



103rd Annual Meeting of the Southeast
Section of the Mathematical Association of
America

March 14 – 16, 2024

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Officers of the Southeastern Section

Chair	Caroline Maher-Boulis Lee University
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Immediate Past Chair	Sarah Raynor Wake Forest University
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Vice Chair for Two-Year Colleges	Jimmy Miller Roane State Community College
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Vice Chair for Programs	Andy Miller Belmont University
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Treasurer	Tom Fitzkee Francis Marion University
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Secretary	Frank Patane Francis Marion University
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Section Representative to MAA Congress	Emily Hynds Samford University
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Section Lecturer	Blayne Carroll Lee University
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Newsletter Editor	Lauren Grimley Spring Hill College
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Student Activities Coordinator	Karen O'Hara High Point University
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Historian

Naser Al-Hasan
Newberry College

Webmaster

Brad Fox
Austin Peay State University

Directors of Section
NExT-SE

Brad Schleben
Belmont University

Deidra Coleman
Wofford College

Jessie Hamm
Winthrop University

State
Director—Alabama

Tricia Phillips
University of Alabama at Birmingham

State Director—Georgia

Christopher Raridan
Clayton State University

State Director—North
Carolina

Justin Allman
Wake Forest University

State Director—South
Carolina

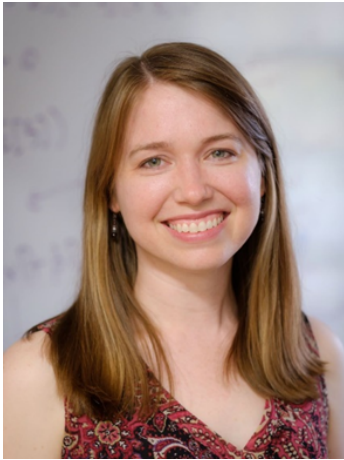
Emily Thomas
Charleston Southern University

State
Director—Tennessee

Kelly Buch
Austin Peay State University

MAA-SE 2024 Invited Speakers

Distinguished Lectures for Students



Abbey Bourdon
Wake Forest University

Torsion Points of Elliptic Curves

An elliptic curve is a geometric object with an especially rich arithmetic structure. These curves are involved in applications that vary from Wiles' proof of Fermat's Last Theorem to secure web browsing, and the challenge of working with them has captured the interest of mathematicians from Weierstrass to Serre. Despite their complexity, elliptic curves and their basic properties may be defined using only high-school algebra, and many important questions can be stated with little additional background. For this reason, they are in a superb position to provide an accessible glimpse of modern mathematics. This talk will introduce elliptic curves and then focus on questions related to a class of points known as torsion points. No special mathematical background will be required.



Blayne Carroll
Lee University
MAA-SE Section
Lecturer

Beyond 1, 2, 3, ...: Counting the Familiar, the Less Familiar, the Strange, and the Impossible

Enumerative combinatorics is a fascinating journey into the realm of counting. In this talk we will review and resolve some common counting problems and visit a few counting problems that are less familiar. We will uncover the beauty and complexity of these counting problems, discussing binomial coefficients, extended binomial coefficients, and their applications. As we continue to push our understanding of counting techniques, we will encounter enumeration problems that on their surface seem impossible to resolve efficiently. We will explore permutations and combinations with repetitions and restrictions and use the powerful technique of generating functions to unlock their secrets. Through this exploration, we will not only expand our understanding of enumerative combinatorics but also discover its profound implications in various fields. Join us on this journey as we move beyond 1, 2, 3... delve into the extraordinary world of enumerative combinatorics.

Plenary Speakers



*Richard Cleary
Babson College
MAA Editor, Scatterplot*

Connecting Traditional Math to a Modern Application: Discrete Probability and Fraud Detection

The MAA's new journal Scatterplot (www.tandfonline.com/journals/usca20) was created, among other reasons, to encourage mathematicians to explore ways to connect traditional mathematics topics to important modern applications. These connections can help mathematics majors be prepared to enter careers in many fields, particularly data science. In this talk we present an example of this type of connection by discussing applications of Benford's Law. This is a surprisingly simple discrete probability distribution that has proven to be useful in various fields, particularly accounting. We will get some 'live data' on testing a hypothesis with Benford's Law and discuss how including applications in many of our courses can work to help students with both career readiness and mathematical understanding.



*Duha Hamed
Winthrop University
2023 MAA-SE
Distinguished Teaching
Award by a Beginning
College Mathematics
Faculty Member Recipient*

Fostering a Pedagogy of Belonging to Promote Learning in Diverse Student Populations

Nurturing a sense of belonging in the classroom lays a solid groundwork for effective pedagogy. Building connections between teacher and students, as well as among students themselves, is pivotal in fostering this sense of belonging. The term 'belonging' embodies my distinctive teaching style, shaped by a blend of personal and professional experiences. Specifically, my participatory learning-based approach cultivates a feeling of belonging among diverse student groups, such as those at Winthrop University, instilling in them the confidence that they genuinely belong. This not only enhances their self-assurance but also empowers them to actively engage with and comprehend mathematics. Additionally, if time permits, I'll talk about my rewarding experience mentoring students in summer research about generalizing distributions.



*Jeneva Clark
University of Tennessee,
Knoxville
2023 MAA Southeastern
Section Distinguished
Teaching Award Recipient*

Share a Seat. Share a Cup.

The shortest distance between two people is a story. These stories need to be told. Our section was connected to the 1960 arrest of Dr. Martin Luther King, Jr., which we now know to have been a cusp in civil rights history. MAA member Bill Brodie, who was then a math graduate student at Atlanta University, led the student march and the integration of the lunch counters in Rich's Atlanta Department Store, with Dr. King by his side. The well-dressed and peaceful student activists chanted "Jail! No bail!" as they embraced imprisonment. Our own Bill Brodie traded his freedom for a jail cell bunk he shared with Dr. King for 7 days.

Just months before that famous arrest, Bill Brodie, along with a classmate and 2 faculty from Atlanta University, traveled to the annual MAA-SE meeting, only to be turned away from the conference hotel. In that 1960 moment, our conference organizers had no way to overturn the hotel's segregation. They also had no idea that they were apologizing to a student who would soon change US history. It's not too late for us, to learn and to love. Bill Brodie, 89, will join us for an interactive audience Q&A session following this talk.



*Deanna Haunsperger
Carleton College
MAA Polya Speaker*

A Glimpse at the Horizon

What do a square-wheeled bicycle, a 17th-century French painting, and the Indiana legislature all have in common? They appear among the many bright stars on the mathematical horizon, or, um, in *Math Horizons*. *Math Horizons*, the undergraduate magazine started by the MAA in 1994 publishes articles to introduce students to the world of mathematics outside the classroom. Some of mathematics' best expositors have written for MH over the years; here is an idiosyncratic tour of the first ten years of *Horizons*.

Schedule of Events

All times are given in the Eastern Time Zone.

Thursday, March 14

9:00 am – 5:00 pm **Parking Pass Pick-Up**

Ayres Hall 227



At 1403 Circle Drive, in front of the Math Building Ayres Hall, there will be temporary parking spaces, designated by signs. Please park here for a few minutes and come to the Math Department office at Ayres 227 to pick up your parking pass, if you need one. This parking pass will provide you with the ability to park in the 11th Street Parking Garage, located at 1101 Cumberland Avenue, during the duration of the conference. Enter the garage on the White Avenue side. To request a shuttle, call the UTK Math Department at (865) 974-2461.

2:30 – 4:30 pm

Project NExT-SE

Ayres Hall 123

math.utk.edu/maa-176/



Organizers: Brad Schleben, Deidra Coleman, Jessie Hamm

Networking and Roundtable Discussion of Topics such as Undergraduate Research, Alternative Assessments: Mastery-Based Grading, Professional Development, Reflective Writing, and Math Outreach

6:30 – 9:30 pm

Executive Committee Meeting

Ayres Hall 405

7:00 – 9:30 pm

Student Treasure Hunt

Ayres Hall 116

math.utk.edu/maa-175/



Organizers: Julie Barnes and Treasure Hunt Planning Team

See [Acknowledgements](#) for full listing.

Friday, March 15

9:00 am – 5:00 pm

Ayres Hall 227



Parking Pass Pick-Up

At 1403 Circle Drive, in front of the Math Building Ayres Hall, there will be temporary parking spaces, designated by signs. Please park here for a few minutes and come to the Math Department office at Ayres 227 to pick up your parking pass, if you need one. This parking pass will provide you with the ability to park in the 11th Street Parking Garage, located at 1101 Cumberland Avenue, during the duration of the conference. Enter the garage on the White Avenue side. To request a shuttle, call the UTK Math Department at (865) 974-2461.

7:30 am – 4:30 pm

*Haslam Business
Building Atrium*

Registration Desk Open, Refreshments, and Exhibits

Event Sponsors: Great River Learning, Pearson, Wiley, Cengage, AMS Press, and MAA Press

8:00 – 11:30 am

*Haslam Business
Building 301*



Project NExT-SE Sessions

math.utk.edu/maa-176/

Organizers: Brad Schleben, Deidra Coleman, Jessie Hamm

8 – 8:30 Networking and Refreshments

8:30 – 9:20 Mike Pinter, Belmont University, “Telling Stories to Humanize Our Courses”

9:30 – 10:20 Christian Millichap, Furman University, “Cryptological Adventures in Undergraduate Mathematics Courses of Many Shapes and Sizes”

10:30 – 11:20 “Impact of AI on your Classroom” Panel.
Panelists: Paul Wiegand, Winthrop University; Andy Miller, Belmont University; Christina Anderson, University of Tennessee, Knoxville

8:00 – 11:45 am



Math Jeopardy!

Haslam Business Building 304, 305, and 324

math.utk.edu/maa-171/

Organizers: Ron Taylor and Michael W. Berry

9:00 – 10:00 am

*Alumni Memorial
Building 32*



Distinguished Lecture for Students

“Torsion Points of Elliptic Curves”

math.utk.edu/maa-162/

Abbey Bourdon, Wake Forest University

10:00 – 11:00 am

*Alumni Memorial
Building 32*



Distinguished Lecture for Students

“Beyond 1, 2, 3, ...: Counting the Familiar, the Less Familiar, the Strange, and the Impossible”

math.utk.edu/maa-163/

Blayne Carroll, Lee University, MAA-SE Section Lecturer

9:00 – 11:00 am

*Haslam Business
Building 203*



Workshop: “Bringing Mathematical Ideas to Life via Animation”

math.utk.edu/maa-170/

Tien Chih, Oxford College of Emory University

Steven Clontz, University of South Alabama

10:00 – 11:00 am



Workshop: “Teaching with Overleaf”

Haslam Business Building 202

math.utk.edu/maa-169/

Lee Spence, Overleaf

9:00 – 9:45 am

*Haslam Business
Building 201*



“Introducing the Future of Homework: Unveiling WebAssign's Enhanced Platform for Students and Instructors”

math.utk.edu/maa-178/

Gary Whalen, Sr. Product Portfolio Manager, Cengage

9:50 – 10:35 am



“Engagement & Interactivity in the Classroom”

Haslam Business Building 201

math.utk.edu/maa-179/

Apryl Sweat, Cory Shafer, Pearson

10:40 – 11:25 am

*Haslam Business
Building 201*



“Bridging the Knowledge Gap and Encouraging Equity with Alta’s Dynamic Remediation”

math.utk.edu/maa-177/

Whitney Porter, Digital Learning Specialist, Wiley

11:45 am – 12:30 pm

Pizza from Super Mario’s Pizza



Haslam Business Building Atrium

\$10 Tickets are free for students. Additional tickets may be purchased online at Registration. Vegan options available.

Menu at www.supermariospizza.com/

12:00 – 12:30 pm

“Info Session: Being an MAA Section Officer”

Haslam Business 201

Presiding: Justin Allman

Grab some pizza and join current and past MAA-SE officers over lunch to hear about what officers do and how you can make an impact in the Section!

11:45 am – 12:30 pm

*Haslam Business
Building Atrium*



math.utk.edu/maa-174/

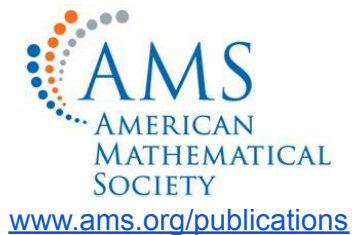
Students! Grab pizza and talk to representatives about opportunities from the following employers, graduate schools, and organizations:

- Actuarial science careers
- Appalachian State University
- Augusta University
- Clemson University
- Consortium for Mathematics and Its Applications (COMAP)
- Georgia Southern University
- Georgia State University
- KSA Integration
- Middle Tennessee State University
- North Carolina State University
- University of Alabama
- University of Alabama, Birmingham
- University of Alabama, Huntsville
- University of North Carolina, Charlotte
- Unum
- University of Tennessee, Knoxville
- University of Tennessee Tickle College of Engineering and University of Tennessee Space Institute

Haslam Business
Building Atrium

Publisher's Fair

Faculty! Talk to representatives about your textbook needs and authorship opportunities! The following publishers have sponsored this event and are here at the conference, anxious to learn about how they can meet the needs of your department and your students. Don't miss this opportunity to meet with a publisher representative.



12:45 – 1:45 pm

Alumni Memorial
Building, Floor 2,
Cox Auditorium

General Session I

MAA-SE Chair Caroline Maher-Boulis, presiding



Welcome from University of Tennessee, Knoxville

Kate Jones, Dean, Division of Natural Sciences and
Mathematics in the College of Arts and Sciences

Xiaobing Feng, Department Head, Mathematics



“Connecting Traditional Math to a Modern Application: Discrete Probability and Fraud Detection”

math.utk.edu/maa-164/

Richard Cleary, Babson College

MAA Editor, *Scatterplot*



2:00 – 4:00 pm

Concurrent Special and Contributed Sessions

Sessions	Rooms
Active Learning in Undergraduate Mathematics I	<i>Haslam Business Building 102</i>
Active Learning in Undergraduate Mathematics II	<i>Haslam Business Building 103</i>
Beyond Mathematics: Interdisciplinary Collaborations I	<i>Alumni Memorial Building 32</i>
Beyond Mathematics: Interdisciplinary Collaborations II	<i>Alumni Memorial Building 210</i>
Theory of Integer Sequences I	<i>Haslam Business Building 203</i>
Mathematics and the Visual and Performing Arts I	<i>Alumni Memorial Building 27</i>
Recreational Math I	<i>Haslam Business Building 104</i>
Contributed Paper Session I	<i>Haslam Business Building 201</i>
Contributed Paper Session II	<i>Haslam Business Building 202</i>
Contributed Paper Session III	<i>Haslam Business Building 304</i>
Contributed Paper Session IV	<i>Haslam Business Building 305</i>
Undergraduate Paper Session I	<i>Haslam Business Building 302</i>
Undergraduate Paper Session II	<i>Haslam Business Building 303</i>

Concurrent Special and Contributed Sessions

Special Session: Active Learning in Undergraduate Mathematics I

Organizers: *Sutandra Sarkar, Bill Shillito, Yuerong Wu, and Draga Vidakovic*, Georgia State University



2:00 pm
Haslam
102

“The Positive Impacts of Self-Assessed Homework Assignments in Calculus 1”

Kristen Mazur, Elon University

math.utk.edu/maa-42/

Additional Authors: Carolyn Yarnall, California State University, Dominguez Hills



2:20 pm
Haslam
102

“Flipping the Script: A Flipped Model with LaTeX Integration for Proofs-Intensive Course”

Catrina May, University of North Georgia

math.utk.edu/maa-180/



2:40 pm
Haslam
102

“Activating Adjuncts’ Active Teaching Opportunities”

Grace McClurkin, Saginaw Valley State University

math.utk.edu/maa-50/



3:00 pm
Haslam
102

“Modern Pen Pals in ODEs”

Nicole Panza, Francis Marion University

math.utk.edu/maa-45/

Additional Authors: Amanda Mangum, Converse University



3:20 pm
Haslam
102

“Solving Geometry Problems using Calculus”

Barrett Walls, Georgia State University

math.utk.edu/maa-46/

Additional Authors: Iason Rusodimos, Georgia State University



3:40 pm
Haslam
102

“Forming and Maintaining a Vibrant Undergraduate Problem Solving Group”

Frank Patane, Samford University

math.utk.edu/maa-47/

Special Session: Active Learning in Undergraduate Mathematics II



2:40 pm
Haslam
103

“Network Science in a First-Year Quantitative Reasoning Course”

Jenny Fuselier, High Point University

math.utk.edu/maa-49/



3:00 pm
Haslam
103

“Artificial Intelligence to Assist Problem Solving in Linear Algebra”

Jerzy Dydak, University of Tennessee, Knoxville

math.utk.edu/maa-43/



3:20 pm
Haslam
103

“Uhhh...you know I’m a beauty and fragrance major, right?”

Raju Bhusal, Savannah College of Art and Design

math.utk.edu/maa-44/

Additional Authors: Patrick Bahls, Savannah College of Art & Design, Department of Liberal Arts



3:40 pm
Haslam
103

“Active Learning in an Undergraduate Topology Course”

Shuler Hopkins, Sewanee: The University of the South

math.utk.edu/maa-52/

Special Session: Beyond Mathematics: Interdisciplinary Collaborations I

Organizers: Rachel Grotheer, Wofford College; Anastasia Wilson, Augusta University



2:00 pm
Alumni
Memorial
32

“Unraveling Plague Dynamics: Basic Modeling of Transmission Pathways in Black-Tailed Prairie Dog Populations”

Vinny Jodoin, University of Tennessee, Knoxville
math.utk.edu/maa-78/



2:20 pm
Alumni
Memorial
32

“King Gilgamesh and the Big Breeches”
Granite Clark, 14, Tennessee Connections Academy
Lara Qing-Bodiya, 9, Sequoyah Elementary School
math.utk.edu/maa-83/



2:40 pm
Alumni
Memorial
32

“Plato, Poincaré, & Pythagoras: an Initiation into Esoteric Mathematical Astronomy”

James Watkins, Appalachian State University
math.utk.edu/maa-76/



3:00 pm
Alumni
Memorial
32

“Mathematics in History: The Cases of Nicholas Saunderson and King George III”

Matthew Cathey, Wofford College
math.utk.edu/maa-63/



3:20 pm
Alumni
Memorial
32

“Tweaking Descartes on Light”

Andrew Simoson, King University
math.utk.edu/maa-64/



3:40 pm
Alumni
Memorial
32

“Cryptologic Collaborations with the Arts and Humanities”

Christian Millichap, Furman University
math.utk.edu/maa-60/
Additional Authors: Sarah Archino, John Harris,
Michael May, Grace Houser, Sophie Ngo, Sam
Schaich, and Jordan White (all at Furman University).

Special Session: Beyond Mathematics: Interdisciplinary Collaborations II



2:00 pm
*Alumni
Memorial
210*

“Partially Ordered Sets and Designing Classes in Object-Oriented Programming”

Jeff Clark, Elon University

math.utk.edu/maa-62/



2:20 pm
*Alumni
Memorial
210*

“The Mathematics of Redistricting: from Scholarship to Community Engagement to Undergraduate Research”

Anne Catlla, Wofford College

math.utk.edu/maa-72/

Additional Authors: Alfie-Louse Brownless, Georgia Institute of Technology



2:40 pm
*Alumni
Memorial
210*

“Stochastic Processes and Applications of Single Particle Tracking”

Keisha Cook, Clemson University

math.utk.edu/maa-65/



3:00 pm
*Alumni
Memorial
210*

“Modeling the Impact of Temperature During Nesting Seasons on Loggerhead Sea Turtles”

Suzanne Lenhart, University of Tennessee, Knoxville

math.utk.edu/maa-66/



3:20 pm
*Alumni
Memorial
210*

“Why Am I Learning This?”

Lea Jenkins, Clemson University

math.utk.edu/maa-181/



3:40 pm
*Alumni
Memorial
210*

“I Spy an Animal: Faculty-Student Collaborative Research in Ecology”

Rachel Grotheer, Wofford College

math.utk.edu/maa-67/

Additional Authors: Ben Sale, Eric McKenzie, Devin Ruppe, Wofford College

Special Session: Theory of Integer Sequences I

Organizers: Joshua Siktar, University of Tennessee-Knoxville; Steven J. Miller, Williams College; Hung Viet Chu, Texas A&M University



2:00 pm
Haslam
203

“How to Walk to Infinity on Primes and Square-free Numbers”

Joshua Siktar, University of Tennessee, Knoxville
math.utk.edu/maa-119/

Steven J. Miller (Williams College), Tudor-Dimitrie Popescu (Brandeis University), Fei Peng (National University Singapore), Nawapan Wattanawanichkul (University of Illinois Urbana-Champaign)



2:20 pm
Haslam
203

“Chaos and Order in Ulam Sequences and Generalizations”

Arseniy (Senia) Sheydvasser, Bates College
math.utk.edu/maa-115/



2:40 pm
Haslam
203

“A Liberal Arts Project on Fibonacci-like Sequences”

Ashley Johnson, University of North Alabama
math.utk.edu/maa-116/



3:00 pm
Haslam
203

“Powerful and Powered Numbers”

Tsz Ho Chan, Kennesaw State University
math.utk.edu/maa-112/



3:20 pm
Haslam
203

“Complementary Sequences, The Minimum Excluded Algorithm, Continued Fractions and Dynamical Systems”

Geremias Polanco, Smith College
math.utk.edu/maa-114/



3:40 pm
Haslam
203

“The Best Two-term Underapproximation by Egyptian Fractions”

Hung Viet Chu, Texas A&M University
math.utk.edu/maa-110/

Special Session: Mathematics and the Visual and Performing Arts I

Organizers: Lee Spence, Overleaf; Annie Jennings, Benchmark Physical Therapy/Sheer Inspiration Pole Fitness



2:00 pm
Alumni
Memorial
27

“Surface-Tiling Curves”

Adam Rowe
math.utk.edu/maa-88/



2:20 pm
Alumni
Memorial
27

“Teaching Linear Functions with Linear Perspective”

Katie Maxwell, Chester County High School
math.utk.edu/maa-91/



2:40 pm
Alumni
Memorial
27

“~~Math & Art: The Most Unexpected Couple Ever~~”

~~Eden Daughtry, University of Kentucky
math.utk.edu/maa-93/
CANCELED~~



3:00 pm
Alumni
Memorial
27

“Graph Theory in Marching Band”

Rebecca Percy
math.utk.edu/maa-94/



3:20 pm
Alumni
Memorial
27

“Mathematics in Motion in Atlanta”
Evans Harrell, Georgia Institute of Technology
math.utk.edu/maa-89/

Special Session: Recreational Mathematics I

Organizers: Timothy Goldberg, Lenoir-Rhyne University; Ron Taylor, Berry College



2:00 pm
Haslam
104

“A Mixed Base Generalization of the 27 Card Trick Using Step Functions”

Ryan Loga, Southern Adventist University

math.utk.edu/maa-99/



2:20 pm
Haslam
104

“Sprouts: A Game That Will Divide Friendships”

Damian Belmontes

math.utk.edu/maa-106/

Additional Authors: Demmi Ramos



2:40 pm
Haslam
104

“Semiregular Tangles”

Douglas A. Torrance, Piedmont University

math.utk.edu/maa-95/



3:00 pm
Haslam
104

“Quantum Connect 4”

Shuler Hopkins, Sewanee: The University of the South

math.utk.edu/maa-98/



3:20 pm
Haslam
104

“A Study of the Tricolored Towers of Hanoi”

Nishant Chinnasami, University of South Carolina

Salkehatchie

math.utk.edu/maa-105/



3:40 pm
Haslam
104

“Pi in the Sky - The Mathematics of Hot Air Balloons”

Tabatha Rainwater

math.utk.edu/maa-104/

NOTE: There is a hot air balloon exhibit Saturday morning. If weather permits, Tabatha will inflate *Pi in the Sky*. See the Saturday agenda for details.

Contributed Paper Session I

Moderated by Ryan Gipson (Campbellsville University)



2:00 pm
Haslam
201

“Solvability by Irreducible Radicals over Finite Fields”

math.utk.edu/maa-2/

Matt Lunsford, Union University



2:20 pm
Haslam
201

“Some Nice Quartics that aren't Totally Nice”

math.utk.edu/maa-13/

Nicholas Kirby, Austin Peay State University



2:40 pm
Haslam
201

“Predicting Self-distributive Algebraic Structures through Machine Learning”

math.utk.edu/maa-15/

Dan Scofield, Francis Marion University

Additional Authors: Sujoy Mukherjee, University of Denver



3:00 pm
Haslam
201

“Characterizing Depolarization Posets that are Lattices”

math.utk.edu/maa-16/

Ryan Gipson, Campbellsville University

Additional Authors: Trevor Leach, Lander University



3:20 pm
Haslam
201

“Elasticity of Orders in Quadratic Rings of Integers”

math.utk.edu/maa-39/

Jared Kettinger, Clemson University



3:40 pm
Haslam
201

“Prime Labelings of Zero-Divisor Graphs”

math.utk.edu/maa-6/

Brad Fox, Austin Peay State University

Additional Authors: Christopher Mooney, University of Wisconsin-Stout

Contributed Paper Session II

Moderated by Johannes Krotz (University of Tennessee, Knoxville)



2:00 pm
Haslam
202

“Cesaro Averaging and Extension of Functionals in $L^{\infty}(\mathbb{R}, \mathbb{R})$ ”

Pamela Delgado, Christian Brothers University
math.utk.edu/maa-7/



~~2:20 pm~~
~~Haslam~~
~~202~~

~~**“A Uniqueness Result for a p -Laplacian Infinite Semipositone Problem Involving Nonlinear Boundary Conditions”**~~

~~*Dustin Nichols, University of North Carolina, Greensboro*~~
~~math.utk.edu/maa-34/~~
~~*Additional Authors: D.D. Hai (Mississippi State),
Ratnasingham Shivaji (UNC Greensboro)*~~



2:40 pm
Haslam
202

“A Study of the Regularized Gardner Equation”

Pamela Guerrero, University of Tennessee at Martin
math.utk.edu/maa-40/



3:00 pm
Haslam
202

“A Mathematical Model for The Dynamics of Ovarian Cancer In Ghana”

Ebenezer Acquah, University of Tennessee, Knoxville
math.utk.edu/maa-18/



3:20 pm
Haslam
202

“A Likelihood Approach to Filtering for Advection Diffusion Processes”

Johannes Krotz, University of Tennessee, Knoxville
math.utk.edu/maa-73/
Additional Authors: Juan M. Restrepo (ORNL)



3:40 pm
Haslam
202

“Numerical Methods for Solving Nanofluid Flow Problems”

Ramjee Sharma, University of North Georgia
math.utk.edu/maa-167/
*Additional Authors: Anil Devarapu, University of North Georgia;
Dipendra Regmi, University of North Georgia*

Contributed Paper Session III

Moderated by Zachery Keisler (Saluda High School)



2:00 pm
Haslam
304

“Impact of Credit Risk in the Field of Lending Industry”

Monsuru Olalekan Durojaiye, Austin Peay State University

math.utk.edu/maa-35/

Additional Authors: Ramanjit K. Sahi



2:20 pm
Haslam
304

“Interplay of Economic Forces and Geopolitical Factors in Oil Pricing”

Olayinka Ugwu, Austin Peay State University

math.utk.edu/maa-36/

Additional Authors: Ramanjit K. Sahi



2:40 pm
Haslam
304

“Cryptosporidiosis Forecasting in Tennessee”

Megan Oelgoetz, Austin Peay State University

math.utk.edu/maa-37/

Additional Authors: Ramanjit K. Sahi



3:00 pm
Haslam
304

“Using Gaussian Elimination and the Null Space Method to Balance Chemical Equations”

Zachery Keisler, Saluda High School

math.utk.edu/maa-23/



3:20 pm
Haslam
304

“A Physics-inspired Bayesian Method for Learning Molecular Dynamics”

Daniel McBride, University of Tennessee, Knoxville

math.utk.edu/maa-74/



3:40 pm
Haslam
304

“Statistically Shipwrecked: Scurvy Makes a Case for Statistical Methodology”

Troy Riggs, Union University

math.utk.edu/maa-5/

Contributed Paper Session IV

Moderated by Steve Nimmo (Piedmont University)



2:00 pm
Haslam
305

“Increasing Student Success in Functions and Their Applications with the Development of a Corequisite Support Course”

Elizabeth F. Lewis, Greensboro College

math.utk.edu/maa-28/



2:20 pm
Haslam
305

“Teaching a Student-Friendly Liberal Arts Math Class”

Steve Nimmo, Piedmont University

math.utk.edu/maa-29/



2:40 pm
Haslam
305

“Hope, Fear, and Success: Reflective Writing Assignments in Lower-Level Math Courses”

Jennifer Aust, University of Tennessee Southern

math.utk.edu/maa-32/



3:00 pm
Haslam
305

“The High School to College Transition: An Early Case Study of University High”

Emily McDonald, University of Tennessee, Knoxville

math.utk.edu/maa-38/



3:20 pm
Haslam
305

“Constructing a Corequisite for Precalculus: the Virtues of Collaboration”

Jeffrey Lawson, Western Carolina University

math.utk.edu/maa-19/

Additional Authors: Daniel Best and Sibley Bryan, Western Carolina University



3:40 pm
Haslam
305

“Algebraic Structures on Graphs Joined by Edges”

Daniel Pinzon, Georgia Gwinnett College

math.utk.edu/maa-189/

Undergraduate Paper Session I



2:00 pm
Haslam
302

“Cayley Graphs and Their Applications to Group Theory and the Banach-Tarski Paradox”

Kathryn Dover, Presbyterian College
math.utk.edu/maa-131/



2:20 pm
Haslam
302

“Almost Positively Curved Eschenburg Spaces”

Peyton Johnson
math.utk.edu/maa-132/



2:40 pm
Haslam
302

“Can Normal be Abnormal-Normal?”

Gavin Thomas Anderson, Winthrop University
math.utk.edu/maa-129/

Additional Authors: Kylie Zangla, Duha Hamed,
Winthrop University



3:00 pm
Haslam
302

“Juggling Virtual Braids and Links”

Ivy Keegan Stump, Davidson College
math.utk.edu/maa-107/



3:20 pm
Haslam
302

“DNA Self-Assembly Design of Bunk-bed Graphs”

Sydney Wilson, Converse University
math.utk.edu/maa-58/
Additional Authors: Caleb Chang, Converse
University

Undergraduate Paper Session II



2:00 pm
Haslam
303

“Enumerating Visible Tilings of Squares”

Cole X Swain, University of Montevallo

math.utk.edu/maa-126/



2:20 pm
Haslam
303

“3-Dimensional Ferrer's Boards and Their Corresponding Rook and Hit Numbers”

Talon Hutto, Brescia University

math.utk.edu/maa-130/

Additional Author: Kenny Barrese



2:40 pm
Haslam
303

“Generalized Delannoy Numbers and Regular Polygons”

Jared Bush

math.utk.edu/maa-122/

Additional Author: William Griffiths



3:00 pm
Haslam
303

“Magic and Antimagic Vertex Labelings of Water Wiggler Graphs”

Matt Brunet, Winthrop University

math.utk.edu/maa-123/

Additional Authors: Juan De Castro Cabrices, Winthrop University, Christian Alter, Winthrop University, Matthew Feldman, University of Michigan, Arran Hamm, Winthrop University, Jessie Hamm, Winthrop University



3:20 pm
Haslam
303

“Star-Critical Ramsey Numbers of Fans Versus Complete Graphs”

Hayden Privette, Western Carolina University

math.utk.edu/maa-125/

Additional Author: Mark Budden, Western Carolina University

4:15 – 6:00 pm

General Session II



MAA-SE Representative to MAA Congress Emily Hynds,
presiding

Alumni Memorial Building, Floor 2, Cox Auditorium

Section Awards



**“Fostering a Pedagogy of Belonging to Promote
Learning in Diverse Student Populations”**

math.utk.edu/maa-165/

Duha Hamed, Winthrop University

2023 Distinguished Beginning Teaching Award Winner



“Share a Seat. Share a Cup.”

math.utk.edu/maa-161/

Jeneva Clark, University of Tennessee, Knoxville

2023 Distinguished Teaching Award Winner



Special Event: Honoring MAA Member Bill Brodie

6:00 – 6:30 pm

Business Meeting



MAA-SE Secretary Frank Patane, presiding

Alumni Memorial Building, Floor 2, Cox Auditorium

The MAA-SE Executive Committee invites you to stay for some brief section business.

Evening Activities

Gohan Japanese Grill has a food truck parked just outside Alumni Memorial Building, on the lower level.

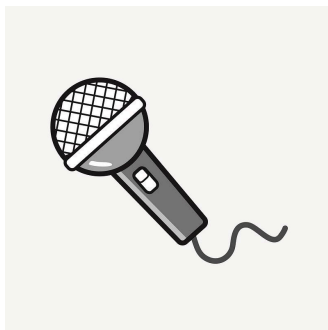
It is self-pay, not catered.

Their menu can be found at www.gohanjapanesegrill.com/



We invite you to grab some Gohan and then stick around. Join us for **Karaoke** in Alumni Memorial Building Room 32, on the ground floor near the food truck.

Challenge: Change your karaoke lyrics! Sing about MATH!



Alumni Memorial Building 32

Please don't bring food or soft drinks into the classrooms or auditoriums, but food in the hallways and lobbies is welcome.

Emcees: Jeneva Clark and Christina Anderson, University of Tennessee, Knoxville

7:00 pm – ???

Saturday, March 16

Hot Air Balloon Exhibit

7:15 – 8:15 am

This is a brand new experience for MAA-SE and for UTK! Tabatha Rainwater, a hot air balloon pilot, will inflate her balloon, appropriately named “Pi in the Sky,” at the nearby Research Park at Cherokee Farm www.tnresearchpark.org.

The Research Park is at 2641 Osprey Vista Way Knoxville, which is just on the other side of the Tennessee River.

This weather-dependent exhibit is to follow-up Tabatha’s Friday talk in the Recreational Math special session, relating hot air balloons to mathematics.

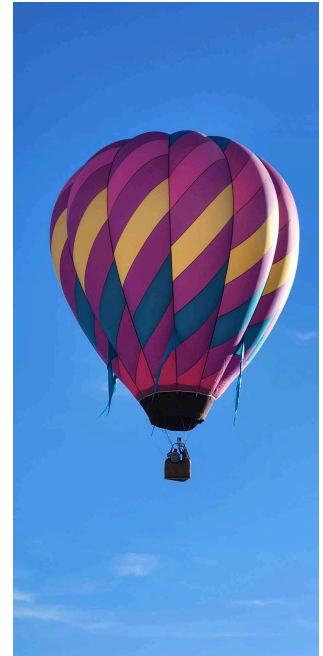
No balloon rides will be given. With optimal weather conditions, Tabatha will be inflating the balloon for us. She may elicit help from volunteers.

Parking is available at 2641 Osprey Vista Way. Directional signs will point to the balloon site. Between 8:15 and 8:45, there should be enough time to drive to the 11th Street parking garage and walk to Alumni Memorial Building for the general session. However, if you have limitations in mobility, please contact Jeneva Clark, dr.jenevaclark@utk.edu, so that we can make sure we can arrange a ride for you.

Please look at the exhibit page, linked below, for inclement weather conditions.



math.utk.edu/maa-173/



8:45 – 9:45 am

General Session III

Alumni Memorial
Building, Floor 2,
Cox Auditorium

MAA-SE Vice Chair for Programs Andrew Miller, presiding



“A Glimpse at the Horizon”

math.utk.edu/maa-166/

Deanna Haunsperger, Carleton College

MAA Polya Section Lecturer



What do a square-wheeled bicycle, a 17th-century French painting, and the Indiana legislature all have in common? They appear among the many bright stars on the mathematical horizon, or, um, in *Math Horizons*. *Math Horizons*, the undergraduate magazine started by the MAA in 1994 publishes articles to introduce students to the world of mathematics outside the classroom. Some of mathematics' best expositors have written for MH over the years; here is an idiosyncratic tour of the first ten years of *Horizons*.

7:00 am – 2:00 pm

11th Street Garage

Open Parking

If you did not pick up a parking pass on Thursday or Friday, never fear. There is open parking on Saturday at the 11th Street Garage. Enter garage on the White Avenue side.

7:30 am – 11:30 am

*Haslam Business
Building Atrium*

Registration Desk Open, Refreshments, and Exhibits

Event Sponsors: Great River Learning, Pearson, Wiley, Cengage, AMS Press, and MAA Press

7:00 am – 10:10 am

*Haslam Business
Building Atrium*

Undergraduate Poster Setup

10:10 am – 10:45 am

*Haslam Business
Building Atrium*

Undergraduate Poster Judging

10:45 am – 12:00

*Haslam Business
Building Atrium*

Undergraduate Poster Session

Organizer: Karen O'Hara, High Point University

Undergraduate Posters

10:45 am – 12:00 in Haslam Building Atrium

Organizer: Karen O'Hara, High Point University



“An Application of Clustering: Addressing Food Insecurity in Western North Carolina”

Gracen Alleman, Warren Wilson College

math.utk.edu/maa-144/

*Additional Authors: Mason Hollar, Warren Wilson College
Neylan Visnius, Warren Wilson College*



“Mathematical Modeling of COVID-19 Transmission with Focus on Asymptomatic Carriers and Vaccination Schedules”

Lauren Beuerle, Elon University

math.utk.edu/maa-158/

Additional Authors: Karen Yokley, Elon University



“The Probability of Placing a Perfect Bet”

Evan Carter, Christian Brothers University

math.utk.edu/maa-137/



“The Circle Problem of Apollonius”

Claire DiCugno, King University

math.utk.edu/maa-139/



“Temperature” in ChatGPT: An Exploration of Entropy

Priscilla Doran, Bryan College

math.utk.edu/maa-147/

Additional Authors: Dr. Aaron Trocki, Elon University



“Effects of Multimodal Writing Assignments on Perceptions of Learning in a Calculus I Course”

Emily Elowitch, Elon University

math.utk.edu/maa-140/



“Statistical Analysis on the Quality of Life Between Cities in Tennessee”

Madelynn Fay, Christian Brothers University

math.utk.edu/maa-143/



“Statistical Exploration of Red and White Wine”

Katarina Floyd, Francis Marion University

math.utk.edu/maa-150/



“Picard-Newton: A More Robust Quadratically Convergent Nonlinear Solver (That Just Might Change your Life)”

Jessica Franklin, Clemson University

math.utk.edu/maa-136/



“Modeling Self-Assembly of DNA Nanostructures Resembling Bipartite Graphs”

Sofia Giraldo, Converse University

math.utk.edu/maa-153/

*Additional Authors: Rosalinda Cortez - Converse University
and Jordan Rose - Converse University*



“The Reality of Math”

Sofia Giraldo, Converse University

math.utk.edu/maa-154/



“Using Intuition to Teach Mathematical Proofs”

Kylea Heath, Christian Brothers University

math.utk.edu/maa-145/



“Permanents of Fourier Matrices”

James Arthur Hembree Jr., Lander University

math.utk.edu/maa-151/



“Peer Review Process: AI Generated vs Student Generated Proofs”

Abby Hyatt, High Point University

math.utk.edu/maa-141/

Additional Authors: Jenny Fuselier, High Point University



“A Bayesian Spectral Analyzer for Biorhythms”

Emily Jackson, University of Tennessee, Knoxville

math.utk.edu/maa-155/

Additional Authors: Ioannis Sgouralis



“The Exploration of Adjacency Graphs of Equivalence Classes of Planar Tanglegrams”

Jadon Jones, Berry College

math.utk.edu/maa-156/

Additional Authors: Benji Roush, Ron Taylor



“Investigating the Symmetric Subcollection of the Modular Group”

Cuewon Kim, Vestavia Hills High School

math.utk.edu/maa-159/

Additional Authors: Jaedeok Kim, Jacksonville State University



“Stopping the Spread: A Novel Computer Virus Model”

Jackson Lewis, Austin Peay State University

math.utk.edu/maa-142/



“Transverse-Free Affine Curves”

Anna Marti, Georgia College and State University

math.utk.edu/maa-149/

Additional Authors: Shari Hoch (Indiana University of Pennsylvania; Research Partner at REU), Ethan Soloway (University of Pennsylvania; Research Partner at REU)



“Exploring the Mathematics of Sudoku”

Morgan McCaskill, Francis Marion University

math.utk.edu/maa-148/



“Key Mathematical Elements of Cryptography”

Patrick Oweijane, Christian Brothers University

math.utk.edu/maa-133/



“Predicting Customer Status through Bayesian Networks with Imbalanced Data Handling”

Bhakti Patel, Francis Marion University

math.utk.edu/maa-182/



“Polya's Enumeration Formula”

Nathaniel Pennington, Christian Brothers University

math.utk.edu/maa-135/



“Numerical Approximation of Boundary Value Problems with Superlinear Non-linearity on the Boundary”

Larissa Renshaw, University of Tennessee at Martin

math.utk.edu/maa-157/

*Additional Authors: Shalmali Bandyopadhyah (UTM) /
Thomas L. Lewis (UNC Greensboro)*



“An Investigation of The Geometric Progression of Rose Curves”

Naeem Roberts, Francis Marion University

math.utk.edu/maa-183/



“Animal Movement Patterns’ Effect on Density Estimations and Camera Trap Data Analysis”

Devin Ruppe, Wofford College

math.utk.edu/maa-152/

Additional Authors: Rachel Grotheer; Wofford College



“An Exploration of Singular Value Decomposition”

Clinton Chase Townley, Christian Brothers University

math.utk.edu/maa-134/



“Predictable Games: How Two Rational Players Settle on Stable Strategies”

Chris Warner, Christian Brothers University

math.utk.edu/maa-138/

10:00 am – 12:00 pm

Concurrent Special and Contributed Sessions

Sessions	Rooms
Active Learning in Undergraduate Mathematics III	<i>Haslam Business Building 102</i>
Active Learning in Undergraduate Mathematics IV	<i>Haslam Business Building 103</i>
Beyond Mathematics: Interdisciplinary Collaborations III	<i>Alumni Memorial Building 27</i>
Beyond Mathematics: Interdisciplinary Collaborations IV	<i>Alumni Memorial Building 210</i>
Theory of Integer Sequences II	<i>Haslam Business Building 203</i>
Mathematics and the Visual and Performing Arts II	<i>Alumni Memorial Building 32</i>
Recreational Math II	<i>Haslam Business Building 104</i>
Contributed Paper Session V	<i>Haslam Business Building 201</i>
Contributed Paper Session VI	<i>Haslam Business Building 202</i>
Contributed Paper Session VII	<i>Haslam Business Building 304</i>
Contributed Paper Session VIII	<i>Haslam Business Building 305</i>
Undergraduate Paper Session III	<i>Haslam Business Building 302</i>

Concurrent Special and Contributed Sessions

Special Session: Active Learning in Undergraduate Mathematics III

Organizers: *Sutandra Sarkar, Bill Shillito, Yuerong Wu, and Draga Vidakovic, Georgia State University*



10:00 am
Haslam
102

“Scaffolding for a Textbook-Based Inverted Classroom”

Joshua Mike, Saginaw Valley State University
math.utk.edu/maa-48/



10:20 am
Haslam
102

“A Small Change that Improved Group Learning in Calculus II”

Meredith Burr, Clemson University
math.utk.edu/maa-53/



10:40 am
Haslam
102

“Thinking Outside the Quiz: Exploring Alternative Assessments in Lower-Division Math Courses”

Kelly Buch, Austin Peay State University
math.utk.edu/maa-54/



11:00 am
Haslam
102

“Collaborative Creativity in Inquiry-Based Introduction-to-Proof”

Amanda Lake Heath, Middle Tennessee State University
math.utk.edu/maa-56/



11:20 am
Haslam
102

“Enhancing Students’ Active Learning Through Comprehensive Grading Rubrics”

Yuerong Wu, Georgia State University
math.utk.edu/maa-184/



11:40 am
Haslam
102

“Fostering Active Students’ Participation in a Web-based Classroom Response System”

Sutandra Sarkar, Georgia State University
math.utk.edu/maa-185/

Special Session: Active Learning in Undergraduate Mathematics IV



10:00 am
Haslam
103

“Scaling Active Learning: Strategies for Success in Large Enrollment Courses”
Jack Ryan, University of Tennessee, Knoxville
math.utk.edu/maa-55/



10:20 am
Haslam
103

“Visual Abstract Algebra: Puzzles and Pedagogy”
Matthew Macauley, Clemson University
math.utk.edu/maa-100/



10:40 am
Haslam
103

“Flipping Calculus at UNC Greensboro”
Tom Lewis, University of North Carolina Greensboro
math.utk.edu/maa-51/



11:00 am
Haslam
103

“Graph Theory Games and Guided Self-Discovery”
Blake Dunshee, Belmont University
math.utk.edu/maa-101/



~~11:20 am
Haslam
403~~

~~**“Empowering Active Engagement: Making Mathematics Meaningful”**
Brian Pidgeon, Georgia State University
math.utk.edu/maa-186/~~



11:20 am
Haslam
103

“Let's Play a Game! - How to Use Games to Invite Active Learning”
Bill Shillito, Georgia State University
math.utk.edu/maa-187/

Special Session: Beyond Mathematics: Interdisciplinary Collaborations III

Organizers: Rachel Grotheer, Wofford College; Anastasia Wilson, Augusta University



10:00 am
Alumni
Memorial
27

“Simulating Chemical Separations for Biopharmaceuticals: Incorporating Undergraduate Student Involvement”

Anastasia Wilson, Augusta University

math.utk.edu/maa-68/

Karen Lawrence, Carson Morris, Kayli Hendricks, Lillian Gensinger, Augusta University



10:20 am
Alumni
Memorial
27

“Making Meaning of Multidisciplinary Applications in Teaching Mathematics”

Sondra LoRe, STEM Program Evaluation, Assessment, & Research (SPEAR)

math.utk.edu/maa-59/

Jillian Miller, Roane State Community College



10:40 am
Alumni
Memorial
27

“Applied Math Powering Data Science Solutions to Problems in Industry, Society, and Academic Research”

Rei Sanchez-Arias, Florida Polytechnic University

math.utk.edu/maa-70/



11:00 am
Alumni
Memorial
27

“Groups, Crystals, and Symmetry”

Matthew Macauley, Clemson University

math.utk.edu/maa-71/

Maureen Julian, Virginia Tech



11:20 am
Alumni
Memorial
27

“Doorways to Calculus through Cryptocurrency”

Andrew Penland, Eight Arms Nine Brains

math.utk.edu/maa-82/



11:40 am
Alumni
Memorial
27

“FEM in STEM: A Club to Connect Students from Different Disciplines”

Julie Barnes, Western Carolina University

math.utk.edu/maa-69/

Special Session: Beyond Mathematics: Interdisciplinary Collaborations IV



10:20 am
*Alumni
Memorial
210*

“How an Industry Collapse Affects Community Mental Health: a Complex Contagion Model”

Maggie Sullens, University of Tennessee, Knoxville
math.utk.edu/maa-80/

*David Finnoff (University of Wyoming) , Katie
Barkley (University of Wyoming), Nina H. Fefferman
(University of Tennessee)*



10:40 am
*Alumni
Memorial
210*

“Modelling COVID-19 Dynamics Incorporating Vaccine Hesitancy”

Maruf Lawal, University of Tennessee, Knoxville
math.utk.edu/maa-79/



11:00 am
*Alumni
Memorial
210*

“Predicting the Pandemic: Unmasking the Numbers Behind Social Distancing in South Africa's COVID-19 Response”

Chidozie Williams Chukwu, Wake Forest University
math.utk.edu/maa-86/



11:20 am
*Alumni
Memorial
210*

“Transmission of La Crosse Virus between Humans and Mosquitoes in Tennessee and North Carolina”

Amber Young, University of Tennessee, Knoxville
math.utk.edu/maa-77/



11:40 am
*Alumni
Memorial
210*

“Modeling the Spread of Crimean Congo Hemorrhagic Fever accounting for Tick Co-feeding”

*Jessica Kingsley, University of Tennessee,
Knoxville*
math.utk.edu/maa-75/

Special Session: Mathematics and the Visual and Performing Arts II

Organizers: Lee Spence, Overleaf; Annie Jennings, Benchmark Physical Therapy/Sheer Inspiration Pole Fitness



10:00 am
*Alumni
Memorial
32*

“Beauty in Physics: Math Embodied Through Dance and Movement”

Carrie Elliot, Annie Jennings

math.utk.edu/maa-87/



10:20 am
*Alumni
Memorial
32*

“Lost in Translation: Exploring the Connections Music has to Math”

Lynn Sherman, University of Tennessee, Knoxville

math.utk.edu/maa-90/



10:40 am
*Alumni
Memorial
32*

“How Numbers Weave: Exploring the Mathematics of Quilting”

Sydney Yeomans, University of Kentucky

math.utk.edu/maa-92/

Austin Fessler, University of Kentucky

Special Session: Recreational Mathematics II

Organizers: Timothy Goldberg, Lenoir-Rhyne University; Ron Taylor, Berry College



10:00 am
Haslam
104

**“The Games and the Mathematics of
EvenQuads”**
Denise A. Rangel Tracy, Francis Marion University
math.utk.edu/maa-96/



10:20 am
Haslam
104

“3-D Carousels: How Far Do the Horses Run?”
Jonathan Clark, Tennessee Wesleyan University
math.utk.edu/maa-97/



10:40 am
Haslam
104

“Hooked on Math with Topological Crochet”
Emily McDonald, University of Tennessee, Knoxville
math.utk.edu/maa-103/

Special Session: Theory of Integer Sequences II

Organizers: Joshua Siktar, University of Tennessee-Knoxville; Steven J. Miller, Williams College; Hung Viet Chu, Texas A&M University



10:00 am
Haslam
203

“Benford's Law and Random Integer Decomposition with Congruence Stopping Condition”

Steven J. Miller, Williams College

math.utk.edu/maa-120/

Xinyu Fang, Maxwell Sun, and Amanda Verga



10:20 am
Haslam
203

“On Strongly Pseudoperfect Numbers and Related Inequalities”

Joshua Zelinsky, Hopkins School

math.utk.edu/maa-108/



10:40 am
Haslam
203

“On 2-Near Perfect Numbers”

Vedant Aryan, Hopkins School

math.utk.edu/maa-111/

Joshua Zelinsky, Hopkins School; Dev Madhavani, Harvard University; Savan Parikh, Yale University; Ingrid Slattery, Yale University



11:00 am
Haslam
203

“On the Unimodality of Independence Polynomials of Highly Non-regular Trees”

Patrick Bahls, Savannah College of Art & Design

math.utk.edu/maa-113/

Spencer Guess, Purdue University



11:20 am
Haslam
203

“Roots of Polynomials with Generalized Fibonacci Coefficients”

Ron Taylor, Berry College

math.utk.edu/maa-118/

Jill Cochran, Eric McDowell, Berry College



11:40 am
Haslam
203

“Ucycles and Gucycles of Integer Compositions/Partitions”

Grant Shirley, East Tennessee State University

math.utk.edu/maa-121/

Anant Godbole, East Tennessee State University

Contributed Paper Session V

Moderated by Nicholas Kirby (Francis Marion University)



10:00 am
Haslam
201

“The Mathematics of Cycling”
Thomas Schnibben, Francis Marion University
math.utk.edu/maa-30/



10:20 am
Haslam
201

“Penalized Poisson Regression with Referee Index for a Professional Soccer Team”
Mingwei Sun, Samford University
math.utk.edu/maa-9/
Thomas Reinke, Baylor University



10:40 am
Haslam
201

“The Structured Coordination Game with Neutral Options”
John McAlister, University of Tennessee, Knoxville
math.utk.edu/maa-33/
Nina Fefferman, University of Tennessee, Knoxville



11:00 am
Haslam
201

“Quadratic Voting: Overview, Attacks, and Extensions”
Andrew Penland, Eight Arms Nine Brains
math.utk.edu/maa-41/



11:20 am
Haslam
201

“p-Norm Approval Voting”
Jessica Sorrells, Converse University
math.utk.edu/maa-17/
Hari Nathan (University of Rochester), Michael Orrison (Harvey Mudd College), Katharine Shultis (Gonzaga University)



11:40 am
Haslam
201

“Intravascular Stent Drug Release & Transport – Model, Analysis and Simulation”
Lucy Jiang, University of Tennessee, Knoxville
math.utk.edu/maa-188/

Contributed Paper Session VI

Moderated by Steve Nimmo (Piedmont University)



10:00 am
Haslam
202

“Varying Patterns: A Look at Generalized Delannoy Numbers Modulo Prime p ”

William Griffiths, Kennesaw State University

math.utk.edu/maa-117/

Steven Edwards, Kennesaw State University



10:20 am
Haslam
202

“Counting Forests and Complete Graphs”

J.C. Price, Georgia Gwinnett College

math.utk.edu/maa-3/



10:40 am
Haslam
202

“Counting Spanning Forests Using Kirchhoff’s Theorem”

Daniel Prager, Georgia Gwinnett College

math.utk.edu/maa-10/

Daniel Pinzon, J.C. Price, Georgia Gwinnett College



11:00 am
Haslam
202

“Ramsey Numbers for Connected Colorings of Complete Graphs”

Mark Budden, Western Carolina University

math.utk.edu/maa-14/



11:20 am
Haslam
202

“Trees with Minimum Weighted Szeged Index”

Risto Atanasov, Western Carolina University

math.utk.edu/maa-25/



11:40 am
Haslam
202

“Embedding Grid Graphs on Surfaces – Undergraduate Research Adventures in Topological Graph Theory!”

Christian Millichap, Furman University

math.utk.edu/maa-1/

Fabian Salinas, Furman and Vanderbilt Universities

Contributed Paper Session VII

Moderated by Melissa Glass (High Point University)



10:00 am
Haslam
304

“Gödel's Incompleteness Theorem and the Consistency of Arithmetic: What Every Mathematics Professor Needs to Know”

Damon Scott, Francis Marion University

math.utk.edu/maa-11/



10:20 am
Haslam
304

“What do Elliptic Curves have to do with Congruent Numbers?”

Melissa Glass, High Point University

math.utk.edu/maa-102/



10:40 am
Haslam
304

“Root Two”

Stephen Davis, Davidson College and Charlotte Math Club

math.utk.edu/maa-160/



11:00 am
Haslam
304

“The Role of Examples in Proof”

Jordan E. Kirby, Francis Marion University

math.utk.edu/maa-8/



11:20 am
Haslam
304

“My COMPOSTE Experience and the Resulting Activity”

Sarah Eskew, University of Tennessee Southern

math.utk.edu/maa-20/



11:40 am
Haslam
304

“Experiences with a Data Science Capstone Course”

Erin McNelis, Western Carolina University

math.utk.edu/maa-27/

Kaleigh Benesch, John Wagaman, Western Carolina University

Contributed Paper Session VIII

Moderated by Jennifer Rhinehart (Mars Hill University)



10:00 am
Haslam
305

“My First Attempt at Mastery-Based Grading”

Chris Cyr, Covenant College

math.utk.edu/maa-31/



10:20 am
Haslam
305

“Grading for Growth in Precalculus”

Marcela Chiorescu, Georgia College

math.utk.edu/maa-24/



10:40 am
Haslam
305

““What’s My Grade?” – Some Resources to Help Students Determine Where They Stand in a Standards-Based Graded Course”

Rachel Epstein, Georgia College

math.utk.edu/maa-4/



11:00 am
Haslam
305

“Using Base-5 Number Systems To Teach Future Teachers About Numerical Operations”

Kevin LoPresto, Francis Marion University

math.utk.edu/maa-26/



11:20 am
Haslam
305

“Developing Technical Vocabulary: A Study in Intermediate Undergraduate Mathematics Courses”

Lake Ritter, Kennesaw State University

math.utk.edu/maa-22/

Erik Westlund



11:40 am
Haslam
305

“Using the quiz-game software Kahoot! in math classes”

Jennifer Rhinehart, Mars Hill University

math.utk.edu/maa-12/

Laura Steil, Mars Hill University

Undergraduate Paper Session III



10:00 am
Haslam
302

“Time Series Forecasting Models for Local Light Pollution”

Abigail Mervine, Winthrop University

math.utk.edu/maa-124/

Zachary Abernathy, Winthrop University



10:20 am
Haslam
302

“Parameter Estimation of a Chromatography Phase in Finite Difference Solutions in MATLAB”

Lillian Gensinger, Augusta University

math.utk.edu/maa-127/

Anastasia Wilson, Augusta University



10:40 am
Haslam
302

“Modeling Effects of Harvesting-mediated Emigration on Population Persistence”

Jacob Garrett, Auburn University

math.utk.edu/maa-128/

Jerome Goddard II, Auburn University Montgomery



11:00 am
Haslam
302

“Investigating Tipping Points in the Budyko Climate Model”

Demmi Ramos, Lenoir-Rhyne University

math.utk.edu/maa-85/



11:20 am
Haslam
302

“Looking for ways to mitigate heat waves in Phoenix, USA”

Samuel Whitaker, Austin Peay State University

math.utk.edu/maa-57/

Ramanjit K. Sahi

12:15 – 1:15 pm

Alumni Memorial
Building, Floor 2,
Cox Auditorium

General Session IV

Local Organizer Jeneva Clark, presiding

Math Jeopardy! Final Round

Ron Taylor, Berry College

Mike Berry, University of Tennessee, Knoxville

and the Jeopardy! Team

JEOPARDY!

math.utk.edu/maa-171/



Announcement of Student Prize Winners



Announcements

Acknowledgements

Treasure Hunt Rockstars:

Julie Barnes, Western Carolina University
Rodica Cazacu, Georgia College and State University
Shi-Wei Chao, Clemson University
Rachel Epstein, Georgia College and State University
Tim Goldberg, Lenoir Rhyne University
Rachel Grotheer, Wofford College
Kerri Jamerson, Mars Hill University
Nicholas Kirby, Austin Peay State University
Wei-Kai Lai, University of South Carolina at Salkehatchie
Allie Ray, Birmingham-Southern College
Jordan Schmucker, Mars Hill University
Laura Steil, Mars Hill University
Suzanne Lenhart, University of Tennessee, Knoxville
Hannah Garrett, University of Tennessee, Knoxville
Vinny Jodoin, University of Tennessee, Knoxville
Jessica Kingsley, University of Tennessee, Knoxville
Parker McCoig, University of Tennessee, Knoxville
Cannon McIntosh, University of Tennessee, Knoxville
Smit Patel, University of Tennessee, Knoxville
Madison Pratt, University of Tennessee, Knoxville

Jeopardy Rockstars:

Michael W. Berry (emcee and organizer)
William Griffiths (question writer)
Ashley Johnson (question writer)
Brian O'Connor (emcee)
ron taylor (question writer and organizer)
Brian Wagner (question writer)

Host Institution Planning Rockstars:

Jeneva Clark, Suzanne Lenhart, Rosario Dow, Christina Anderson, Sage Gray, Sam Johnson, Sophia Latifzadeh, Avery Metzger, Ben Walker, Pam Armentrout, Tina Murr, Nicole Crombie, Juvy Melton, Xiaobing Feng, Angela Woofter, Kylea Swanson, Brandon Collins, Emily Pedder

MAA-SE 2025

Join us next year for the
MAA-SE 104th Annual Meeting
February 27 – March 1, 2025



HIGH POINT
UNIVERSITY

Department of
Mathematical Sciences

Logistics

WIFI Information

1. Select the “ut-open” network.
2. Open a browser.
3. It may ask if they have a NetID. You should choose “no.”
4. Select “Sponsored Guest.”
5. Enter the following information.

username:

2024MAA

passcode:

maasec2024

Parking Information

Thursday and
Friday, 3/14 and
3/15

9:00 am – 5:00 pm

Ayres Hall 227



Parking Pass Pick-Up

At 1403 Circle Drive, in front of the Math Building Ayres Hall, there will be temporary parking spaces, designated by signs.

Please park here for a few minutes and come to the Math Department office at Ayres 227 to pick up your parking pass, if you need one.

This parking pass will provide you with the ability to park in the 11th Street Parking Garage, located at 1101 Cumberland Avenue, during the duration of the conference.

Enter the garage on the White Avenue side.

To request a shuttle, call the UTK Math Department at (865) 974-2461.

Saturday, 3/16

Open Parking in the 11th Street Garage.

On Saturday you do not need to have a parking pass. Park in the 11th Street Parking Garage, located at 1101 Cumberland Avenue. Enter the garage on the White Avenue side. Take advantage of the walking bridge from the garage over to the Hill.



Food Information

Snacks, coffee, and tea are available in the Haslam Business Building Atrium throughout the conference.

Friday, March 15th

- Pizza lunch tickets are free for students, and can be purchased for \$10. Pizza and soft drinks will be provided by Super Mario's Pizza. They will have cheese pizza, pepperoni pizza, and vegan pizza on request. If you prefer water, use your new MAA South East tumbler and one of the filtered water refill stations.



- Gohan Japanese Grill will have a food truck parked near Gate 21 of Neyland Stadium, near Alumni Memorial Building, 6:00 – 8:00 pm. This is a self-pay option. You can enjoy karaoke in Alumni Memorial room 32, which is adjacent to the food truck area.
- Chick-fil-A in the Student Union is open 7:30 am – 5:00 pm.
- Qdoba in the Student Union is open 10:30 am – 2:00 pm.
- Starbucks in the Student Union is open 7:00 am – 4:00 pm.
- Steak 'n Shake in the Student Union is open 10:30 – 2:00 pm.



Saturday, March 16th,

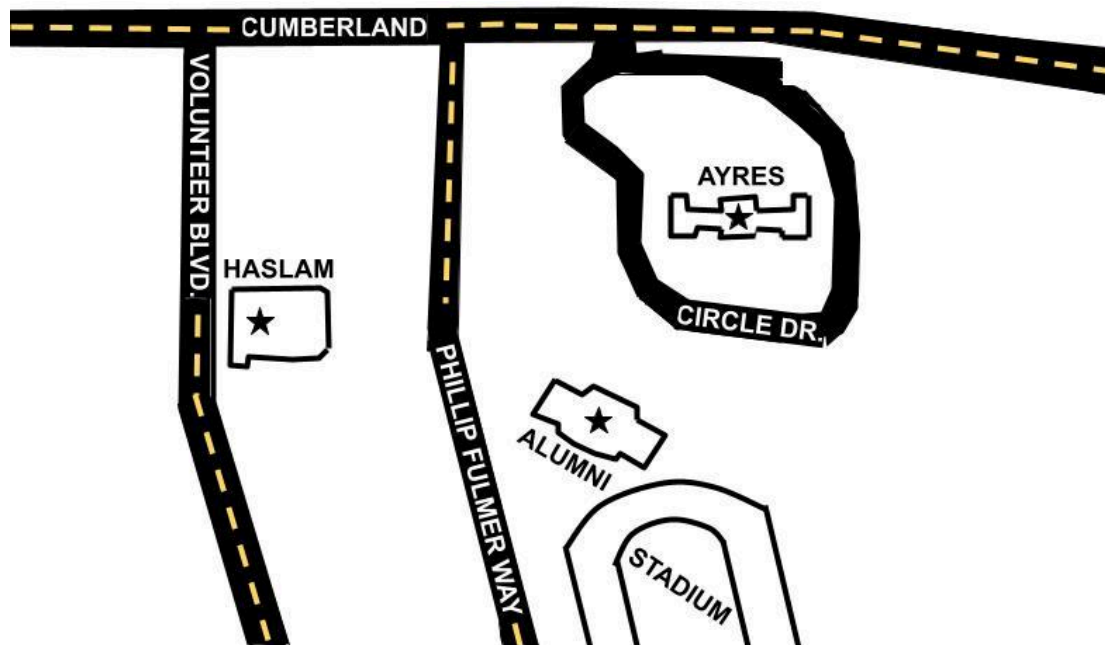
- Starbucks inside Hodges Library is open 10:30 am – 4 pm.
- P.O.D. Market is open 10:30 am – 8 pm.

Area Maps

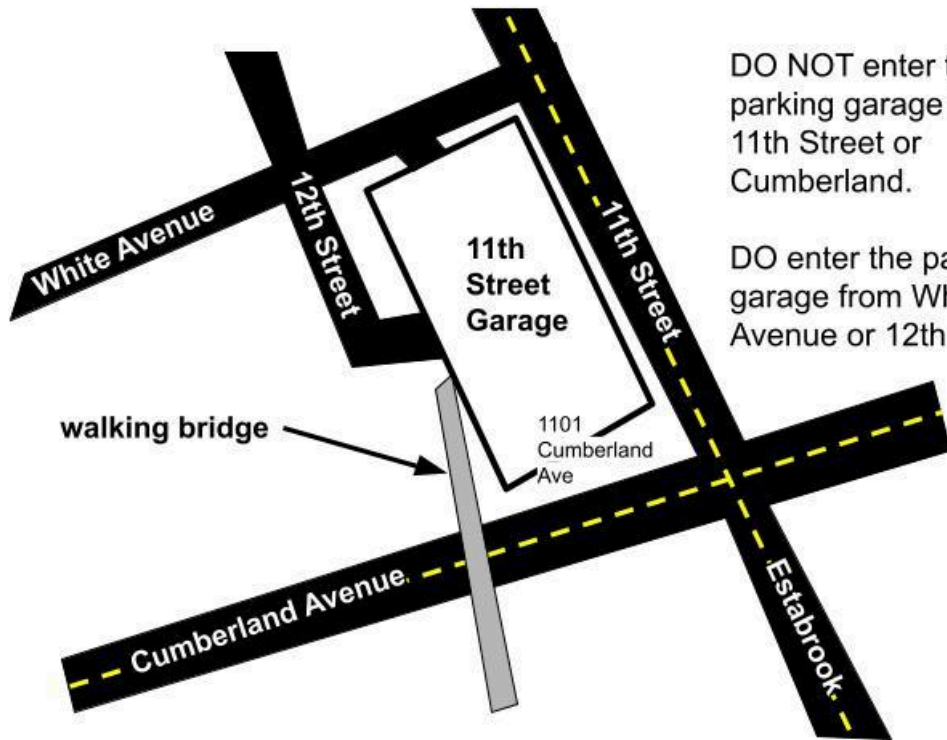
This conference takes place in three buildings: Ayres Hall, Haslam Business Building, and Alumni Memorial Building. In this map, you can see where these three buildings are, in relation to Neyland Stadium and in relation to the Tennessee River in the lower right corner of the map.



Here is a version of the map that shows the important street names near these 3 buildings:



Parking Maps



DO NOT enter the parking garage from 11th Street or Cumberland.

DO enter the parking garage from White Avenue or 12th Street.



Location of the Balloon Exhibit

Cherokee Farm Research Park
2641 Osprey Vista Way

The Research Park, where the hot air balloon will be, is approximately 8-11 minutes away from the parking garage.

You might want to use a map app, just in case there are any unexpected clogs in traffic. There

