS AND RESEARCH COURSES

Graph Reconstructions, Spring 2023

Research course studying graph theory, particularly the area of graph edge reconstruction. The goal of the project is to produce original research relating to the Graph Reconstruction Conjecture.

Graph Theory, Fall 2020

Research course studying graph theory, particularly the area of graph coloring. The goal of the project is to produce original research relating to the “m-pire problem”.

Intro to Graphs & Matroid Theory, Fall 2020

Designed and taught special topics course focusing on foundational topics in Graph and Matroid Theory.

Geometry for Educators, Summer 2020

Designed and taught new “Geometry for Educators” graduate course for ASU's Master of Arts in Curriculum and Instruction with a Concentration in Mathematics. This course was delivered online over 15 weeks.

Graph Coloring, Summer 2018 - Spring 2020.

Research course studying graph theory, particularly the area of graph coloring. The goal of the project is to produce original research relating to the "Earth-Moon Problem". This course resulted in multiple conference talks.

Algebraic Topology, Spring 2020.

Special topics course studying Algebraic Topology, particularly the fundamental group and covering spaces.

Graph and Matroid Theory, Spring 2020 & Fall 2020.

Special topics course surveying Graph Theory and Matroid Theory.

Measure Theory and Integration, Spring 2018.

Research course with one student aimed at studying measure theory, integration, the Lebesgue Integral, and other topics in analysis.

Polymatroids and Matroids, Spring 2016 - Spring 2017.

Research course with the goal of finding unavoidable minors for 2-connected k -hypergraphs. This was a continuation of work I have done on finding the unavoidable minors for k -polymatroids. This course resulted in a paper (submitted), and multiple conference talks.

PRESENTATIONS

Conference Talks

How to Cheat at Blackjack and Probability , Texas MAA Sectional Meeting Stephenville, TX	2023
Unavoidable Minors in Hypergraphs , Texas MAA Sectional Meeting Stephenville, TX	2019
Unavoidable Minors in Hypergraphs , AMS Sectional Meeting, Denton, TX	2017
On the Structure of Tangle Matroids , AMS Joint Meetings, Baltimore, MD	2014

Presentations By Students

Excluding Symmetries in the Earth-Moon Problem, <i>MAA TX Section</i> , Denton, TX	2020
A Computational Approach to the Earth-Moon Problem, <i>TORUS Conference</i> , Lawton, OK	2020
A Computational Approach to the Earth-Moon Problem, <i>Rice Univ. GCURS</i> , Houston, TX	2019
The Earth-Moon Problem, <i>ASU Undergrad. Res. Symposium</i> , San Angelo, TX	2019
Progress on the Earth-Moon Problem, <i>MAA TX Section</i> , Stephenville, TX	2019
Results in the Earth-Moon Problem, <i>TORUS Conference</i> Bethany, OK	2019
Unavoidable Minors for 3-hypergraphs, <i>ASU Undergrad. Res. Symposium</i> , San Angelo, TX	2018
Unavoidable Minors for 2-connected 3-hypergraphs, <i>TORUS Conference</i> Wichita Falls, TX	2018
Examining Special Elements in Hypergraphs, <i>ASU Undergrad. Res. Symposium</i> San Angelo, TX	2017
On Special Elements in 3-hypergraphs, <i>MAA Texas Section Meeting</i> Commerce, TX	2017

Departmental Talks

How to Cheat at Probability and Blackjack <i>ASU MAA</i>	2020 & 2022
The Party Problem and Ramsey Theory <i>ASU Math Department</i> (several mini talks)	2016-present
Probabilities in the Game of Set <i>ASU MAA</i>	2018
Matroid Theory: The Essence of Dependence <i>ASU Math Seminar</i>	2018
Introduction to Knot Theory <i>ASU Math Seminar</i>	2017
Cops and Robbers: Graph Searching and Evasion <i>ASU MAA</i>	2016

SERVICE

Organizations

National Secretary-Treasurer for Alpha Chi Honor Society	2022-present
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Faculty Sponsor for Alpha Chi Honor Society <i>ASU</i>	2022–present
Officer for Phi Kappa Phi Honor Society <i>ASU</i>	2016–present
Board Member for San Angelo Road Lizards <i>Treasurer</i>	2018–present
Co-Sponsor for Math Sense UIL <i>Santa Rita Elementary</i>	2022
Co-Sponsor for Lego Robotics Enrichment Club <i>Santa Rita Elementary</i>	2019
Co-Sponsor for Rubik's Cube Enrichment Club <i>Santa Rita Elementary</i>	2017 & 2018
Co-Sponsor for Mathematical Modeling Group <i>ASU</i>	2016-2017

Service Talks

Open Educational Resources <i>ASU (several talks)</i>	2021-present
Adjusting to College <i>ASU Admissions (several talks)</i>	2017-present
Sample College Class: Game Theory <i>ASU Admissions (several talks)</i>	2017-present
Case Study: Using Gradescope <i>ASU Colleague-to-Colleague 'Tech Talk'</i>	2020
Interview: 'El Cafecito 35' <i>Multicultural & Student Activities</i>	2020
Professor Contact <i>ASU Just Juniors</i>	2019
New Faculty Orientation Panel <i>ASU.</i>	2019
A Demonstration of Open Educational Resources <i>ASU Mathematics Teaching Seminar</i>	2019
Integrating Blackboard and WebAssign <i>ASU Mathematics Teaching Seminar</i>	2018

Committee Work

Academic Excellence Committee <i>ASU</i>	2021–present
College Algebra Success Rate Evaluation Committee <i>ASU Math. Chair.</i>	2019
Textbook Selection Committees <i>ASU Math. 2 Committees, Chair.</i>	2019–present
Graduate Thesis Committee <i>ASU.</i>	2019–present
Campus Safety and Security Committee <i>ASU.</i>	2019–2020

West Texas Accelerating Math Pathways Team <i>Member.</i>	2019
Non-Tenure-Track Search Committee <i>ASU Math. Chair.</i>	2018
University Discipline Committee <i>ASU.</i>	2017–2018
Mathematics Tenure-Track Search Committee <i>ASU Math.</i>	2018
Tenure Requirements Committee <i>ASU Math.</i>	2016

Miscellaneous

Sponsor for the Santa Rita Elementary School Math Club	2021–present
Judge for MAA Section Meeting	2022
Moderator for AX National Convention	2022
Judge for SCUDEM Modeling Competition	2022
Placed Honor Cords at Graduation <i>ASU.</i>	2020
Gonfalonier or Usher at Graduation <i>ASU (various semesters)</i>	2019–present
Chaired a Conference Session <i>Oxley65 Conference.</i>	2019
Homecoming Parade Driver <i>ASU.</i>	2018 & 2019
Judge for Rammy's Student Organization Awards <i>ASU.</i>	2018
Judge for Goodfellow Air Force Base Spouses' Scholarship <i>GFAFB.</i>	2018
Science Fair Judge <i>Santa Rita Elementary.</i>	2018, 2019, 2022
Math Department Peer Evaluator <i>ASU.</i>	2017, 2018, 2022

Journal Reviews

Reviewed an article for American Mathematical Monthly	2022
Reviewed an article for Aletheia Undergraduate Journal	2016, 2022
Reviewed an article for SIAM Journal on Discrete Mathematics	2020
Reviewed an article for European Journal of Combinatorics	2020
Reviewed an article for Journal of Combinatorial Theory, Series B	2015

CONFERENCES ATTENDED

Texas Section Meeting TX	2022
AX National Convention TX	2022
Gulf Coast Undergraduate Research Symposium TX	2019
Texas Oklahoma Research Undergraduate Symposium OK	2019
Oxley 65 Conference LA	2018
Spring Texas Section MAA Meeting TX	2018
Texas Oklahoma Research Undergraduate Symposium TX	2018
AMS Special Session on Matroids and Related Structures TN	2018
Texas Undergraduate Mathematics Conference TX	2018
SiGMA 2017 ON	2017
AMS Sectional Meeting TX	2017
MAA Texas Section Meeting TX	2017

COURSES TAUGHT

In addition to several special topics and research courses (see above), I have also taught the following traditional courses.

Geometry for Educators MATH 6321

Topology MATH 4351

Numerical Analysis MATH 4311

Seminar in Mathematics MATH 4181

Calculus III MATH 3415

Calculus II MATH 2414

Differential Equations MATH 3335

Applied Math. for Engineering MATH 3324

Discrete Mathematics II MATH 3305

Linear Algebra MATH 3301

Intro to Abstract Mathematics MATH 3300

Calculus I MATH 2413

Intro. to Contemporary Math. MATH 1332

Finite Mathematics MATH 1324

College Algebra MATH 1314

Freshman Seminar GS 1181