MAA MATHFEST

July 26-29, 2017

PROGRAM

IN A FASTER FORWARD WORLD

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Akamai FASTER FORWARD

WELCOME TO MAA MATHFEST!

I was born and raised in Iowa, a “Midwestern gal,” my dad would call me, and my roots here are deep. We all knew that springtime was for planting, but in summer there was time in the cool, long days for get-togethers. There would be family reunions, neighborhood potlucks, barn dances, church ice cream socials, town parades, and always a trip to the state fair, which in my current home state is called the Great Minnesota Get-Together.

A “get-together” denotes a meeting, but the connotation is so much nicer: it’s a relaxed and social opportunity to enjoy each other’s company. We get together at MathFest with a common purpose, but why not bring family and friends and have even more fun along the way?

Our common purpose, the MAA’s mission, is to advance the understanding of mathematics and its impact on our world. I hope that you will bring home what you learn at MathFest and join us to support this important mission.

You’re holding a guide to fun at MathFest in your hands! This meeting features many outstanding expositors giving invited talks, invited and contributed paper sessions, activities for undergraduate and graduate students, poster sessions, workshops, panels, and minicourses. These events present the latest in mathematical research and education on hundreds of math-related topics. Many dedicated volunteers and staff have been planning this event over the past several years. They have quite a mathematical celebration organized for you this week.

Don’t forget to be social during the meeting! MathFest starts with the Grand Opening Reception at the Exhibit Hall Wednesday evening, and let me extend a special invitation to attend the Thursday evening concert at the Presidential Gala: A Musical Celebration and MAA Membership Recognition. Here’s my challenge to you: if you’re sitting next to someone you don’t know at an event, introduce yourself! I know several stories of lifelong friends meeting just that way. And if you see someone new, tell them how much you appreciate having them in our community.

Be sure to save time to try out some of Chicago’s fine restaurants and enjoy the late summer evenings. We hope you brought your family, your colleagues, and your friends. This is the MAA’s summer mathematics meeting, family reunion, and celebration all tied into one; have a great get-together!

Have fun!
Deanna Haunsperger
President, Mathematical Association of America

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Laureates of mathematics and computer science meet the next generation

HEIDELBERG LAUREATE FORUM

Laureate Vinton G. Cerf surrounded by young researchers at the HLF.

The Heidelberg Laureate Forum (HLF) unites outstanding young researchers in mathematics, computer science and closely related disciplines with paramount scientists in their research fields for an informal and intellectual exchange in the historic and scientifically renowned city of Heidelberg in Germany. Recipients of the Abel Prize, the ACM A.M. Turing Award, the ACM Prize in Computing, the Fields Medal, and the Nevanlinna Prize meet with 200 selected young researchers (undergraduates, PhD candidates and postdocs) from all over the world for a conference week full of inspiration and opportunities.

- Mathematics and computer science in one symposium
- Meet your scientific role models face to face
- Advance your scientific career
- Travel grants available
- Lodging and board provided

Come and see us at Booth No. 310!

heidelberg-laureate-forum.org

5th Heidelberg Laureate Forum
September 24–29, 2017

Video coverage and photos will be available on the website.

6th Heidelberg Laureate Forum
September 23–28, 2018

Application phase for young researchers:
November 6, 2017 until February 9, 2018

HEDRICK LECTURE

EARLE RAYMOND HEDRICK LECTURE SERIES

What is Symplectic Geometry? An Introduction to Some Concepts and Open Questions

Dusa McDuff
Barnard College, Columbia University

LECTURE 1: THURSDAY, JULY 27, 10:30 A.M. – 11:20 A.M.
INTERNATIONAL BALLROOM NORTH

LECTURE 2: FRIDAY, JULY 28, 9:30 A.M. – 10:20 A.M.
INTERNATIONAL BALLROOM NORTH

LECTURE 3: SATURDAY, JULY 29, 9:30 A.M. – 10:20 A.M.
INTERNATIONAL BALLROOM NORTH

Symplectic geometry has many faces. It takes place in even dimensions, and can be considered a version of complex algebraic geometry that is not constrained by the requirement that functions be polynomial, or more generally complex analytic. It also gives a framework in which to describe energy-conserving flows, and so has many applications to questions in dynamics. Recently it has turned out that symplectic structures (and their odd dimensional analog contact structures) can be used to help understand purely topological questions such as the possible ways that a circle can be twisted up in three-dimensional space, i.e. knot theory.

This set of lectures will first describe what a symplectic structure is, and then explain why such structures are interesting. Most of our examples will be very concrete and will concern objects in two, three and four dimensions. We will assume knowledge of multivariable calculus and basic linear algebra, but not too much else.

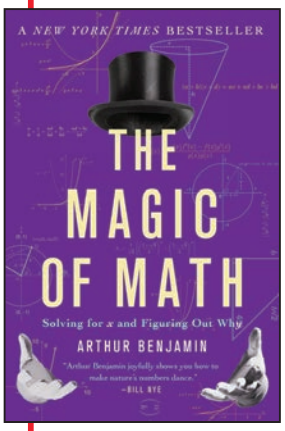
Dusa McDuff Biography

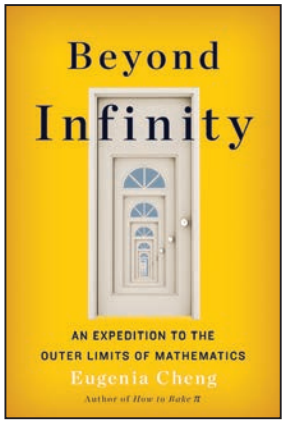
Born in London, Dusa McDuff grew up in Edinburgh and completed her undergraduate work at the University of Edinburgh; she received her PhD from Cambridge University. After holding positions at York, Warwick, and Stony Brook universities, she is currently Helen Lyttle Kimmel '42 Professor of Mathematics at Barnard College, Columbia University. Professor McDuff is a leading authority in Symplectic Geometry. She is a Fellow of the American Mathematical Society, member of the National Academy of Sciences, a member of the American Philosophical Society, a Fellow of the Royal Society, and an honorary fellow of Girton College, Cambridge. She is the first recipient of the Ruth Lyttle Satter Prize, awarded by American Mathematical Society in 1991 for her work on symplectic geometry and at JMM 2017, she was awarded the AMS Leroy P. Steele Prize for Mathematical Exposition. She received the Outstanding Woman Scientist Award from the Association for Women in Science in 1997, and the Senior Berwick prize of the London Mathematical Society in 2010. In 1999, she was the first female Hardy Lecturer, an award from the London Mathematical Society. Professor McDuff has honorary doctorates from the University of Edinburgh, the University of York and the University of Strasbourg. Her service to the mathematical community has been extensive. She is particularly interested in issues connected with the position of women in mathematics, and currently serves on the MSRI Board of Trustees.

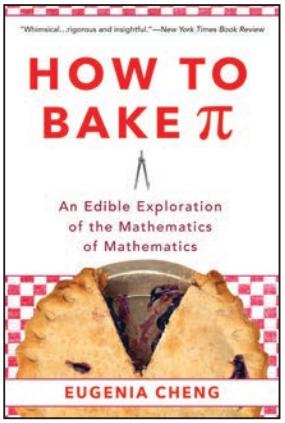
Earle Raymond Hedrick Lecture Series History

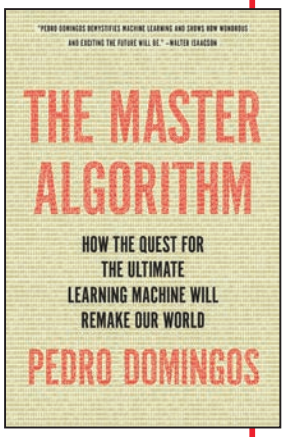
The Earle Raymond Hedrick Lectures were established by the Board of Governors of The Mathematical Association of America at their meeting in St. Louis in 1952. Its purpose is to present to the Association a lecturer of known skill as an expositor of mathematics, "who will present a series of at most three lectures accessible to a large fraction of those who teach college mathematics." These lectures are named for the first President of the MAA, Earle Raymond Hedrick, who was also President of the American Mathematical Society from 1929 to 1930. Hedrick was born in Union City, Indiana in 1876. He attended the University of Michigan (B.A. 1896) and Harvard University (A.M. 1898), before getting his Ph.D. at Göttingen in 1901. He taught at Yale and the University of Missouri before becoming head of the Mathematics Department at the University of California at Los Angeles, where he eventually became Vice President and Provost. His mathematical research was in the areas of differential equations, calculus of variations, and functions of a real variable. Generations of mathematics students remember him as a translator of Goursat's Cours d'Analyse. In addition to research papers and works on the teaching of mathematics and engineering at the college and university level, he also wrote and edited a series of secondary school texts. He is one of six who have been President of both the AMS and the MAA. Professor Hedrick died in 1943.

Math from BASIC









The Magic of Math
Solving for x and Figuring Out Why
ARTHUR BENJAMIN
2016 | 336 pp. | pb | $15.99

Beyond Infinity
An Expedition to the Outer Limits of Mathematics
EUGENIA CHENG
2017 | 304 pp. | hc | $27.00

How to Bake Pi
An Edible Exploration of the Mathematics of Mathematics
EUGENIA CHENG
2016 | 304 pp. | pb | $15.99

The Master Algorithm
How the Quest for the Ultimate Learning Machine Will Remake Our World
PEDRO DOMINGOS
2015 | 352 pp. | hc | $29.99

Love and Math
The Heart of Hidden Reality
EDWARD FRENKEL
2014 | 304 pp. | pb | $16.99

Gödel, Escher, Bach
An Eternal Golden Braid
DOUGLAS R. HOFSTADTER
1999 | 824 pp. | pb | $24.99

The Perfect Bet
How Science and Math are Taking the Luck Out of Gambling
ADAM KUCHARSKI
2016 | 288 pp. | hc | $26.99

Calculating the Cosmos
How Mathematics Unveils the Universe
IAN STEWART
2016 | 360 pp. | hc | $27.99

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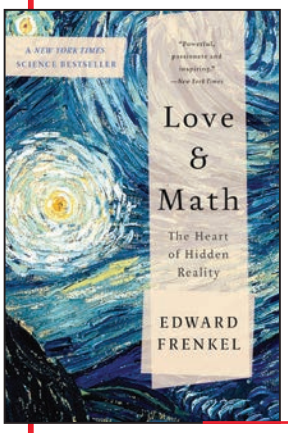
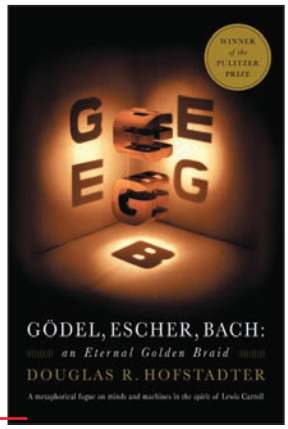
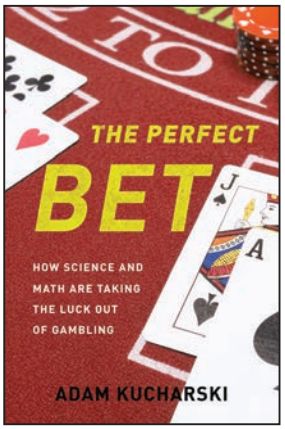
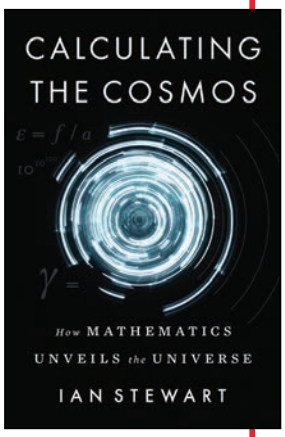








basicbooks.com

BASIC BOOKS

INVITED ADDRESSES CONTINUED

AMS-MAA JOINT INVITED ADDRESS

Computational Math Meets Geometry

Douglas Arnold
University of Minnesota

THURSDAY, JULY 27, 9:30 A.M. – 10:20 A.M.
INTERNATIONAL BALLROOM NORTH

One of the joys of mathematical research occurs when seemingly distant branches of math come together. A beautiful example occurred over the last decade with the development of the field of compatible, or structure-preserving, discretizations of differential equations, in which ideas from topology and geometry have come to play a key role in numerical analysis. Very roughly, instead of applying standard all-purpose algorithms, such as Runge-Kutta methods and linear multistep methods for ODEs and finite difference or finite element methods for PDEs, far better results can be obtained for various classes of problems by constructing discretization methods which exactly preserve key geometric structures underlying the equations under consideration. Such structures include, for ordinary differential equations, symplecticity, symmetry, invariants and constraints, and, for partial differential equations, de Rham and other cohomologies and associated Hodge theory. We will tour this burgeoning field, demonstrating some of the advances in numerical methods made possible by the new geometrical and topological approaches, and even present a case where the numerical point of view has enabled the resolution of a long open question in algebraic topology.

MAA INVITED ADDRESS

Is There a Better Way to Elect a President?

Steven Brams
New York University

FRIDAY, JULY 28, 10:30 A.M. – 11:20 A.M.
INTERNATIONAL BALLROOM NORTH

I describe properties of approval voting—whereby voters can approve of as many candidates as they like in a multi-candidate election, and the candidate with the most approval wins—and compare them with properties of (1) plurality voting, in which voters can vote for only one candidate; (2) ranking systems, such as the Borda count and the Hare system of single transferable vote (also called instant runoff or ranked choice voting); and (3) grading systems that have been proposed by mathematicians Warren Smith (range or score voting) and Michel Balinski and Rida Laraki (majority judgment voting).

I argue that approval voting, which is used by both the MAA and AMS, among other professional societies, is a simpler and more practicable alternative and should be used in presidential and other public elections. Extending approval voting to multi-winner elections, such as to a committee or council, will also be discussed.

MAA INVITED ADDRESS

An Introduction to Spatial Graph Theory

Erica Flapan
Pomona College

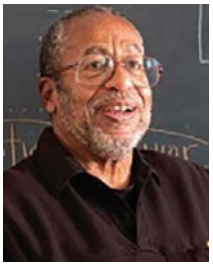
THURSDAY, JULY 27, 8:30 A.M. – 9:20 A.M.
INTERNATIONAL BALLROOM NORTH

Spatial graph theory developed in the early 1980's when topologists began using the tools of knot theory to study graphs embedded in 3-dimensional space. Later, this area came to be known as spatial graph theory to distinguish it from the study of abstract graphs. Much of the current work in spatial graph theory can trace its roots back either to the ground breaking results of John Conway and Cameron Gordon on intrinsic knotting and linking of graphs or to the topology of non-rigid molecules. This talk will present the history of spatial graph theory and survey some of the current trends in the field.

MAA INVITED ADDRESS

How to Create Periodic Functions from Geometric Shapes

Ronald Mickens
Clark Atlanta University



SATURDAY, JULY 29, 10:30 A.M. – 11:20 A.M.
INTERNATIONAL BALLROOM NORTH

The trigonometric sine and cosine functions are generated from the geometrical properties of the unit circle. We demonstrate that other periodic functions can be constructed by generalizing the methodology used to analyze the properties of the circular, i.e., trigonometric, functions. In particular, we investigate the elliptic, "square," and "triangular" periodic functions, and derive a number of their critical mathematical features using only elementary trigonometry. At a somewhat more advanced level, we introduce the functional equation, $f(t)^2+g(t)^2=1$, and show it has an unbounded set of periodic functions as solutions. An algorithm is given to explicitly calculate those periodic solutions possessing a second derivative. Finally, the following interesting and important result is obtained: the considered periodic functions always occur as a triplet of functions, rather than a pair.

INVITED ADDRESSES CONTINUED

MAA JAMES R.C. LEITZEL LECTURE

Math's Other Half

Dan Meyer
Desmos

SATURDAY, JULY 29, 8:30 A.M. – 9:20 A.M.
INTERNATIONAL BALLROOM NORTH

Whatever your job title, you are also an ambassador from the world of those who love math to the world of those who fear math. Your ambassadorship will either produce more people who love math or more people who fear math. Your effect will be non-zero. But the math that people fear is often just one half of math. Let's discuss methods for helping fearful people encounter math's other half.

Dan Meyer Biography

Dan Meyer taught high school mathematics to students who didn't like high school math. He has advocated for better instruction of mathematics on CNN, Good Morning America, Everyday With Rachael Ray, and TED.com. He earned his doctorate from Stanford University in math education and is the Chief Academic Officer at Desmos where he explores the future of mathematics, technology, and learning. He speaks internationally and was named one of Tech & Learning's 30 Leaders of the Future.

AWM-MAA ETTA Z. FALCONER LECTURE

Not So Hidden Figures: Unveiling Mathematical Talent

Talithia Williams
Harvey Mudd College

FRIDAY, JULY 28, 8:30 A.M. – 9:20 A.M.
INTERNATIONAL BALLROOM NORTH

In the past few months, the movie "Hidden Figures" has brought visibility to the lives of African American women who served as NASA "human computers" in the 1960s. During that same time, Dr. Etta Falconer, the 11th African American woman to receive a Ph.D. in mathematics, began her tenure at Spelman College, motivating young women of color to be and do more than they dreamed possible in a field where their presence was lacking. I was fortunate to take her classes, engage her mathematical mind and dream of following in her footsteps. At Harvey Mudd College, I now find myself replicating those "Falconer moments" with my own students. I'll share several of these strategies that you can use in and out of the classroom to encourage all students, particularly underrepresented students, to develop their mathematical talent and pursue mathematical sciences.

MAA CHAN STANEK LECTURE FOR STUDENTS

Four Tales of Impossibility

David Richeson
Dickinson College

THURSDAY, JULY 27, 1:00 P.M. – 1:50 P.M.
INTERNATIONAL BALLROOM SOUTH

"Nothing is impossible!" It is comforting to believe this greeting card sentiment; it is the American dream. Yet there are impossible things, and it is possible to prove that they are so. In this talk we will look at some of the most famous impossibility theorems—the so-called "problems of antiquity." The ancient Greek geometers and future generations of mathematicians tried and failed to square circles, trisect angles, double cubes, and construct regular polygons using only a compass and straightedge. It took two thousand years to prove conclusively that all four of these are mathematically impossible.

PI MU EPSILON J. SUTHERLAND FRAME LECTURE

Bones and Teeth: Analyzing Shapes for Evolutionary Biology

Ingrid Daubechies
Duke University

WEDNESDAY, JULY 26, 8:00 P.M. – 8:50 P.M.
INTERNATIONAL BALLROOM NORTH

For the last 8 years, several of my students and postdocs as well as myself have been collaborating with biologists to design mathematical approaches and tools that would help automate biological shape analysis. The talk will review this collaboration, sketching both the mathematics and chronicling the interaction with our biological colleagues.

INVITED ADDRESSES CONTINUED

NAM DAVID HAROLD BLACKWELL LECTURE

Hidden Figures: My Role as a Math Consultant for this Film

Rudy L. Horne
Morehouse College

FRIDAY, JULY 28, 1:00 P.M. – 1:50 P.M.
INTERNATIONAL BALLROOM SOUTH

In January 2017, the movie Hidden Figures was released by 20th Century Fox studios. This movie tells the story of three African-American women mathematicians and engineers (Katherine Johnson, Mary Jackson and Dorothy Vaughan) who would play a pivotal role towards the successful mission of John Glenn's spacecraft orbit around the Earth and the NASA missions to the moon.

For this talk, we give a brief review of the space race going on at the time between the United States of America and the former Soviet Union. We will discuss the lives and contributions that NASA mathematician Katherine Johnson and the NASA engineers Mary Jackson and Dorothy Vaughan made to the space race, particularly their work as it concerns John Glenn's orbit around the Earth in 1962 and to the moon missions. Also, we will talk about the experiences of being a mathematical consultant for this film.

INVITED PAPER SESSIONS

Spatial Graph Theory

THURSDAY, JULY 27, 1:00 P.M. – 5:00 P.M., CONTINENTAL BALLROOM A

Spatial Graph Theory is a relatively young interdisciplinary field that brings together knot theory, low dimensional topology and geometry, combinatorics, and graph theory, and has applications in chemistry, molecular biology, and biophysics. In addition, because of its combinatorial nature, many problems in Spatial Graph Theory lend themselves well to undergraduate research. For these reasons, faculty at primarily undergraduate institutions as well as those at research universities may be interested in learning about Spatial Graph Theory.

Organizer:
Erica Flapan, *Pomona College*

Topological Symmetry Groups of Möbius Ladders and the Petersen Graph in R^3
1:00 P.M. – 1:20 P.M.

Emille Davie Lawrence, *San Francisco University*

Intrinsic Chirality of Graphs in R^3 and Other 3-Manifolds
1:30 P.M. – 1:50 P.M.

Hugh Howards, *Wake Forest University*

Alexander Polynomials of Spatial Graphs and Virtual Knots
2:00 P.M. – 2:20 P.M.

Blake Mellor, *Loyola Marymount University*

Realization of Knots and Links in a Spatial Graph
2:30 P.M. – 2:50 P.M.

Kouki Taniyama, *Waseda University*

Conway-Gordon Type Theorems
3:00 P.M. – 3:20 P.M.

Ryo Nikkuni, *Tokyo Woman's Christian University*

Legendrian Spatial Graphs
3:30 P.M. – 3:50 P.M.

Danielle O'Donnol, *University of Indiana*

Oriented Matroid Theory and Linear Embeddings of Spatial Graphs
4:00 P.M. – 4:20 P.M.

Elena Pavelescu, *University of South Alabama*

Random Linear Embeddings of Spatial Graphs with Applications to Polymers
4:30 P.M. – 4:50 P.M.

Kenji Kozai, *Harvey Mudd College*

Big Ideas About Big (and Less Than Big) Data

THURSDAY, JULY 27, 2:00 P.M. – 5:00 P.M., CONTINENTAL BALLROOM B

Data analytics is a growing field, with graduate degrees, undergraduate majors and minors, and concentrations popping up at colleges and universities around the country. Data analysis impacts our lives broadly from predictions of movie rankings on Netflix to targeted marketing by retailers, to name two of many applications. The landscape of data science is broad. The ideas of the field can be applied using smaller datasets from a biometric device like a Fitbit or iWatch to large datasets in finance or health care. This session will sample areas of data science from a variety of applications, calling on various topics in mathematics such as graph theory and linear algebra, as well as statistical modelling. The session will also include presenters from government, academia and business demonstrating the inherent interdisciplinarity of studying big and less than big data.

Organizers:
Tim Chartier, *Davidson College*
Jennifer Galovich, *St. John's University and the College of St. Benedict*

Know Thyself: Introspective Personal Data Mining
2:00 P.M. – 2:20 P.M.

Talithia Williams, *Harvey Mudd College*

Using Big and Less-than-Big Data Sets in Public Health
2:30 P.M. – 2:50 P.M.

Martin I. Meltzer, Ph.D., *Health Economics and Modeling Unit (HEMU), Division of Preparedness and Emerging Infections, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention (CDC)*

Let Me See Your Papers: Using Real-Time Network Graph Traversal to Uncover Suspicious Offshore Activity
3:00 P.M – 3:20 P.M.

Abhishek Mehta, *Tresata*

Toward Unsupervised Learning for Social Media Using Linear Algebra
3:30 P.M. – 3:50 P.M.

Michael Berry, *University of Tennessee, Knoxville*

Finding and Telling Data Stories
4:00 P.M. – 4:20 P.M.

Dash Davidson, *Tableau Software*

Creating Partnerships with Industry and Finding Data Analytics Problems for Students
4:30 P.M. – 4:50 P.M.

Michael Dorff, *Brigham Young University*

INVITED PAPER SESSIONS CONTINUED

Low Dimensional Symplectic and Contact Topology

FRIDAY, JULY 28, 1:00 P.M. – 4:00 P.M., CONTINENTAL BALLROOM B

The origins of symplectic and contact topology can be traced back to classical mechanical systems. Since then, both symplectic and contact topology have become very robust fields of study in their own right. The aim of this session will be to highlight techniques and recent results in the areas of low-dimensional symplectic and contact topology ranging from applications in knot theory to the theory of planar arrangements and singularities. Most of this work uses some version of Floer theory (such as contact homology or Heegaard Floer homology), which is an infinite-dimensional analog of Morse homology. We will aim to make this session understandable to nonexperts.

Organizers:
Dusa McDuff, *Barnard College, Columbia University*
Whitney George, *University of Wisconsin LaCrosse*

Constructing Interlocking Solid Tori in Contact 3-Manifolds
1:00 P.M. – 1:20 P.M.

Doug LaFountain, *Western Illinois University*

The Weinstein Conjecture
1:30 P.M. – 1:50 P.M.

Bahar Acu, *University of Southern California and UCLA*

Contact Invariants and Reeb Dynamics
2:00 P.M. – 2:20 P.M.

Jo Nelson, *Barnard College and Columbia University*

The Flexibility and Rigidity of Lagrangian Cobordisms
2:30 P.M. – 2:50 P.M.

Lisa Tryanor, *Bryn Mawr College*

A New Approach to the Symplectic Isotopy Problem
3:00 P.M. – 3:20 P.M.

Laura Starkston, *Stanford University*

Mathematics and Democracy

FRIDAY, JULY 28, 2:00 P.M. – 5:00 P.M., CONTINENTAL BALLROOM A

Democracy is fraught with different meanings that mathematics can help to make more precise. This session will include talks on the properties of voting systems that best reflect the will of the people in electing a single winner (e.g., for mayor or president), or best represent different factions in electing multiple winners (e.g., to a committee or council). Among other topics discussed will be different ways of apportioning representatives to states, or seats in a legislature to political parties; methodologies for drawing district lines to avoid gerrymandering; and the avoidance of different social-choice paradoxes.

Organizer:
Steven Brams, *New York University*

Political Hypotheses and Mathematical Conclusions
2:00 P.M. – 2:20 P.M.

Paul H. Edelman, *Vanderbilt University*

Multiwinner Approval Voting: An Apportionment Approach
2:30 P.M. – 2:50 P.M.

D. Marc Kilgour, *Wilfrid Laurier University*

Voting and the Symmetric Group
3:00 P.M. – 3:20 P.M.

Michael Orrison, *Harvey Mudd College*

Consistent Criteria, Problematic Outcomes, and the Hypercube
3:30 P.M. – 3:50 P.M.

Tommy Ratliff, *Wheaton College*

Ready for Redistricting 2020?
4:00 P.M. – 4:20 P.M.

Karen Saxe, *Macalester College and AMS*

Orthogonal Decomposition and the Mathematics of Voting
4:30 P.M. – 4:50 P.M.

William S. Zwicker, *Union College*

INVITED PAPER SESSIONS CONTINUED

AWM INVITED PAPER SESSION

No Longer Hidden Figures: Women Mathematicians Share Their Path to the Profession

FRIDAY, JULY 28, 2:00 P.M. – 5:00 P.M., SALON A-3

The recent blockbuster hit, Hidden Figures, shines light on the talented group of African American women mathematicians that helped lead the United States in the race to become the first country to put a man on the moon. Their passion for mathematical excellence and desire to make meaningful contributions to the greater society allowed them to persevere in circumstances that were not always welcoming. In this series of talks, the speakers will take us on a journey from their budding mathematical interest to their individual paths to the profession, including any stumbling blocks along the way. Our hope is that these talks provide the audience with concrete experiences and ideas that can be implemented in and out of the classroom as we all seek to broaden the participation of women and underrepresented groups in mathematics.

Organizers:
Jacqueline Jensen-Vallin, *Lamar University*
Talithia Williams, *Harvey Mudd College*
Alissa Crans, *Loyola Marymount Univeristy*

The "Firsts" in STEM: Modern Day 'Hidden Figures'
2:00 P.M. – 2:20 P.M.

Talitha Washington, *Howard University*

A Quest to Cure Cancer with Math
2:30 P.M. – 2:50 P.M.

Shelby Wilson, *Morehouse College*

Young, Mathematically Gifted, and Black
3:00 P.M. – 3:20 P.M.

Candice Price, *University of San Diego*

A Path, Thus Far...
3:30 P.M. – 3:50 P.M.

Suzanne Weekes, *Worcester Polytechnic Institute*

Life Has Critical Points
4:00 P.M. – 4:20 P.M.

Emille Davie Lawrence, *University of San Francisco*

Panel Discussion
4:30 P.M. – 5:00 P.M.

The Life and Legacy of J Ernest Wilkins (1923-2011)

SATURDAY, JULY 29, 1:00 P.M. – 4:00 P.M., SALON A-3

J Ernest Wilkins earned a PhD in Mathematics at the age of 19 from the University of Chicago. In 1942 he became the seventh African American to earn a PhD in Mathematics. In 1976 he became the second African American to be elected to the National Academy of Engineering. Wilkins' career spanned academia, industry and government including the University of Chicago Met Lab during the Manhattan Project. He also helped establish the doctoral program in mathematics at Howard University. This session will share his impact in nuclear-reactor physics and optics, his plight of being a "negro genius", and his impact on the mathematical community.

Organizers:
Ronald Mickens, *Clark Atlanta University*
Talitha Washington, *Howard University*
Ron Buckmire, *National Science Foundation and Occidental College*

J Ernest Wilkins, Jr.: My Friend, Colleague, and Collaborator
1:00 P.M. – 1:20 P.M.

Ronald E. Mickens, *Clark Atlanta University*

The Remarkable Wilkins Family
1:30 P.M. – 1:50 P.M.

Carolyn Wilkins, *Professor Berklee College of Music*
Sharon Wilkins Hill, PhD

J Ernest Wilkins at the University of Chicago
2:00 P.M. – 2:20 P.M.

Bob Fefferman, *The University of Chicago*

My PhD Dissertation Advisor – J Ernest Wilkins
2:30 P.M. – 2:50 P.M.

Cleo Bentley, *Prairie View A&M University*

Dr. J Ernest Wilkins, Jr.: The Man and His Works
3:00 P.M. – 3:20 P.M.

Asamoah Nkwanta, *Morgan State University*

The Scientific and Mathematical Impact of J Ernest Wilkins
3:30 P.M. – 4:00 P.M.

Talitha Washington, *Howard University*

CONTRIBUTED PAPER SESSIONS WITH THEMES

Exploring Zeros of Polynomials

FRIDAY, JULY 28, 1:00 P.M. – 5:35 P.M., SALON C-6

Mathematics Magazine (June 2016) have focused on intriguing properties of polynomials and their zeros. Given the long, rich history of this topic in mathematics and the wide array of techniques utilized, we believe talks in this area would appeal to a variety of mathematicians and students. Possible topics include extensions of standard results such as Descartes' rule of signs or the rational roots theorem, dynamics of numerical root finding schemes, interesting graphical properties of sets of zeros, properties of zeros for specific families of polynomials (e.g., cyclotomic polynomials), novel proofs of standard results, and illuminating talks on well-known theorems and conjectures such as the Gauss-Lucas Theorem, Siebeck's Theorem, and the Sendov Conjecture. Talks that utilize technology to visualize particular phenomena or results are particularly encouraged, as are talks that provide a historical perspective. We are also interested in talks that present open problems suitable for undergraduate research or independent study. Talks in this session should be accessible to advanced undergraduate students.

Organizers:

Michael Brilleslyper and Beth Schaubroeck,
U. S. Air Force Academy

Encouraging Effective Teaching Innovation

PART A: THURSDAY, JULY 27, 1:00 P.M. – 4:55 P.M., SALON C-4

PART B: FRIDAY, JULY 28, 8:30 A.M. – 11:45 A.M., SALON C-4

Faculty are eager to offer activities in the classroom that foster student success, but many are not formally trained in pedagogy. This session will consist of presentations of demonstrably effective and innovative classroom techniques. Talks will address the reasoning behind, design, and implementation of resources or activities. While these activities may be whole course techniques, we also seek presentations of drop-in activities to bolster student learning and reflection in any course. Techniques do not have to be original to the presenter, but sources must be credited and evidence of success (or failure and redesign) is expected. To maximize the session's usefulness, a Google Drive folder will be created and shared as a repository for the speakers' slides and supplementary materials.

Organizers:

Susan B. Crook, *Loras College*
David Failing, *Lewis University*
Russ Goodman, *Central College*

Math Potluck: A Student Swap Session

SATURDAY, JULY 29, 1:00 P.M. – 4:00 P.M., SALON A-4

Calling all undergrads and faculty advisors! Does your department have (or want!) a Math Club or student chapter of the AWM, MAA, PME, or SIAM? This session will provide a forum for sharing your favorite or most successful student activity. The presenter(s) will provide a "how-to" for a single math event that a math club or student chapter has held. Together, we will build a toolbox of successful activities to take back to each of our campuses! Following the morning presentations, a free lunch will be held for all presenters and attendees of this session to promote continued discussion and collaboration amongst participants. Please indicate in your abstract submission whether your group is a Math Club or student chapter of AWM, MAA, PME, or SIAM.

Organizers:

Alissa Crans, *Loyola Marymount University*
Jacqueline Jensen-Vallin, *Lamar University*
Candice Price, *University of San Diego*
Alejandra Alvarado, *Eastern Illinois University*
Dora Ahmadi, *Morehead State University*
Timothy Fest, *SIAM*
Angela Spalsbury, *Youngstown State University*

This session is jointly sponsored by the AWM, MAA, PME, and SIAM

Online Assessment: Where We Have Been, Where We Are, and Where We Are Going

SATURDAY, JULY 29, 1:00 P.M. – 3:35 P.M., SALON C-6

Online assessment is now a common part of the academic experience for faculty and students. The technology has been around long enough to evolve substantially from early implementations. The purpose of this session is to allow faculty to share what is new, what they are hoping for in the future, and what have we learned from present and past implementations of the systems. We also invite contributions regarding pedagogical issues surrounding the use of these resources.

We are seeking expository talks on what resources are available, demonstrations, and innovative ideas as well as scholarly talks about the effectiveness of online assessment resources. Talks on online homework, placement testing, just in time resources, and other forms of online assessment are welcome.

Organizers:

Barbara Margolius, *Cleveland State University*
John Travis, *Mississippi College*

Committee on Technology in Mathematics Instruction (CTIME)

SIGMAA on Mathematics Instruction Using the WEB (Web SIGMAA)

CONTRIBUTED PAPER SESSIONS WITH THEMES CONTINUED

Writing Across the Curriculum in Mathematics

PART A: FRIDAY, JULY 28, 11:10 A.M. – 11:45 A.M., SALON A-2

PART B: FRIDAY, JULY 28, 1:00 P.M. – 4:55 P.M., SALON A-2

Many institutions have adopted "Writing Across the Curriculum" programs and implemented first-year writing seminars. Even when such programs are not in place, instructors are becoming increasingly aware of research that has identified writing as a high impact practice for enhancing student learning. In particular, writing-based assessments help students to shift focus from grades to deep learning and to develop skills that transcend any one subject area. In all levels of math courses, writing assignments can be used to develop critical thinking skills, provide a better understanding of logical argument, and engage students who may otherwise be left behind. This session invites talks on all aspects of writing in mathematics, especially those pertaining to Writing Across the Curriculum programs. We also welcome presentations on the implementation of Writing to Learn principles in math courses, training of students in discipline-specific skills such as proof writing, and interdisciplinary writing initiatives.

Organizers:
Anil Venkatesh, *Ferris State University*
Benjamin Gaines, *Iona College*
Victor Piercey, *Ferris State University*

The SIGMAA on Inquiry-Based Learning (SIGMAA IBL)

Enrichment, Experiences, and Examples with Modeling in Differential Equations Courses

THURSDAY, JULY 27, 1:00 P.M. – 4:15 P.M., SALON A-4

This session features talks in which colleagues who are using mathematical modeling to motivate the learning of differential equations share their experiences and mathematical offerings. Hopefully, others will be able to incorporate or build on these activities in their own course. We are interested in talks which feature real data (either collected or taken from the literature, or found online) and a full modeling process for students, i.e. stating assumptions, making identifications, creating a differential equation model, developing solution strategies, performing parameter estimations, rendering model validation, and iterating this process. Some evidence of the success of individual approaches should be offered. Presenters are encouraged to submit articles based on their presentation for consideration in a special issue of PRIMUS entitled, A Modeling First Approach to Teaching Differential Equations.

Organizers:
Brian Winkel, *SIMIODE Director*
Ellen Swanson, *Centre College*
Chris McCarthy, *Borough of Manhattan Community College, CUNY*

Connecting Introductory Mathematics Courses to Students' Intended Majors and Careers

FRIDAY, JULY 28, 1:00 P.M. – 4:55 P.M., SALON C-4

This session explores the many ways in which introductory mathematics courses can be created or renewed to meet the needs of the partner disciplines and lay the groundwork for students' future careers. For example, talks may share novel activities, examples, or projects suitable for introductory mathematics courses that showcase how mathematics is used in the partner disciplines or in specific careers. Presentations may describe curricular innovations, such as courses or pathways, which were designed or revised to support students from specific majors or on specific career paths. Talks may describe successful course-embedded strategies that help first-year students discern their major or career path. Presentations may report on models for collaboration between mathematics faculty and faculty from other departments or people from industry on the introductory mathematics curriculum. Each talk should address some aspect of how introductory mathematics courses can be aligned with external needs of students' intended majors or careers.

Organizers:
Rebecca Hartzler, *University of Texas-Austin*
Suzanne I. Dorée, *Augsburg College*
Susan Ganter, *Virginia Polytechnic Institute and State University*
Thomas A. Hoft, *University of St. Thomas*

Curriculum Renewal Across the First Two Years (CRAFTY) Committee

Business, Industry, and Government Special Interest Group of the MAA (BIG-SIGMAA)

Undergraduate Research Activities in Mathematical and Computational Biology

FRIDAY, JULY 28, 1:00 P.M. – 3:35 P.M., SALON A-4

This session is dedicated to aspects of undergraduate research in mathematical and computational biology. First and foremost, this session would like to highlight research results of projects that either were conducted by undergraduates or were collaborations between undergraduates and their faculty mentors. Of particular interest are those collaborations that involve students and faculty from both mathematics and biology. Secondly, as many institutions have started undergraduate research programs in this area, frequently with the help of initial external funding, the session is interested in the process and logistics of starting a program and maintaining a program even after the initial funding expires. Important issues include faculty development and interdisciplinary collaboration, student preparation and selection, the structure of research programs, the acquisition of resources to support the program, and the subsequent achievements of students who participate in undergraduate research in mathematical and

CONTRIBUTED PAPER SESSIONS WITH THEMES CONTINUED

computational biology. Finally, the session also welcomes the presentation of materials and project ideas that can be used to help get students started in research in mathematical and computational biology.

Organizer:
Timothy D. Comar, *Benedictine University*

The SIGMAA on Mathematical and Computational Biology (BIO SIGMAA)

Data Science: Big Data, Big Questions

FRIDAY, JULY 28, 8:30 A.M. – 12:05 P.M., SALON A-1

Data Science. What is it? Why is it important? Who is doing it? How are you using it? Is it only Business Analytics? Come and share your experience as you learn from others about the innovative and quickly growing interest in Data Science. We encourage the submission of scholarly work, including, but not limited to, original research, innovative ideas, demonstrations, problems, applications, projects, curricular materials, single class descriptions, whole course outlines, and whole programs. Proposals will be selected that show innovation, detail, and evidence based results with a primary focus on pedagogy and curriculum related to data science.

Organizers:
Jacci White, Monika Kiss, and Brian Camp, *Saint Leo University*

Mathematics in Video Games

SATURDAY, JULY 29, 9:30 A.M. – 10:25 A.M., SALON A-5

Video games are a ubiquitous part of popular culture. While it is generally accepted that developing a video game often requires the application of mathematics, many neglect the fact that mathematical principles may appear in how one plays the game. This session seeks presentations of mathematical problems and solutions that may appear in the development or play of modern games. Presenters are encouraged to show college-level mathematics that might appear in a range of courses. We broadly interpret video games to range from single-player to massively multiplayer and to include games played on various types of devices (console, mobile, etc.). This session will be of interest to gamers and instructors looking for innovative examples to use in their classes.

Organizers:
Heidi Hulsizer and Nickolas Hein, *Benedictine College*

Recreational Mathematics: Puzzles, Card Tricks, Games, Gambling and Sports

PART A: THURSDAY, JULY 27, 2:00 P.M. – 4:35 P.M., SALON A-1

PART B: FRIDAY, JULY 28, 2:00 P.M. – 4:55 P.M., SALON A-1

Puzzles, card tricks, board games, game shows, gambling, and sports provide an excellent laboratory for testing mathematical strategy, probability, and enumeration. The analysis of such diversions is fertile ground for the application of mathematical and statistical theory. Solutions to new problems as well as novel solutions to old problems are welcome. Submissions by undergraduates or examples of the use of the solutions of these problems in the undergraduate classroom are encouraged.

Organizers:
Paul R. Coe and Sara B. Quinn, *Dominican University*
Kristen Schemmerhorn, *Concordia University Chicago*

My Favorite Math Circle Problem

PART A: THURSDAY, JULY 27, 1:00 P.M. – 3:55 P.M., SALON C-1 & C-2

PART B: FRIDAY, JULY 28, 1:00 P.M. – 3:55 P.M., SALON C-1 & C-2

A math circle is an enrichment experience that brings mathematics professionals in direct contact with pre-college students and/or their teachers. Circles foster passion and excitement for deep mathematics.

Papers in this session highlight either a favorite problem from a math circle, or favorite collection of problems used together for one or two sessions of a math circle. Contributed papers should describe the launch of the problem, what happens during the circle, and ways of ``wrapping up'', even if that doesn't involve answering the problem.

Organizer:
Bob Klein, *Ohio University*

The SIGMAA on Math Circles for Students and Teachers (SIGMAA MCST)

CONTRIBUTED PAPER SESSIONS WITH THEMES CONTINUED

Innovative Approaches to Calculus Preparation

PART A: THURSDAY, JULY 27, 1:00 P.M. – 3:55 P.M., SALON A-3

PART B: FRIDAY, JULY 28, 8:30 A.M. – 11:05 A.M., SALON A-3

Success in most science, technology, engineering and mathematics (STEM) fields relies on calculus, and success in calculus relies on a good foundation in algebra and trigonometry. Although many students get that foundation in high school, many others – including many members of at-risk populations – arrive at college deficient in the basic skills they need for success in calculus. Most of these students have taken some variety of precalculus course, and repeating the same material, only faster, is often not an effective strategy. The aim of this session is for teachers and researchers to share ideas for how to improve the preparation of students for the study of calculus at the college level. We invite scholarly presentations of ideas to improve success in calculus among underprepared students. Such ideas may include, but are not limited to: research on student preparation or improvements in placement; research demonstrating effective instructional strategies, innovative classroom activities or pedagogies; redesigned prerequisite sequences or intervention strategies.

Organizers:
Benjamin V.C. Collins and Jennifer Good, *University of Wisconsin-Platteville*
Nathan Warnberg, *University of Wisconsin-La Crosse*

Euclid and the Mathematics of Antiquity in the 21st Century

SATURDAY, JULY 29, 1:00 P.M. – 4:15 P.M., SALON A-1

Euclid's Elements is a fundamental text of mathematics in the western tradition. Geometry, number theory, logic, and the axiomatic method: all bear Euclid's stamp. Moreover, the Elements was considered a central text of every liberal arts education well into the nineteenth century, more than two millennia after its writing.

The recent centennial of the MAA provides a fitting occasion on which to revisit the influence of mathematics's past on future mathematics and culture. We seek contributions that relate the work of Euclid or other mathematicians of antiquity to modern mathematics or the modern undergraduate curriculum. Original research, unique expositions, descriptions of courses with a significant integration of the mathematics of antiquity, and curricular materials are all welcome.

Organizers:
Elizabeth T. Brown, *James Madison University*
Edwin O'Shea, *James Madison University*

History of Mathematics SIGMAA (HOM SIGMAA)

Novel Introductions to Number Theory

THURSDAY, JULY 27, 3:00 P.M. – 4:35 P.M., SALON C-6

This session invites presenters to share interesting ways in which to introduce undergraduate students to topics in number theory. These "tastes" of number theory may be demonstrations, in-class activities, projects, proofs, or ways in which to guide undergraduates to explore and learn about areas of number theory while improving their ability to write proofs. Those discussing demonstrations or in-class activities are encouraged to share key portions. Presenters are welcome to share their first experiences teaching topics in number theory or how they have modified their approaches over time. Presentations related to teaching topics with which students experience difficulty and student reaction as well as information about successes and failures are encouraged.Abstracts should provide a glimpse of the demonstration, in-class activity, project, or proof to be discussed and information about the related topics in number theory in addition to the software or application, if any, used. Those whose presentations are dependent upon software or tablet explorations must provide their own laptop or tablet.

Organizer:
Sarah L. Mabrouk, *Framingham State University*

Inquiry-Based Teaching and Learning

PART A: FRIDAY, JULY 28, 8:30 A.M. – 11:05 A.M., SALON A-2

PART B: SATURDAY, JULY 29, 8:30 A.M. – 11:45 A.M., SALON A-2

PART C: SATURDAY, JULY 29, 1:00 P.M. – 3:15 P.M., SALON A-2

The goal of Inquiry-Based Learning (IBL) is to transform students from consumers to producers of mathematics. Inquiry-based methods aim to help students develop a deep understanding of mathematical concepts and the processes of doing mathematics by putting those students in direct contact with mathematical phenomena, questions, and communities. Within this context, IBL methods exhibit great variety.

Activities can take place in single class meetings or span entire curricula for students of any age; students can be guided to re-invent mathematical concepts, to explore definitions and observe patterns, to justify core results, and to take the lead in asking new questions. There is a growing body of evidence that IBL methods are effective and important for teaching mathematics and for fostering positive attitudes toward the subject. This session invites scholarly presentations on the use of inquiry-based methods for teaching and learning. We especially invite presentations that include successful IBL activities or assignments, that support observations about student outcomes with evidence, or that could help instructors who are new to IBL to try new methods.

Organizers:
Brian P. Katz, *Augustana College*
Victor I. Piercey, *Ferris State University*

The SIGMAA on Inquiry-Based Learning (SIGMAA IBL)

GENERAL CONTRIBUTED PAPER SESSIONS

Organizers:
Feryal Alayont, *Grand Valley State University*
Holly Zullo, *Westminster College*

The general sessions accept abstracts of papers in all areas of mathematics, pedagogy, and the undergraduate mathematics curriculum.

JULY 27-29
THURSDAY MORNING AND AFTERNOON
FRIDAY MORNING AND AFTERNOON
SATURDAY MORNING AND AFTERNOON
SALON C-7, C-8, AND SALON A-2

Assessment

History and Philosophy of Mathematics

Interdisciplinary Topics in Mathematics

Mathematics and Technology

Mentoring

Modeling and Applications

Outreach

Teaching and Learning Advanced Mathematics

Teaching and Learning Calculus

Teaching and Learning Developmental Mathematics

Teaching and Learning Introductory Mathematics

Teaching and Learning Other Mathematics

Algebra

Analysis

Applied Mathematics

Geometry

Graph Theory

Linear Algebra

Logic and Foundations

Number Theory

Probability and Statistics

Other than the above

PANEL SESSIONS

Math for Computing? Computing for Math? A Discussion of Interdependencies

THURSDAY, JULY 27, 8:30 A.M. – 9:50 A.M., SALON A-5

Do your Mathematics (Math) majors graduate with the computing skills and abilities to handle emerging fields like data science or cryptography? How much computing is really needed, and where should it go? What about courses serving other departments like Computer Science (CS)? Do they leave with the mathematical knowledge and ability to handle emerging fields like data mining or social network analysis? Can you identify the necessary mathematics courses or goals required for their success? More generally, what should you consider when evaluating Math-CS curricular interactions? This panel will invite curriculum experts and contributors to the 2013 ACM/IEEE and 2015 MAA curricular guides to help lead you through what CUPM calls the "nuanced relationship between mathematics education and computation". The goal is to jump-start intentional thought about productive interaction and service to our students in both disciplines.

Organizers:
Karl Schmitt, *Valparaiso University*
Karl-Dieter Crisman, *Gordon College*

Panelists:
Douglas Baldwin, *SUNY Geneseo*
John Doughtery, *Haverford College*
Daniel Kaplan, *Macalester College*
Pam Cutter, *Kalamazoo College*

Committee on Technology in Mathematics Education

How to Apply for Jobs in Academia and Industry after Your PhD

THURSDAY, JULY 27, 2:35 P.M. – 3:55 P.M., SALON A-5

This session is aimed at graduate students and recent PhDs. An overview of the employment process will be given with ample opportunity for participants to ask questions. Questions that will be addressed include: How do you find which jobs are available? How do you choose which jobs you want to apply for? What are academic and other employers looking for in the materials that you send? How should you tailor your application materials for the job that you are applying for? How do schools conduct interviews?

Moderators:
Estela A. Gavosto, *University of Kansas*
Edray Goins, *Purdue University*

Panelists:
Rowen Bell, *(Ernst & Young)*
Joanne Peeples, *El Paso Community College*
Wilfredo Urbina-Romero, *Roosevelt University*
Erika Ward, *Jacksonville University*
William Christian, *Department of Defense*

MAA Committee on Graduate Students

Town Hall Meeting: Revising Guidelines on Resources and Technology for Mathematics Faculty

THURSDAY, JULY 27, 4:10 P.M. – 5:30 P.M., SALON A-5

The MAA Committee on Faculty and Departments (formerly called the Committee on the Status of the Profession) invites ideas and suggestions regarding ongoing updates and revisions to The Guidelines for Programs and Departments in Undergraduate Mathematical Sciences. These Guidelines are intended to be used by mathematical sciences programs in self-studies, planning, and assessment of their undergraduate programs, as well as by college and university administrators and external reviewers. In order to have the future online statements in the Guidelines be as complete and useful as possible, the committee is soliciting input from MAA members. In this session, panelists and committee members will take comments and questions from the audience regarding the sections on Resources and Technology. Specific topics will include guidelines related to the following: computing resources for mathematics research; technology for mathematics instruction inside and outside the classroom; physical and virtual library access; and space for student/faculty collaboration.

Organizer and Moderator:
Tim Flowers, *Indiana University of Pennsylvania*

Panelists:
Edward Aboufadel, *Grand Valley State University*
Gavin LaRose, *University of Michigan*
M. Leigh Lunsford, *Longwood University*
Emily Puckette, *The University of the South*

MAA Committee on Faculty and Departments

PANEL SESSIONS CONTINUED

Implementing Mathematics Pathways, Part 1 – State, System, and Transfer Level Strategies

FRIDAY, JULY 28, 8:30 A.M. – 9:50 A.M., SALON A-5

Many states, systems, and institutions are implementing mathematics pathways -- new or renewed courses and course sequences designed to meet the needs of students based on their intended academic program and career path. Pathways have increased student pass rates and decreased time to completion, in large part by shortening the sequences of coursework required for underprepared students. We invite you to attend this two-part series on mathematics pathways implementation hosted by the Charles A. Dana Center and the Carnegie Foundation for the Advancement of Teaching. The morning session, led by the Charles A. Dana Center, will focus on lessons learned during implementation and the four-phase coordinated strategy used: 1) build momentum and legitimacy for mathematics pathways; 2) identify effective practices for implementation; 3) create enabling conditions for institutions and departments to implement effective practices; and 4) offer tools and resources to support action at all levels of the system. Mathematics Department chairs and faculty from five different state task forces will share their experiences in restructuring policy, institutional programs and course design to realize rigorous and accelerated mathematics pathways aligned to students' programs of study.

Organizers:

Rebecca Hartzler and Paula Talley, *Charles A. Dana Center, University of Texas Austin*

Panelists:

Helen Burn, *Highline College*
Ricardo Moena, *University of Cincinnati*
Michael Oehrtman, *Oklahoma State University*
Tammy Randolph, *Southeast Missouri State University*
Charles Watson, *University of Central Arkansas*

Implementing Mathematics Pathways, Part II – Institution and Classroom Level Strategies

FRIDAY, JULY 28, 10:00 A.M. – 11:20 A.M., SALON A-5

Numerous states and institutions are now implementing mathematics pathways in an effort to improve student outcomes and reduce time to completion. Pathways are a reform approach designed to give students course options that appropriately prepare them and are relevant to their academic and career goals. We invite you to attend this two-part series on math pathways implementation hosted by the Charles A. Dana Center and the Carnegie Foundation for the Advancement of Teaching. This session, led by the Carnegie Foundation for the Advancement of Teaching, will focus on lessons learned in implementing effective institution- and classroom-level reform and share out the newest data about the effectiveness of Statway and Quantway in terms of student success in mathematics as well as college transfer and completion rates. Participants will examine key research-based design elements of effective math reform efforts and explore how Carnegie's Statway and Quantway incorporate these design elements. Faculty and administrators from Carnegie Math Pathways network institutions will share their challenges and success of incorporating the programs on their campus.

Organizer:

Karon Klipple, *Carnegie Math Pathways*

Panelists:

Karon Klipple, *Executive Director, Carnegie Math Pathways*
Kelly Kohlmetz, *Math Literacy Pathway Coordinator, University of Wisconsin, Milwaukee*
Andre Freeman, *Department Chair of Science and Math, Capital Community College*

PANEL SESSIONS CONTINUED

Reflections on Departmental Self-Studies and Reviews

FRIDAY, JULY 28, 1:00 P.M. – 2:20 P.M., SALON A-5

The departmental review process is an essential part of both a university's and a department's assessment processes. However, because of the long intervals that occur between these reviews, the process and expectations are often somewhat mysterious. This panel is intended to provide the audience with insight about the whys and hows of departmental reviews. Panelists will share their reflections on the departmental self-study and review processes that they have been involved with. Two of the panelists will have led their own departmental efforts and will describe why the project was undertaken and what the expected outcomes were. They will also describe what went well during the process and what might have gone better. These panelists will also comment on the institutional response to their self-study and external report. The other two other panelists will have served as external consultants and these individuals will describe what they expect to find during a visit and what they believe that their work contributes to the process. All of the panelists will identify the MAA materials and initiatives that supported their work.

Organizer:

Rick Gillman, *Valparaiso University*

Panelists:

Murphy Waggoner, *Simpson College*
John Lorch, *Ball State University*
Suzanne Dorée, *Augsburg College*
Sheldon Axler, *San Francisco State University*

MAA Committee on Departmental Reviews

Non-academic Mathematical Career Paths for Undergraduates

FRIDAY, JULY 28, 2:35 P.M. – 3:55 P.M., SALON A-5

Step one: earn a degree in mathematics. Step three: have a great career! What is step two? Whether you are a mathematics student looking for a job once you graduate or an advisor looking for advice to give to future job-seeking students, this session will help you gain new perspectives on nonacademic career experiences and what employers value in their employees. Panelists will share the paths to their current positions, the ways in which they utilize their mathematical background, and offer advice to others looking for employment in similar venues.

Organizer:

May Mei, *Denison University*

Panelists:

Courtney Adams, *Siemens*
Krystle Hinds, *National Security Agency*
Kim Plesnicar, *Zurich North America*

MAA Committee on Undergraduate Student Activities and Chapters (CUSAC)

PANEL SESSIONS CONTINUED

Math Camp: Combining Collaboration, Individualized Intervention, and Socio-Emotional Development

FRIDAY, JULY 28, 4:10 P.M. – 5:30 P.M., SALON A-5

Math Camp is a four-week summer algebra intervention for incoming ninth graders, directed and funded by California State University Northridge, that takes a different approach to learning and pedagogy, by taking into account students' attitudes about learning math and creating safe environments where students can explore mathematical concepts, both collaboratively and individually. This session will discuss the benefits to the university for overseeing such a program, as well as the benefits to students that attended camp. Discussions will include how Math Camp provides opportunities for undergraduate math majors and graduate students in mathematics education to participate in field experience and research, as well as how camp has contributed to a stronger partnership with a community high school. A teacher from Math Camp will share how the camp enriched the relationship between the math department, college of education, and the high school. Also discussed will be the potential and value of the long-term study this camp creates, that can track students from high school through the CSU system in order to see if there was a decrease in the need for remedial math for students that attended camp. Additional benefits discussed will be the lessons that can be brought into the college classroom, lesson plans that use student work samples and video of students explaining their thinking, to prepare future educators or enrich graduate students' understanding of students' mathematical development. Testimonials from student educators that have implemented Math Camp tasks will also be shared.

Organizers and Panelists:

Cat Gaspard, Jonathan Garcia, Stephane Plancke, *California State University Northridge*
Tania Lopez, *Northridge Academy High School*

Getting Involved in Professional Organizations

SATURDAY, JULY 29, 1:00 P.M. – 2:20 P.M., SALON A-5

Professional organizations are the backbone that support junior faculty as they progress throughout their careers. These organizations, however, rely heavily on the hard work and dedication of their executive boards and committees. This session includes panelists with experience in leadership positions in the Mathematical Association of America (MAA), Pi Mu Epsilon (PME), the Society for Industrial and Applied Mathematics (SIAM) and the Association for Women in Mathematics (AWM), and Project NExT. Each panelist will provide background on their organization and describe how they became involved with their group as well as giving some suggestions and recommendations on how to become an active member. This session is organized as a Blue10 dot panel, specifically tailored to newly tenured faculty looking to increase their professional activity, but should be beneficial for faculty at any stage in their career.

Organizer:

Kevin Murphy, *Saint Leo University*

Panelists:

Monika Kiss, *Saint Leo University (MAA)*
Benjamin Galluzzo, *Shippensburg University (SIAM)*
Paul Fishback, *Grand Valley State University (PME)*
Ami Radunskaya, *Pomona College (AWM)*
Alissa Crans, *Loyola Maramount University (Project NExT)*

Project NExT Blue10 Dots

POSTER SESSIONS

PosterFest 2017: An MAA Networking Event

FRIDAY, JULY 28, 3:30 P.M. – 5:00 P.M., SALON D (EXHIBIT HALL)

This poster session will allow early career mathematicians to present and discuss their scholarly activities and to network with senior mathematicians in an informal atmosphere. Untenured faculty and graduate students are especially encouraged to apply. Examples of scholarly activities suitable for this poster session include expository work, preliminary reports, scholarship of teaching and learning, and research reports. Presenters should have their materials prepared in advance and will be provided with a self-standing, trifold tabletop poster approximately 48 in wide by 36 in high.

Organizers:

Lisa Driskell, *Colorado Mesa University*
Jacob White, *The University of Texas Rio Grande Valley*

MAA Committee on Early Career Mathematicians
MAA Committee on Graduate Students
Young Mathematicians Network
Project NExT

PIC Math Conference

STUDENT PRESENTATIONS: SATURDAY, 8:30 A.M. – 10:30 A.M., INTERNATIONAL BALLROOM SOUTH

INDUSTRY SPEAKERS: SATURDAY, 10:30 A.M. – 11:30 A.M., INTERNATIONAL BALLROOM SOUTH

POSTER SESSION: SATURDAY, 1:00 P.M. – 3:00 P.M., INTERNATIONAL BALLROOM SOUTH

The PIC Math (Preparation for Industrial Careers in Mathematical Sciences) program aims to prepare mathematical sciences students for industrial careers by engaging them in research problems that come directly from business, industry, or government. During the spring 2017 semester, mathematical sciences undergraduate students at 67 U.S. universities and colleges were enrolled in a PIC Math industrial mathematics and statistics research course. Each student team worked on a research problem and submitted a written report and video solution to the problem to the PIC Math student research competition. Several student teams will give presentations of their problems and solutions during this session. PIC Math is a program of the MAA and SIAM supported by NSF funding (DMS-1345499). See http://www.maa.org/picmath

Organizers:

Michael Dorff, *Brigham Young University*
Suzanne Weekes, *Worcester Polytechnic Institute*

MINICOURSES

MAA Minicourses are partially supported by the William F. Lucas Fund.

1. Creating a Purposeful Student Learning Experience

PART A: THURSDAY, JULY 27, 1:00 P.M. – 3:00 P.M., SALON C-3

PART B: FRIDAY, JULY 28, 1:00 P.M. – 3:00 P.M., SALON C-3

Do your requirements for your departmental majors constitute an integrated framework designed to build skills necessary for students to succeed in the workplace or in graduate school, or are they just a set of individual classes covering a standard array of content? Do your faculty work together effectively to develop and implement plans to achieve those desired outcomes and to assess your progress? Do you strategically incorporate experiences outside the classroom in student learning? This minicourse, taught in a hands-on workshop format, will assist and guide you in identifying practical steps toward achieving those goals and creating a learning-focused departmental culture. Departmental teams of 2 – 4 are encouraged to enroll, but are not required.

G. Daniel Callon, John Boardman, Justin Gash, Stacy Hoehn, Paul Fonstad, and Angie Walls, *Franklin College*

2. Preparing Students for Success in Calculus: Aligning Placement, Curriculum and Assessment

PART A:, FRIDAY, JULY 28, 3:30 P.M. – 5:30 P.M., SALON C-3

PART B: SATURDAY, JULY 29, 3:30 P.M. – 5:30 P.M., SALON C-3

The Mathematical Association of America has engaged in studies that have identified key variables that contribute to student success in calculus. These include use of: (i) student placement exams, (ii) curriculum that is engaging and meaningful to students, and (iii) valid formative assessments of student learning. In this minicourse participants will be actively engaged in examining placement data that has identified both barriers and foundational knowledge for learning calculus, including student conceptions of function and rate of change, needed to understand key ideas of calculus (e.g., limit, derivative, accumulation, FTC). Participants will examine and be given curriculum supplements validated to support student learning of key precalculus and calculus concepts. Course leaders will also share formative placement items that precalculus and calculus instructors can use to generate useful data of student learning in their courses.

Marilyn Carlson, *Arizona State University*
Michael Tallman, *Oklahoma State University*

3. Beyond Traditional Grading Schemes: Mastery Based Grading

PART A: THURSDAY, JULY 27, 3:30 P.M. – 5:30 P.M., SALON C-3

PART B: SATURDAY, JULY 29, 1:00 P.M. – 3:00 P.M., SALON C-3

Are you interested in trying standards-based grading, specifications grading, or mastery testing (collectively known as "mastery grading"), but don't know where to start? In the first half of this minicourse, participants will learn the basics of mastery grading. This will include evidence for the success of these methods, case-studies, how-to's and variations for implementation, and time for discussion. In the second half, participants will work actively with facilitators to outline a plan to convert one of their courses to use a mastery grading approach. Facilitators who are experienced with mastery grading will help participants choose an appropriate assessment method and create a realistic plan to implement it in their selected class. Participants should have a target course in mind and should come prepared for hands-on work in planning a new course assessment structure.

David Clark, *Grand Valley State University*
Robert Campbell, *College of St. Benedict and St. John's University*
Mike Janssen, *Dordt College*
Jessica Kelly, *Christopher Newport University*
Austin Mohr, *Nebraska Wesleyan University*
Jessica O'Shaughnessy, *Shenandoah University*

4. Visualizing Projective Geometry Through Photographs and Perspective Drawings

PART A: FRIDAY, JULY 28, 3:30 P.M. – 5:30 P.M., SALON C-5

PART B: SATURDAY, JULY 29, 3:30 P.M. – 5:30 P.M., SALON C-5

This Minicourse will introduce hands-on, practical art puzzles that motivate the mathematics of projective geometry (the study of properties invariant under projective transformations) which is often taught as an upper-level course. This Minicourse seeks to strengthen the link between projective geometry and art. On the art side, we explore activities in perspective drawing or photography. These activities provide a foundation for the mathematical side, where we introduce activities in problem solving and proof suitable for a sophomore-level proofs class. In particular, we use a geometrical analysis of photographs and perspective drawings to motivate several important concepts in projective geometry, including Desargues's Theorem and Eves's Theorem and their applications. No artistic experience is required.

Annalisa Crannell, *Franklin & Marshall College*
Marc Frantz, *Indiana University*
Fumiko Futamura, *Southwestern University*

MINICOURSES CONTINUED

5. Teaching Introductory Statistics with Simulation-Based Inference

PART A: THURSDAY, JULY 27, 3:30 P.M. – 5:30 P.M., SALON C-5

PART B: SATURDAY, JULY 29, 1:00 P.M. – 3:00 P.M., SALON C-5

The goal of this minicourse is to help participants to revise their introductory statistics course to focus on the logic and scope of statistical inference by using simulation-based methods, as opposed to methods based on the normal probability distribution, to introduce students to concepts of statistical inference. The minicourse will provide direct experience with hands-on activities designed to introduce students to concepts of statistical inference. These activities make use of freely available applets to explore concepts and analyze real data from genuine research studies. Presenters will also offer advice and lead discussion about effective implementation and assessment of student learning.

Allan Rossman and Beth Chance, *Cal Poly – San Luis Obispo*
Patti Frazer Lock and Robin Lock, *St. Lawrence University*

6. An Invitation to Euclid's Elements

PART A: THURSDAY, JULY 27, 1:00 P.M. – 3:00 P.M., SALON C-5

PART B: FRIDAY, JULY 28, 1:00 P.M. – 3:00 P.M., SALON C-5

Euclid's Elements is a cornerstone text of our discipline. It was considered part of the bedrock of every liberal arts education into the nineteenth century, more than two millennia after its writing. This workshop will provide a hands-on introduction to Euclid incorporating this humanities perspective as well as drawing connections across the undergraduate curriculum in mathematics. The workshop will outline how to guide liberal arts students, or an honors seminar, through Euclid by creating connections to other disciplines. Star turns will be made by the writings of Plato, Aristotle, Thomas Jefferson, Abraham Lincoln, and bumper stickers, all testifying to the singular potency of the axiomatic method. The workshop will also give suggestions on how to incorporate the Elements across the math major in a manner coherent with the CUPM 2015 recommendations.

Edwin O'Shea and Elizabeth Brown, *James Madison University*

WORKSHOPS

What's the Story? A Graduate Student Workshop on Formulating a Research Presentation for an Undergraduate Audience

THURSDAY, JULY 27, 1:00 P.M. – 2:20 P.M., MOBLEY ROOM

Presenting recent and ongoing research to undergraduate students is fun and rewarding, but frequently challenging. The gory details of mathematical results often require a great deal of specific jargon and background knowledge. Nonetheless, the big idea-the "story"-can almost always be presented at a variety of levels. This workshop is designed to help graduate students formulate a presentation on their research that is appropriate for an audience of undergraduate students, something many colleges and universities require as part of a job interview. Moreover, the ability to communicate complex mathematical ideas is a valued trait in any context. As such, this session aims to develop a framework for creating an engaging and accessible presentation for undergraduates. Graduate students who will be going on the job market in the fall may find this workshop especially useful.

Organizers:

May Mei, *Denison University*
Aliza Steurer, *Dominican University*

Examples and Experiences in Teaching a Modeling-Based Differential Equations Course

FRIDAY, JULY 28, 1:00 P.M. – 2:20 P.M., MOBLEY ROOM

This workshop will give participants an opportunity to actively experience what it is like to learn and teach in a modeling-based differential equations environment. We will do this with engaging learning examples, situations in which modeling gives rise to mathematics, and examples of approaches taken by colleagues who have taught this way. The rich Modeling Scenarios from the SIMIODE - Systemic Initiative for Modeling Investigations and Opportunities with Differential Equations community at www.simiode.org will serve as examples and working opportunities. The examples offered will involve participants generating and collecting data through experiments, building a mathematical model, estimating parameters, validating the model, and creating the need for learning more about differential equations as a direct result of the modeling activity. The collegial narratives which demonstrate the effectiveness of using modeling to motivate the study of differential equations will be taken from a number of different school settings. Workshop participants will leave with a wealth of examples they can use to offer a modeling-based approach in their own teaching of differential equations.

Organizers:

Rosemary Farley, *Manhattan College*
Therese Shelton, *Southwestern University*
Patrice Tiffany, *Manhattan College*
Brian Winkel, *SIMIODE*

OTHER MATHEMATICAL SESSIONS

MAA Prize Session

THURSDAY, JULY 27, 11:30 A.M. – 12:10 P.M., INTERNATIONAL BALLROOM SOUTH

The session is organized by Barbara Faires, Westminster College, MAA Secretary, and is moderated by Deanna Haunsperger, Carleton College, MAA President.

Carl B. Allendoerfer Awards

- Brian Conrey, *American Institute of Mathematics*, James Gabbard, *University of Southern California*, Katie Grant, *University of California, San Diego*, Andrew Liu, *University of California, Los Angeles*, Kent Morrison, *University of California*
- Vladimir Pozdnyakov, *University of Connecticut* and Michael Steele

Trevor Evans Award

- Cornelia A. Van Cott, *University of San Francisco*

The Paul R. Halmos- Lester R. Ford Awards

- Harold P. Boas, *Texas A&M University in College Station*
- Adrien Kassel, Ecole Normale Supérieure de Lyon, and David B. Wilson
- Deborah Kent, *Drake University* and David Muraki, *Simon Fraser University*
- Lawrence Zalcman

Merten M. Hasse Prize

- Lasse Rempe-Gillen, *University of Liverpool* and Zhaiming Shen, *University of Pennsylvania*

George Pólya Awards

- Viktor Blåsjö, *Utrecht University*
- Travis Kowalski, *South Dakota School of Mines and Technology*

Daniel Solow Author's Award

- Ted Sundstrom, *Grand Valley State University*

George Pólya Lecturer 2013-2015

- Erica Flapan, *Pomona College*

Certificates of Meritorious Service

- James Alvarez, *University of Texas at Arlington, Texas Section*
- Scott Hochwald, *University of North Florida, Florida Section*
- Heidi Keck, *Western State Colorado, Rocky Mountain Section*
- Jason Molitierno, *Sacred Heart University, Northeastern Section*
- Gerard Venema, *Calvin College, Michigan Section*

Henry L. Alder Awards

- Steven Klee, *Seattle University*
- Mary Beisiegel, *Oregon State University*

Mary P. Dolciani Award

- Tatiana Shubin, *San Jose State University*

MAA Section Officers Meeting

THURSDAY, JULY 27, 3:00 P.M. – 5:00 P.M., INTERNATIONAL BALLROOM SOUTH

This session is moderated by Elizabeth Mayfield, Hood College, Chair of the MAA Committee on Sections. It is open to all section officers and their guests. Does your Section have a mission or vision statement? Goals? Priorities? Do you engage in strategic planning? Do you have benchmarks for meeting attendance or finances or student involvement? Do you compare your Section Dashboard numbers with those of other Sections? What sort of data would be helpful to you, and what would you like to know about other Sections? We will share ideas and information, to help you and the Committee on Sections strengthen our programs.

President's Gala: A Musical Celebration and MAA Membership Recognition

THURSDAY, JULY 27, 7:00 P.M – 8:30 P.M., INTERNATIONAL BALLROOM NORTH

Join us for an evening of musical performances by your mathematical friends and colleagues, and along the way we will recognize and honor those members of our Association who've been members for twenty-five years or more.

Master of Ceremonies:

Paul Zorn, *St. Olaf College, Former President of the MAA*

Organizers:

Deanna Haunsperger, *Carleton College, MAA President*
Dave Kung, *St. Mary's College of Maryland, Project NExT*

Alder Award Session

FRIDAY, JULY 28, 2:30 P.M. – 3:20 P.M., INTERNATIONAL BALLROOM NORTH

The MAA established the Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member to honor beginning college or university faculty members whose teaching has been extraordinarily successful and whose effectiveness in teaching undergraduate mathematics is shown to have influence beyond their own classrooms. Each year, at most three college or university teachers are honored with this national award. The awardees are invited to make a presentation in this session. The session is moderated by Deanna Haunsperger, Carleton College, MAA President.

Tell Me How You Got Here

2:30 P.M. – 2:50 P.M.,

Steven Klee, *Seattle University*

Teaching Mathematics as Though Their Lives Depend on It

3:00 P.M. – 3:20 P.M.,

Mary De Raeve Beisiegel, *Oregon State University*

OTHER MATHEMATICAL SESSIONS CONTINUED

Networking Session on the Mathematical Education of Teachers

FRIDAY, JULY 28, 4:00 P.M. – 5:15 P.M., SALON C-8

Many mathematics departments offer courses specifically for preservice teachers, often designed and overseen by one or two faculty members per department. These courses can be stimulating to teach, yet also challenging because of the lack of shared wisdom in the community on what and how to teach in the courses. The organizers of this session are looking into the possibility of starting a SIGMAA to support the teaching of mathematics courses for preservice teachers. This session is an opportunity to gauge interest in such a SIGMAA, and more importantly, for faculty teaching these courses to share ideas and raise questions or concerns in a community. The organizers will facilitate discussion and conversation on what is known in the literature about the teaching and learning of mathematical knowledge for teaching at elementary and secondary levels, the perspectives represented in policy documents and commonly available textbooks, and approaches to these content courses.

Organizers:

Bonnie Gold, *Monmouth University (emerita)*
Yvonne Lai, *University of Nebraska-Lincoln*

MAA Committee on the Mathematical Education of Teachers (COMET)

Constructing the Future of IBL Conference: The Past 20 Years and the Next 20 Years

FRIDAY, JULY 28, 5:30 P.M. - 9:30 P.M. (WITH 5:30 P.M. - 6:00 P.M. BEING AN INFORMAL SOCIAL TIME), INTERNATIONAL BALLROOM SOUTH

This mini-conference is open to all MAA MathFest registrants, especially those who are wondering what inquiry-based learning (IBL) and "active learning" is all about. This is an opportunity to learn more about an approach to teaching and learning that evidence suggests is particularly effective and potentially equitable, share ideas, and be part of the community of IBL practitioners. The program will consist of a contributed poster session, a panel, some roundtable discussions, and a plenary exploring the future of IBL. Heavy hors d'oeuvres and a cash bar will be provided. The mini-conference is sponsored by the Educational Advancement Foundation and the IBL SIGMAA. More information and poster abstract submission can be found at www.inquirybasedlearning.org. Separate registration is required for this conference. Please visit the MAA Registration Desk for more information.

POSTER SESSION

PIC Math Conference

STUDENT PRESENTATIONS: SATURDAY, 8:30 A.M. – 10:30 A.M., INTERNATIONAL BALLROOM SOUTH

INDUSTRY SPEAKERS: SATURDAY, 10:30 A.M. – 11:30 A.M., INTERNATIONAL BALLROOM SOUTH

POSTER SESSION: SATURDAY, 1:00 P.M. – 3:00 P.M., INTERNATIONAL BALLROOM SOUTH

The PIC Math (Preparation for Industrial Careers in Mathematical Sciences) program aims to prepare mathematical sciences students for industrial careers by engaging them in research problems that come directly from business, industry, or government. During the spring 2017 semester, mathematical sciences undergraduate students at 67 U.S. universities and colleges were enrolled in a PIC Math industrial mathematics and statistics research course. Each student team worked on a research problem and submitted a written report and video solution to the problem to the PIC Math student research competition. Several student teams will give presentations of their problems and solutions during this session. PIC Math is a program of the MAA and SIAM supported by NSF funding (DMS-1345499). See http://www.maa.org/picmath

Organizers:

Michael Dorff, *Brigham Young University*
Suzanne Weekes, *Worcester Polytechnic Institute*

MAA Business Meeting

SATURDAY, JULY 29, 11:30 A.M. – 12:00 P.M., CONTINENTAL BALLROOM B

The meeting is organized by Barbara Faires, Westminster College, MAA Secretary, and is chaired by Deanna Haunsperger, Carleton College, MAA President.

OTHER MATHEMATICAL SESSIONS CONTINUED

GRADUATE STUDENT PAPER SESSION

Great Talks for a General Audience: Coached Presentations by Graduate Students

SATURDAY, JULY 29, 1:00 P.M. – 5:00 P.M., BOULEVARD ROOMS A AND B

Presenters in this session must be graduate students. While many graduate students will be asked to give a lecture to an audience consisting of undergraduates and non-mathematicians (possibly as part of a job interview), most students do not have much experience talking to a non-research audience. This session gives graduate students the opportunity to give a 20-minute talk aimed at an undergraduate audience (speakers should assume the audience has been only exposed to calculus and possibly some linear algebra). Both the talks and abstracts should be designed to excite a wide range of undergraduates about mathematics. All participants in this session will receive private feedback on their presentations from an established faculty member and an undergraduate student. Contact a session organizer for help writing an abstract or preparing your talk for a general audience. Optional Q&A sessions with the organizers will be held at MathFest for presenters to receive feedback on their talks. Graduate student participants in this session should also attend the graduate student workshop (What's the Story?).

Organizers:
Jim H. Freeman, *Cornell College*
May Mei, *Denison University*
Aliza Steurer, *Dominican University*

MAA Committee on Graduate Students

SPECIAL INTERACTIVE PRESENTATION FOR HIGH SCHOOL STUDENTS, PARENTS, AND TEACHERS

THOSE INFAMOUS EXPLODING DOTS: A preview to Global Math Week

SATURDAY, JULY 29, 1:00 P.M. – 1:50 P.M., CONTINENTAL BALLROOM B

Here is a story that isn't true.

"When I was a young child I invented a machine (not true) that was nothing more than a series of boxes that could hold dots. And these dots would, upon certain actions, explode. And with this machine (in this non-true story) I realized that I could explain true things! I could explain all the mathematics of arithmetic I learnt in grade school (true), all the polynomial algebra I was to learn in high-school (true), pre-calculus series formulas (true), elements of calculus and number theory I was to learn in university (true), and explore unanswered research questions mathematicians are studying today (also true)!"

Come see an astounding mathematical story that unites element of the K-12 curriculum, and beyond, in one accessible fell swoop. Bring pencil and paper, and possibly an extra pair of socks - this session will knock your first pair right off!

Leader:
James Tanton, *Mathematical Association of America*

Organizer:
Elgin Johnston, *Iowa State University*

MAA Council on Outreach

OTHER MATHEMATICAL SESSIONS CONTINUED

Math Circle Demonstration

SATURDAY, JULY 29, 2:00 P.M. – 3:30 P.M., SALON C-1 AND C-2

A math circle is an enrichment experience that brings mathematics professionals in direct contact with pre-college students and/or their teachers. Circles foster passion and excitement for deep mathematics. This demonstration session offers the opportunity for conference attendees to observe and then discuss a math circle experience. While participants are engaged in a mathematical investigation, mathematicians will have a discussion focused on appreciating and better understanding the organic and creative process of learning that circles offer, and on the logistics and dynamics of running an effective circle.

Organizer:

Paul Zeitz, *University of San Francisco*

SIGMAA on Math Circles for Students and Teachers (SIGMAA-MCST)

Math Wrangle

SATURDAY, JULY 29, 4:00 P.M. – 5:30 P.M., SALON C-1 AND C-2

Math Wrangle will pit teams of students against each other, the clock, and a slate of great math problems. The format of a Math Wrangle is designed to engage students in mathematical problem solving, promote effective teamwork, provide a venue for oral presentations, and develop critical listening skills. A Math Wrangle incorporates elements of team sports and debate, with a dose of strategy tossed in for good measure. The intention of the Math Wrangle demonstration at the Joint Math Meetings is to show how teachers, schools, circles, and clubs can get students started in this exciting combination of mathematical problem solving with careful argumentation via public speaking, strategy and rebuttal.

Organizers:

Doug Ensley, *Mathematical Association of America*
Ed Keppelmann, *University of Nevada, Reno*
Philip B. Yasskin, *Texas A&M*
Paul Zeitz, *University of San Francisco*

SIGMAA on Math Circles for Students and Teachers (SIGMAA-MCST)

American Mathematics Competitions

GRADUATE STUDENT ACTIVITIES

WORKSHOP

What's the Story? A Graduate Student Workshop on Formulating a Research Presentation for an Undergraduate Audience

THURSDAY, JULY 27, 1:00 P.M. – 2:20 P.M., MOBLEY ROOM

Presenting recent and ongoing research to undergraduate students is fun and rewarding, but frequently challenging. The gory details of mathematical results often require a great deal of specific jargon and background knowledge. Nonetheless, the big idea-the "story"-can almost always be presented at a variety of levels. This workshop is designed to help graduate students formulate a presentation on their research that is appropriate for an audience of undergraduate students, something many colleges and universities require as part of a job interview. Moreover, the ability to communicate complex mathematical ideas is a valued trait in any context. As such, this session aims to develop a framework for creating an engaging and accessible presentation for undergraduates. Graduate students who will be going on the job market in the fall may find this workshop especially useful.

Organizers:
May Mei, *Denison University*
Aliza Steurer, *Dominican University*

PANEL SESSION

How to Apply for Jobs in Academia and Industry after Your PhD

THURSDAY, JULY 27, 2:35 P.M. – 3:55 P.M., SALON A-5

This session is aimed at graduate students and recent PhDs. An overview of the employment process will be given with ample opportunity for participants to ask questions. Questions that will be addressed include: How do you find which jobs are available? How do you choose which jobs you want to apply for? What are academic and other employers looking for in the materials that you send? How should you tailor your application materials for the job that you are applying for? How do schools conduct interviews?

Organizers:
Estela A. Gavosto, *University of Kansas*
Edray Goins, *Purdue University*

Panelists:
Joanne Peeples, *El Paso Community College*
Wilfredo Urbina-Romero, *Roosevelt University*
Erika Ward, *Jacksonville University*
William Christian, *Department of Defense*

MAA Committee on Graduate Students

SOCIAL EVENT

Graduate Student Reception

THURSDAY, JULY 27, 5:30 P.M. – 6:30 P.M., MARQUETTE ROOM

Graduate students are invited for some refreshments and to meet several of the invited speakers.

Organizers:
Estela A. Gavosto, *University of Kansas*
Edray Goins, *Purdue University*

PANEL SESSION

Non-academic Mathematical Career Paths for Undergraduates

FRIDAY, JULY 28, 2:35 P.M. – 3:55 P.M., SALON A-5

Step one: earn a degree in mathematics. Step three: have a great career! What is step two? Whether you are a mathematics student looking for a job once you graduate or an advisor looking for advice to give to future job-seeking students, this session will help you gain new perspectives on nonacademic career experiences and what employers value in their employees. Panelists will share the paths to their current positions, the ways in which they utilize their mathematical background, and offer advice to others looking for employment in similar venues.

Organizer:
May Mei, Denison University

Panelists:
Courtney Adams, *Siemens*
Krystle Hinds, *National Security Agency*
Kim Plesnicar, *Zurich North America*

MAA Committee on Undergraduate Student Activities and Chapters (CUSAC)

GRADUATE STUDENT ACTIVITIES CONTINUED

POSTER SESSION

PosterFest 2017: An MAA Networking Event

FRIDAY, JULY 28, 3:30 P.M. – 5:00P.M., SALON D (EXHIBIT HALL)

This poster session will allow early career mathematicians to present and discuss their scholarly activities and to network with senior mathematicians in an informal atmosphere. Untenured faculty and graduate students are especially encouraged to apply. Examples of scholarly activities suitable for this poster session include expository work, preliminary reports, scholarship of teaching and learning, and research reports. Presenters should have their materials prepared in advance and will be provided with a self-standing, trifold tabletop poster approximately 48 in wide by 36 in high.

Organizers:

Lisa Driskell, *Colorado Mesa University*
Jacob White, *The University of Texas Rio Grande Valley*

MAA Committee on Early Career Mathematicians
MAA Committee on Graduate Students
Young Mathematicians Network
Project NExT

GRADUATE STUDENT PAPER SESSION

Great Talks for a General Audience: Coached Presentations by Graduate Students

SATURDAY, JULY 29, 1:00 P.M. – 5:00 P.M., BOULEVARD A AND BOULEVARD B

Presenters in this session must be graduate students. While many graduate students will be asked to give a lecture to an audience consisting of undergraduates and non-mathematicians (possibly as part of a job interview), most students do not have much experience talking to a non-research audience. This session gives graduate students the opportunity to give a 20-minute talk aimed at an undergraduate audience (speakers should assume the audience has been only exposed to calculus and possibly some linear algebra). Both the talks and abstracts should be designed to excite a wide range of undergraduates about mathematics. All participants in this session will receive private feedback on their presentations from an established faculty member and an undergraduate student. Contact a session organizer for help writing an abstract or preparing your talk for a general audience. Optional Q&A sessions with the organizers will be held at MathFest for presenters to receive feedback on their talks. Graduate student participants in this session should also attend the graduate student workshop (What's the Story?).

Organizers:

Jim H. Freeman, *Cornell College*
May Mei, *Denison University*
Aliza Steurer, *Dominican University*

MAA Committee on Graduate Students

UNDERGRADUATE STUDENT ACTIVITIES

SESSIONS FOR UNDERGRADUATE STUDENTS

The MAA endeavors to ensure that all the mathematical sessions at MathFest are accessible to a broad audience and undergraduate students are invited and encouraged to attend any of them. In addition, the MAA provides the following sessions that are aimed specifically at the interests of undergraduate students.

PI MU EPSILON J. SUTHERLAND FRAME LECTURE

Bones and Teeth: Analyzing Shapes for Evolutionary Biology

WEDNESDAY, JULY 26, 8:00 P.M. – 8:50 P.M., INTERNATIONAL BALLROOM NORTH

Ingrid Daubechies, *Duke University*

For the last 8 years, several of my students and postdocs as well as myself have been collaborating with biologists to design mathematical approaches and tools that would help automate biological shape analysis. The talk will review this collaboration, sketching both the mathematics and chronicling the interaction with our biological colleagues.

MAA-PME Student Reception

WEDNESDAY, JULY 26, 4:30 P.M. – 5:30 P.M., CONTINENTAL BALLROOM B

Undergraduate students are invited to come for refreshments and a welcome to MathFest.

Math Jeopardy

WEDNESDAY, JULY 26, 5:30 P.M. – 6:15 P.M., SALON A-5

Answer: A fun undergraduate mathematics contest to lead off MathFest.
Question: What is Mathematics Jeopardy?

Four teams of students will provide the questions to go with the mathematical answers in many categories. All interested students in the audience can enter their names to be chosen to play on one of the four teams of four players. There will be prizes for all the participants.

Come cheer for your favorite team. The session will be emceed by Michael Berry

Organizers:
Robert W. Vallin, *Lamar University*
Michael W. Berry, *University of Tennessee*

UNDERGRADUATE STUDENT PAPER SESSION

MAA Student Paper Sessions

THURSDAY, JULY 27, 8:30 A.M. – 11:25 A.M. AND 2:00 P.M. – 6:15 P.M., CONFERENCE ROOM 4M, CONFERENCE ROOM 4Q, LAKE ONTARIO ROOM, LAKE ERIE ROOM

FRIDAY, JULY 28, 8:30 A.M. – 11:45 A.M. AND 2:00 P.M. – 6:15 P.M., LAKE ONTARIO ROOM, LAKE MICHIGAN ROOM, LAKE HURON ROOM, LAKE ERIE ROOM, CONFERENCE ROOM 4M, CONFERENCE ROOM 4Q

Students who wish to present at the MAA Student Paper Sessions at MathFest 2017 must be sponsored by a faculty advisor familiar with the work to be presented. Abstracts should be submitted at www.maa.org/mathfest/abstracts.

Some funding to cover costs for student presenters is available through the MAA Student Travel Grant. The application will be available starting in April on the MAA Student Travel Grant webpage.

For additional information visit www.maa.org/students/undergrad.

Organizers:
T. J. Hitchman, *University of Northern Iowa*
Eric Ruggieri, *College of the Holy Cross*
Chasen Smith, *Georgia Southern University*

UNDERGRADUATE STUDENT PAPER SESSION

Pi Mu Epsilon Student Paper Sessions

THURSDAY, JULY 27, 9:10 A.M. – 10:25 A.M., 3:00 P.M. – 6:15 P.M., CONFERENCE ROOMS 4C, 4D, 4K, 4M, 4Q

FRIDAY, JULY 28, 8:30 A.M. – 10:30 A.M. AND 2:00 P.M. – 5:00 P.M., CONFERENCE ROOMS 4C, 4D, 4K, 4M, 4Q

PME Student members who wish to represent their chapters as student speakers or official delegates should visit the PME website at http://pme-math.org/ for more information.

Organizer:
Darci Kracht, Kent State University

MAA CHAN STANEK LECTURE FOR STUDENTS

Four Tales of Impossibility

THURSDAY, JULY 27, 1:00 P.M. – 1:50 P.M., INTERNATIONAL BALLROOM SOUTH

David Richeson, *Dickinson College*

"Nothing is impossible!" It is comforting to believe this greeting card sentiment; it is the American dream. Yet there are impossible things, and it is possible to prove that they are so. In this talk we will look at some of the most famous impossibility theorems—the so-called "problems of antiquity." The ancient Greek geometers and future generations of mathematicians tried and failed to square circles, trisect angles, double cubes, and construct regular polygons using only a compass and straightedge. It took two thousand years to prove conclusively that all four of these are mathematically impossible.

UNDERGRADUATE STUDENT ACTIVITIES CONTINUED

Undergraduate Student Activity: Mock Trading with SIG

FRIDAY, JULY 28, 1:00 P.M. – 1:50 P.M., CONTINENTAL BALLROOM C

SATURDAY, JULY 29, 1:00 P.M. – 1:50 P.M., CONTINENTAL BALLROOM C

Join Susquehanna International Group (SIG) for a game that combines the world of trading with mathematical estimation. Working on a team, try to get better estimates for 8 numerical problems than the other teams as quickly as you can – if you fall behind, you'll lose valuable opportunities to make money*. The only way to get ahead is to trade with other teams who have worse guesses than you do. Whoever's got the best combination of math skills, strategy, and quick wits will take home the prize* -- will you be wolves or sheep?

*in-game money is fake, prize money is real!

Organizers:
Todd Simkin and Sam Trabucco, *Susquehanna International Group*

PANEL SESSION

Panel Session: Non-academic Mathematical Career Paths for Undergraduates

FRIDAY, JULY 28, 2:35 P.M. – 3:55 P.M., SALON A-5

Step one: earn a degree in mathematics. Step three: have a great career! What is step two? Whether you are a mathematics student looking for a job once you graduate or an advisor looking for advice to give to future job-seeking students, this session will help you gain new perspectives on nonacademic career experiences and what employers value in their employees. Panelists will share the paths to their current positions, the ways in which they utilize their mathematical background, and offer advice to others looking for employment in similar venues.

Organizer:
May Mei, *Denison University*

Panelists:
Courtney Adams, *Siemens*
Krystle Hinds, *National Security Agency*
Kim Plesnicar, *Zurich North America*

MAA Committee on Undergraduate Student Activities and Chapters (CUSAC)

Estimathon!

FRIDAY, JULY 28, 4:15 P.M. – 5:45 P.M., CONTINENTAL BALLROOM C

They're called Fermi problems...

How heavy is the Eiffel Tower?
How many prime numbers have distinct digits?
How many calories would you be eating if you had "one of everything" at the Cheesecake Factory?

If you're looking for a mindbending mixture of math and trivia, look no further! Jane Street Capital presents The Estimathon contest: teams will have 30 minutes to work on 13 problems, ranging from totally trivial to positively Putnamesque. Can your team beat the all-time best score?? The top teams will receive prizes!

As in past years, we will run 2 contests. Feel free to show up to either one!

(Please show up 15 minutes before the start time of the contest you want to join.)

Our target schedule is as follows:

4:15 P.M. WELCOME, OVERVIEW OF RULES AND SCORING

4:30 P.M. ESTIMATHON CONTEST #1

5:15 P.M. ESTIMATHON CONTEST #2

Organizer:
Andy Niedermaier, *Jane Street Capital*

Pi Mu Epsilon Banquet

FRIDAY, JULY 28, 6:00 P.M. – 7:45 P.M., WALDORF

All PME members and their supporters are welcome. See the registration form for more information on this ticketed event.

MAA Ice Cream Social

FRIDAY, JULY 28, 8:00 P.M. – 9:00 P.M., CONTINENTAL FOYER

Besides cake and ice cream, we will recognize all students who gave talks in the MAA Student Paper Sessions. Prizes will be awarded for the best of these talks, and the AWM Student Chapter Awards will also be presented. All are invited.

UNDERGRADUATE STUDENT ACTIVITIES CONTINUED

POSTER SESSION

PIC Math Conference

STUDENT PRESENTATIONS: SATURDAY, 8:30 A.M. – 10:30 A.M., INTERNATIONAL BALLROOM SOUTH

INDUSTRY SPEAKERS: SATURDAY, 10:30 A.M. – 11:30 A.M., INTERNATIONAL BALLROOM SOUTH

POSTER SESSION: SATURDAY, 1:00 P.M. – 3:00 P.M., INTERNATIONAL BALLROOM SOUTH

The PIC Math (Preparation for Industrial Careers in Mathematical Sciences) program aims to prepare mathematical sciences students for industrial careers by engaging them in research problems that come directly from business, industry, or government. During the spring 2017 semester, mathematical sciences undergraduate students at 67 U.S. universities and colleges were enrolled in a PIC Math industrial mathematics and statistics research course. Each student team worked on a research problem and submitted a written report and video solution to the problem to the PIC Math student research competition. Several student teams will give presentations of their problems and solutions during this session. PIC Math is a program of the MAA and SIAM supported by NSF funding (DMS-1345499). See http://www.maa.org/picmath

Organizers:
Michael Dorff, *Brigham Young University*
Suzanne Weekes, *Worcester Polytechnic Institute*

MAA Mathematical Competition in Modeling (MCM) Winners

SATURDAY, JULY 29, 9:00 A.M. – 10:15 A.M., SALON C-4

About 450 American teams, each consisting of three undergraduates, entered the 2017 Mathematical Contest in Modeling in January. Teams choose one of two real-world problems. Teams have four days to deal with the MCM challenge and may use or access any inanimate source – computers, libraries, the Web, etc. MAA judges choose a winner for each problem. The two MAA winning teams of students will present their results of the MCM four-day challenge.

Organizer:
Ben Fusaro, *Florida State University*

Student Problem Solving Competition

SATURDAY, JULY 29, 1:30 P.M. – 3:00 P.M., SALON C-4

This event is the finals of the Problem Solving Competition. Universities and colleges that participate monthly on their own campuses by holding problem solving contests are invited to send a contestant. Each contestant will be required to solve a series of mathematical problems. Based on the outcome, a champion along with 2nd through 6th place winners will be named.

Organizer:
Richard Neal, *American Society for the Communication of Mathematics*

GRADUATE STUDENT PAPER SESSION

Great Talks for a General Audience: Coached Presentations by Graduate Students

SATURDAY, JULY 29, 1:00 P.M. – 5:00 P.M., BOULEVARD ROOMS A/B

Presenters in this session must be graduate students. While many graduate students will be asked to give a lecture to an audience consisting of undergraduates and non-mathematicians (possibly as part of a job interview), most students do not have much experience talking to a non-research audience. This session gives graduate students the opportunity to give a 20-minute talk aimed at an undergraduate audience (speakers should assume the audience has been only exposed to calculus and possibly some linear algebra). Both the talks and abstracts should be designed to excite a wide range of undergraduates about mathematics. All participants in this session will receive private feedback on their presentations from an established faculty member and an undergraduate student. Contact a session organizer for help writing an abstract or preparing your talk for a general audience. Optional Q&A sessions with the organizers will be held at MathFest for presenters to receive feedback on their talks. Graduate student participants in this session should also attend the graduate student workshop (What's the Story?).

Organizers:
Jim H. Freeman, *Cornell College*
May Mei, *Denison University*
Aliza Steurer, *Dominican University*

MAA Committee on Graduate Students

UNDERGRADUATE STUDENT ACTIVITIES CONTINUED

THEMED CONTRIBUTED PAPER SESSION

Math Potluck: A Student Swap Session

SATURDAY, JULY 29, 1:00 P.M. – 4:00 P.M., SALON A-4

Calling all undergrads and faculty advisors! Does your department have (or want!) a Math Club or student chapter of the AWM, MAA, PME, or SIAM? This session will provide a forum for sharing your favorite or most successful student activity. The presenter(s) will provide a "how-to" for a single math event that a math club or student chapter has held. Together, we will build a toolbox of successful activities to take back to each of our campuses! Following the morning presentations, a free lunch will be held for all presenters and attendees of this session to promote continued discussion and collaboration amongst participants. Please indicate in your abstract submission whether your group is a Math Club or student chapter of AWM, MAA, PME, or SIAM.

Organizers:
Alissa Crans, *Loyola Marymount University*
Jacqueline Jensen-Vallin, *Lamar University*
Candice Price, *University of San Diego*
Alejandra Alvarado, *Eastern Illinois University*
Dora Ahmadi, *Morehead State University*
Timothy Fest, *SIAM*
Angela Spalsbury, *Youngstown State University*

This session is jointly sponsored by the AWM, MAA, PME, and SIAM

K-12 ACTIVITIES

The MAA strives to ensure that sessions at MathFest present mathematics in a way that is accessible to a broad audience. As a result, K-12 teachers will find all the expository sessions at MathFest to be informative and enriching. In addition, the following sessions are directed specifically at the professional interests of K-12 teachers.

Math Circle Demonstration

SATURDAY, JULY 29, 2:00 P.M. – 3:30 P.M., SALON C-1 AND C-2

A math circle is an enrichment experience that brings mathematics professionals in direct contact with pre-college students and/or their teachers. Circles foster passion and excitement for deep mathematics. This demonstration session offers the opportunity for conference attendees to observe and then discuss a math circle experience. While participants are engaged in a mathematical investigation, mathematicians will have a discussion focused on appreciating and better understanding the organic and creative process of learning that circles offer, and on the logistics and dynamics of running an effective circle.

Organizers:
Paul Zeitz, *University of San Francisco*

Sponsor: SIGMAA MCST

Math Wrangle

SATURDAY, JULY 29, 4:00 P.M. - 5:30 P.M., SALON C-1 AND C-2

Math Wrangle will pit teams of students against each other, the clock, and a slate of great math problems. The format of a Math Wrangle is designed to engage students in mathematical problem solving, promote effective teamwork, provide a venue for oral presentations, and develop critical listening skills. A Math Wrangle incorporates elements of team sports and debate, with a dose of strategy tossed in for good measure. The intention of the Math Wrangle demonstration at the Joint Math Meetings is to show how teachers, schools, circles, and clubs can get students started in this exciting combination of mathematical problem solving with careful argumentation via public speaking, strategy and rebuttal.

Organizers:
Doug Ensley, *Mathematical Association of America*
Ed Keppelmann, *University of Nevada, Reno*
Philip B. Yasskin, *Texas A&M*
Paul Zeitz, *University of San Francisco*

Sponsor: SIGMAA MCST
American Mathematics Competitions

SPECIAL PRESENTATION FOR HIGH SCHOOL STUDENTS, PARENTS, AND TEACHERS

THOSE INFAMOUS EXPLODING DOTS: A preview to Global Math Week

SATURDAY, JULY 29, 1:00 P.M. – 1:50 P.M., CONTINENTAL BALLROOM B

Here is a story that isn't true.

"When I was a young child I invented a machine (not true) that was nothing more than a series of boxes that could hold dots. And these dots would, upon certain actions, explode. And with this machine (in this non-true story) I realized that I could explain true things! I could explain all the mathematics of arithmetic I learnt in grade school (true), all the polynomial algebra I was to learn in high-school (true), pre-calculus series formulas (true), elements of calculus and number theory I was to learn in university (true), and explore unanswered research questions mathematicians are studying today (also true)!"

Come see an astounding mathematical story that unites element of the K-12 curriculum, and beyond, in one accessible fell swoop. Bring pencil and paper, and possibly an extra pair of socks - this session will knock your first pair right off!

Leader:
James Tanton, *Mathematical Association of America*

Organizer:
Elgin Johnston, *Iowa State University*

Sponsor: MAA Council on Outreach

COMMITTEE MEETINGS

Tuesday, July 25

Board of Directors
9:00 A.M. – 4:00 P.M., MCCORMICK BOARDROOM

Meetings Management Committee
4:00 P.M. – 5:30 P.M., MAA SUITE

Wednesday, July 26

Pi Mu Epsilon Council
8:00 A.M. – 12:30 P.M., CONFERENCE ROOM 5E

MAA Congress
8:30 A.M. – 5:00 P.M., CONTINENTAL BALLROOM A

Committee on Undergraduate Student Activities & Chapters (CUSAC)
3:00 P.M. – 5:00 P.M., CONFERENCE ROOM 5E

Thursday, July 27

Committee on Sections
8:00 A.M. – 10:00 A.M., CONFERENCE ROOM 5F

IP Guide Project Team
8:00 A.M. – 12:00 P.M., CONFERENCE ROOM 5H

Committee on Minicourses
9:00 A.M. – 10:00 A.M., CONFERENCE ROOM 5E

Membership Committee
9:00 A.M. – 10:30 A.M., CONFERENCE ROOM 5G

Committee on Faculty and Departments
9:00 A.M. – 10:30 A.M., CONFERENCE ROOM 5I

Council on Publications and Communications (COPC)
2:30 P.M. – 3:30 P.M., CONFERENCE ROOM 5G

Curriculum Renewal Across the First Two Years (CRAFTY)
3:00 P.M. – 4:30 P.M., CONFERENCE ROOM 5E

MAA Section Officers
3:00 P.M. – 5:00 P.M., INTERNATIONAL BALLROOM SOUTH

Committee on Journals (COJ)
3:30 P.M. – 4:30 P.M., CONFERENCE ROOM 5G

Math Horizons Editorial Board
4:30 P.M. – 5:30 P.M., CONFERENCE ROOM 5F

Committee on Books (COB)
4:30 P.M. – 5:30 P.M., CONFERENCE ROOM 5G

Friday, July 28

Committee on the Undergraduate Program in Mathematics (CUPM)
8:00 A.M. – 10:00 A.M., CONFERENCE ROOM 5E

Committee on Technologies in Mathematics Education (CTME)
8:00 A.M. – 9:30 A.M., CONFERENCE ROOM 5H

Edyth May Sliffe Award Committee
8:30 A.M. – 9:30 A.M., CONFERENCE ROOM 5G

MAA FOCUS Editorial Board
9:00 A.M. – 10:00 A.M., CONFERENCE ROOM 5F

Committee on the American Mathematics Competitions
9:30 A.M. – 11:00 A.M., CONFERENCE ROOM 5G

Committee on Early Career Mathematicians (ECM Committee)
11:30 A.M. – 1:00 P.M., CONFERENCE ROOM 5F

Committee on Graduate Students
2:00 P.M. – 3:00 P.M., CONFERENCE ROOM 5F

Council on Members and Communities
2:30 P.M. – 3:30 P.M., CONFERENCE ROOM 5E

Council on Prizes and Awards
3:30 P.M. – 5:00 P.M., CONFERENCE ROOM 5F

Council on Meetings and Professional Development
3:30 P.M. – 5:00 P.M., CONFERENCE ROOM 5G

Saturday, July 29

StatPREP Project Team
7:30 A.M. – 9:00 A.M., CONFERENCE ROOM 5G

Council on Outreach Programs
9:00 A.M. – 10:30 A.M., CONFERENCE ROOM 5F

Council on Programs and Students (COPS)
10:00 A.M. – 11:30 A.M., CONFERENCE ROOM 5E

MAA Business Meeting
11:30 A.M. – 12:00 P.M., CONTINENTAL BALLROOM B

Committee on Committees and Councils
12:00 P.M. – 2:00 P.M., MAA SUITE

Please note: All room locations are in the Hilton Chicago unless otherwise specified.

SIGMAA ACTIVITIES

BIG SIGMAA, the SIGMAA on Business, Industry and Government

CONTRIBUTED PAPER SESSION WITH THEMES

Connecting Introductory Mathematics Courses to Students' Intended Majors and Careers

FRIDAY, JULY 28, 1:00 P.M. – 4:55 P.M., SALON C-4

This session explores the many ways in which introductory mathematics courses can be created or renewed to meet the needs of the partner disciplines and lay the groundwork for students' future careers. For example, talks may share novel activities, examples, or projects suitable for introductory mathematics courses that showcase how mathematics is used in the partner disciplines or in specific careers. Presentations may describe curricular innovations, such as courses or pathways, which were designed or revised to support students from specific majors or on specific career paths. Talks may describe successful course-embedded strategies that help first-year students discern their major or career path. Presentations may report on models for collaboration between mathematics faculty and faculty from other departments or people from industry on the introductory mathematics curriculum. Each talk should address some aspect of how introductory mathematics courses can be aligned with external needs of students' intended majors or careers.

Organizers:

Rebecca Hartzler, *University of Texas-Austin*
Suzanne I. Dorée, *Augsburg College*
Susan Ganter, *Virginia Polytechnic Institute and State University*
Thomas A. Hoft, *University of St. Thomas*

BIO SIGMAA, the SIGMAA on Mathematical and Computational Biology

CONTRIBUTED PAPER SESSION WITH THEMES

Undergraduate Research Activities in Mathematical and Computational Biology

FRIDAY, JULY 28, 1:00 P.M. – 3:35 P.M., SALON A-4

This session is dedicated to aspects of undergraduate research in mathematical and computational biology. First and foremost, this session would like to highlight research results of projects that either were conducted by undergraduates or were collaborations between undergraduates and their faculty mentors. Of particular interest are those collaborations that involve students and faculty from both mathematics and biology. Secondly, as many institutions have started undergraduate research programs in this area, frequently with the help of initial external funding, the session is interested in the process and logistics of starting a program and maintaining a program even after the initial funding expires. Important issues include faculty development and interdisciplinary collaboration, student preparation and selection, the structure of research programs, the acquisition of resources to support the program, and the subsequent achievements of students who participate in undergraduate research in mathematical and computational biology. Finally, the session also welcomes the presentation of materials and project ideas that can be used to help get students started in research in mathematical and computational biology.

Organizer:

Timothy D. Comar, *Benedictine University*

HOM SIGMAA, the SIGMAA on the History of Mathematics

CONTRIBUTED PAPER SESSION WITH THEMES

Euclid and the Mathematics of Antiquity in the 21st Century

SATURDAY, JULY 29, 1:00 P.M. – 4:15 P.M., SALON A-1

Euclid's Elements is a fundamental text of mathematics in the western tradition. Geometry, number theory, logic, and the axiomatic method: all bear Euclid's stamp. Moreover, the Elements was considered a central text of every liberal arts education well into the nineteenth century, more than two millennia after its writing.

The recent centennial of the MAA provides a fitting occasion on which to revisit the influence of mathematics's past on future mathematics and culture. We seek contributions that relate the work of Euclid or other mathematicians of antiquity to modern mathematics or the modern undergraduate curriculum. Original research, unique expositions, descriptions of courses with a significant integration of the mathematics of antiquity, and curricular materials are all welcome.

Organizers:

Elizabeth T. Brown, *James Madison University*
Edwin O'Shea, *James Madison University*

IBL SIGMAA, the SIGMAA on Inquiry-Based Learning

Business Meeting

THURSDAY, JULY 27, 5:30 P.M. – 6:30 P.M., SALON A-2

CONTRIBUTED PAPER SESSION WITH THEMES

Writing Across the Curriculum in Mathematics

PART A: FRIDAY, JULY 28, 11:10 A.M. – 11:45 A.M., SALON A-2

PART B: FRIDAY, JULY 28, 1:00 P.M. – 4:55 P.M., SALON A-2

Many institutions have adopted "Writing Across the Curriculum" programs and implemented first-year writing seminars. Even when such programs are not in place, instructors are becoming increasingly aware of research that has identified writing as a high impact practice for enhancing student learning. In particular, writing-based assessments help students to shift focus from

SIGMAA ACTIVITIES CONTINUED

grades to deep learning and to develop skills that transcend any one subject area. In all levels of math courses, writing assignments can be used to develop critical thinking skills, provide a better understanding of logical argument, and engage students who may otherwise be left behind. This session invites talks on all aspects of writing in mathematics, especially those pertaining to Writing Across the Curriculum programs. We also welcome presentations on the implementation of Writing to Learn principles in math courses, training of students in discipline-specific skills such as proof writing, and interdisciplinary writing initiatives.

Organizers:
Anil Venkatesh, *Ferris State University*
Benjamin Gaines, *Iona College*
Victor Piercey, *Ferris State University*

CONTRIBUTED PAPER SESSION WITH THEMES
Inquiry-Based Learning and Teaching
PART A: FRIDAY, JULY 28, 8:30 A.M. – 11:05 A.M., SALON A-2

PART B: SATURDAY, JULY 29, 8:30 A.M. – 11:45 A.M., SALON A-2

PART C: SATURDAY, JULY 29, 1:00 P.M. – 3:15 P.M., SALON A-2

The goal of Inquiry-Based Learning (IBL) is to transform students from consumers to producers of mathematics. Inquiry-based methods aim to help students develop a deep understanding of mathematical concepts and the processes of doing mathematics by putting those students in direct contact with mathematical phenomena, questions, and communities. Within this context, IBL methods exhibit great variety.

Activities can take place in single class meetings or span entire curricula for students of any age; students can be guided to re-invent mathematical concepts, to explore definitions and observe patterns, to justify core results, and to take the lead in asking new questions. There is a growing body of evidence that IBL methods are effective and important for teaching mathematics and for fostering positive attitudes toward the subject. This session invites scholarly presentations on the use of inquiry-based methods for teaching and learning. We especially invite presentations that include successful IBL activities or assignments, that support observations about student outcomes with evidence, or that could help instructors who are new to IBL to try new methods.

Organizers:
Brian P. Katz, *Augustana College*
Victor I. Piercey, *Ferris State University*

SIGMAA MCST, the SIGMAA on Math Circles for Students and Teachers

CONTRIBUTED PAPER SESSION WITH THEMES
My Favorite Math Circle Problem
PART A: THURSDAY, JULY 27, 1:00 P.M. – 3:55 P.M., SALON C-1 & C-2

PART B: FRIDAY, JULY 28, 1:00 P.M. – 3:55 P.M., SALON C-1 & C-2

A math circle is an enrichment experience that brings mathematics professionals in direct contact with pre-college students and/or their teachers. Circles foster passion and excitement for deep mathematics.

Papers in this session highlight either a favorite problem from a math circle, or favorite collection of problems used together for one or two sessions of a math circle. Contributed papers should describe the launch of the problem, what happens during the circle, and ways of ``wrapping up'', even if that doesn't involve answering the problem.

Organizer:
Bob Klein, *Ohio University*

SIGMAA ACTIVITY
SIGMAA MCST Business Meeting

THURSDAY, JULY 27, 4:30 P.M. - 5:30 P.M., SALON C-1 & C-2

Math Circle Demonstration

SATURDAY, JULY 29, 2:00 P.M. – 3:30 P.M., SALON C-1 AND C-2

A math circle is an enrichment experience that brings mathematics professionals in direct contact with pre-college students and/or their teachers. Circles foster passion and excitement for deep mathematics. This demonstration session offers the opportunity for conference attendees to observe and then discuss a math circle experience. While participants are engaged in a mathematical investigation, mathematicians will have a discussion focused on appreciating and better understanding the organic and creative process of learning that circles offer, and on the logistics and dynamics of running an effective circle.

Organizer:
Paul Zeitz, *University of San Francisco*

SIGMAA ACTIVITIES CONTINUED

Math Wrangle

SATURDAY, JULY 29, 4:00 P.M. – 5:30 P.M., SALON C-1 AND C-2

Math Wrangle will pit teams of students against each other, the clock, and a slate of great math problems. The format of a Math Wrangle is designed to engage students in mathematical problem solving, promote effective teamwork, provide a venue for oral presentations, and develop critical listening skills. A Math Wrangle incorporates elements of team sports and debate, with a dose of strategy tossed in for good measure. The intention of the Math Wrangle demonstration at the Joint Math Meetings is to show how teachers, schools, circles, and clubs can get students started in this exciting combination of mathematical problem solving with careful argumentation via public speaking, strategy and rebuttal.

Organizers:
Doug Ensley, *Mathematical Association of America*
Ed Keppelmann, *University of Nevada, Reno*
Philip B. Yasskin, *Texas A&M*
Paul Zeitz, *University of San Francisco*

POM SIGMAA, the SIGMAA on the Philosophy of Mathematics

Reception
THURSDAY, JULY 27, 5:30 P.M. – 6:00 P.M., SALON A-3

Guest Lecture

Philosophical Implications of the Paradigm Shift in Model Theory
THURSDAY, JULY 27, 6:00 P.M. – 7:00 P.M., SALON A-3

John Baldwin, *University of Illinois at Chicago*

Traditionally, logic was thought of as `principles of right reason'. Twentieth century philosophy of mathematics focused on the problem of a general foundation for all mathematics. In contrast, the last 70 years have seen model theory develop as the study and comparison of formal theories for studying specific areas of mathematics. For example, in a rough sense, algebraic geometry is the study of the first order definable subsets of the complex numbers. Moreover, syntactical information about the theories for different areas can uncover common strains. Thus, Abraham Robinson found a common framework for the Artin-Schreier theory of ordered fields, Hilbert's nullstellensatz and differentially closed fields. Shelah's stability theory leads to a classification of such theories that makes more precise the idea of a `tame structure'. Thus, logic (specifically model theory) becomes a tool for organizing and doing mathematics with consequences for combinatorics, diophantine geometry, differential equations and other fields.

SIGMAA QL, the SIGMAA on Quantitative Literacy

Reception and Business Meeting
THURSDAY, JULY 27, 6:30 P.M. – 7:30 P.M., SALON A-1

SIGMAA TAHSM, the SIGMAA on Teaching Advanced High School Mathematics

Reception and Business Meeting
THURSDAY, JULY 27, 5:30 P.M. – 6:30 P.M., C-4

Join your fellow SIGMAA TAHSM members at our annual reception and business meeting. Some SIGMAA business will be discussed, but mostly this is a time to communicate with your colleagues while enjoying some light hors d'oeuvres. We will also be recognizing the 2016 Edyth May Sliffe award winners.

WEB SIGMAA, the SIGMAA on Mathematics Instruction Using the WEB

Reception and Business Meeting
FRIDAY, JULY 28, 5:30 P.M. – 7:00 P.M., SALON A-4

CONTRIBUTED PAPER SESSION WITH THEMES
Online Assessment: Where We Have Been, Where We Are and Where We Are Going
SATURDAY, JULY 29, 1:00 P.M. – 3:35 P.M., SALON C-6

Online assessment is now a common part of the academic experience for faculty and students. The technology has been around long enough to evolve substantially from early implementations. The purpose of this session is to allow faculty to share what is new, what they are hoping for in the future, and what have we learned from present and past implementations of the systems. We also invite contributions regarding pedagogical issues surrounding the use of these resources.

We are seeking expository talks on what resources are available, demonstrations, and innovative ideas as well as scholarly talks about the effectiveness of online assessment resources. Talks on online homework, placement testing, just in time resources, and other forms of online assessment are welcome.

Organizers:
Barbara Margolius, *Cleveland State University*
John Travis, *Mississippi College*

Visit the MAA Pavilion in the exhibit hall, your one-stop shop for...

Membership

MAA American Mathematics Competitions

Problem of the Day

PIC Math

WeBWorK

MAA Press Trivia Contest

MAA Coloring Book Contest

Amazon Gift Card Raffle

Complete and return the MAA crossword puzzle for a chance to win an Amazon gift card.

MAA Books Bucks

Use toward your book purchases of $50 or more.

3 Books. 3 Days.

Thursday at 2 p.m.: **$4** | Friday at 2 p.m.: **$5** | Saturday at 10:30 a.m.: **$6**

Reception

Join us to celebrate eighty years of publishing on Friday at 3:30 p.m.

MAA MATHFEST

CONGRATULATIONS

Congratulations to our MAA members celebrating 25 or more years of membership.

Please join your colleagues at the President's Gala on Thursday, July 27, 7:00 p.m - 8:30 p.m. in International Ballroom North for an evening of musical performances by your mathematical friends and colleagues, and along the way we will recognize and honor those members of our Association who've been members for twenty-five years or more.

25 Years

James Alvarez
William Ardis
Stuart Boersma
Marilyn Carlson
Tim Chartier
John Curran
Brian Haile
John Harris
Magnhild Lien
Vicki Powers
Anne Quinn
Elyn Rykken
Carol Seaman
Charllie Smith

26 Years

Dora Cardenas Ahmadi
Steven Edwards
Tamara Lakins
Pete Sandberg
Jody Sorensen
Lisa Traynor

27 Years

Martha Abell
Janet Beery
Jennifer Beineke
Curtis Bennett
Paul Bialek
Mark Bollman
Paul Coe
Afshin Ghoreishi
James Ham
Krysi Leganza
Glen Lobo
Abraham Mantell
Jenny McNulty
Osman Yurekli

28 Years

Bela Bajnok
Julie Barnes
Adam Coffman
Michael Dorff
Anant Godbole
Clare Hemenway
Ockle Johnson
Harold Parks
Jenny Quinn
Robert Vallin
Virginia Watson

29 Years

Annalisa Crannell
Karrolyne Fogel
Heidi Keck
Phoebe McLaughlin
Tommy Ratliff
James Sellers
Hortensia Soto
Linda Van Niewaal
John Wierman
Henry Zwick

30 Years

Edward Aboufadel
Michael Boardman
Keith Carlson
Jenna Carpenter
Erica Flapan
Michael Jones
Namyong Lee
Sarah Mabrouk
Steven Schlicker
Cheri Shakiban

31 Years

Dennis Collins
Deanna Haunsperger
Crystal Lorch
Gary Raduns
Sharon Robbert
Tatiana Shubin
Joanne Snow
Colleen Vachuska
Joe Yanik

32 Years

Colin Adams
Aparna Higgins
Edward Keppelmann
Karen Saxe
Morteza Shafii-Mousavi
Robert Styer
Susan Wildstrom

33 Years

Benjamin Collins
Dale Hathaway
J. Michael Pearson
Theresa Rahikka
Lynn Reed
Therese Shelton
T Christine Stevens
Daniel Ullman
Betsy Yanik

34 Years

Arthur Benjamin
Rosalie Dance
Lanette Poteete-Young
Jay Schiffman

35 Years

Jim Conklin
Doug Ensley
Rick Gillman
Fernando Gouvêa
Bill Higgins
Daniel Hrozencik
Jerry Lodder
Dix Pettey
Peter Vachuska

36 Years
Donald Ayers
Rick Cleary
Suzanne Doree
James Freeman
Michael Hvidsten
Michael Scanlon
Carol Schumacher
Robert Sefton Smith

37 Years
Rotraut Cahill
Robert Devaney
Ken Gittelson
James Harper

38 Years
Dan Callon
Bonnie Gold
Joel Haack
David Housman
Luise-Charlotte Kappe
Matthew Richey
Robert Rogers
Henry Tramer

39 Years
Douglas Arnold
Jeffrey Clark
Barbara Faires

40 Years
Susan Jane Colley
Lucy Dechene
Thomas Drucker
Leo Michelotti
Stephen Sedory

41 Years
Harold Boas
Priscilla Bremser
David Bressoud
Jim Daniel
Phil Mahler
Betty Mayfield
Ron Milne
Frank Morgan
Daniel Otero
Ted Sundstrom
J. Paul Vicknair

42 Years
Steven Blasberg
Jimmy Buchanan
Thomas Dick
Marc Kilgour
Michael Starbird
Gerard Venema

43 Years
Philip Benjamin
Scott Hochwald
Norm Richert
Tom Sibley
Steve St John
Paul Zorn

44 Years
Donna Beers
Lloyd Douglas
Jon Johnson
Herb Kasube
Pat Kenschaft
James Langan
Andy Rich
Charles Toll

45 Years
Catherine Aust
David Carothers
JeanBee Chan
Trudy Cunningham
William Jaco

46 Years
John T. Baldwin
Thomas Bengtson
Amy Cohen
Jonathan Kane
Cal Van Niewaal

47 Years
Susanna Epp
Thomas Foregger
Marge Ray
Roger Ray
John Sieben
Philip Yasskin

48 Years
Sheldon Axler
Joel Cohen
Thomas Gillespie
Kishore Marathe

49 Years
Thomas Banchoff
Joel Cunningham
Albert Lewis
Martha Siegel
Philippe Tondeur
Roger Waggoner

51 Years
Jennifer Galovich
Eileen Poiani

52 Years
Carl Cowen
Alan Tucker

53 Years
Walter Stromquist
Brian Winkel

54 Years
Scott Harrod
Dan Kemp
Nancy Rodgers
David Smith

55 Years
Ronald Douglas
Joanne Peeples
Linda Sons
John Wenger

56 Years
Bert Fristedt
Subhash Saxena

57 Years
Florence Fasanelli
Joan Leitzel
Catherine Murphy

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Ken Ross

63 Years
Ben Fusaro

64 Years
Norman W Johnson

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SOCIAL EVENTS

Welcome to Chicago!

Chicago boasts breathtaking views, towering architecture, and exciting activities for tourists, including museums, music, theater, and dining. MathFest attendees will be at the heart of this destination city and will have no trouble finding sightseeing opportunities and fun right outside the meeting venue. Visit choosechicago.com for a list of Chicago to-dos.

Hilton Chicago Dining Options:

Kitty O'Shea's™
Lunch: Opens at 11am
Monday - Friday
Brunch: Opens at 8am
Saturday & Sunday

720 Grill
Lunch: Opens at11am - 2pm
Sunday - Saturday

Herb N Kitchen
Opens at 5:30am
Sunday - Saturday

Wireless Internet Access

To access complimentary wireless Internet in meeting spaces at the Hilton Chicago, please follow the following instructions:

- Connect to the Network ID/SSID of Hilton Chicago Meeting
- When prompted, enter password "MATHFEST2017"
- Notes:
  - The password is case sensitive and should be in upper case letters, with no spaces.
  - Guest room WiFi will also be complimentary, with instructions available at the Hilton Front Desk.

WEDNESDAY, JULY 26

Exhibit Hall & Grand Opening Reception

6:00 P.M. – 8:00 P.M., SALON D (EXHIBIT HALL)

The MAA MathFest Grand Opening Reception will launch this year's MAA MathFest on a high note. This event is intended to draw attendees together in a spirit of camaraderie. We warmly invite you to enjoy complimentary light hors d'oeuvres while you mix and mingle in the Exhibit Hall with other registered participants and guests, sponsors, and exhibitors.

MAA-PME Student Reception

4:30 P.M. – 5:30 P.M., CONTINENTAL BALLROOM B

Undergraduate students are invited to come for refreshments and a welcome to MathFest.

Math Jeopardy

JULY 26, 5:30 P.M. – 6:15 P.M., SALON A-5

Answer: A fun undergraduate mathematics contest to lead off MathFest.
Question: What is Mathematics Jeopardy?

Four teams of students will provide the questions to go with the mathematical answers in many categories. All interested students in the audience can enter their names to be chosen to play on one of the four teams of four players. There will be prizes for all the participants.

Come cheer for your favorite team. The session will be emceed by Michael Berry

Organizers:
Robert W. Vallin, *Lamar University*
Michael W. Berry, *University of Tennessee*

THURSDAY, JULY 27

President's Gala: A Musical Celebration and MAA Membership Recognition

7:00 P.M – 8:30 P.M., INTERNATIONAL BALLROOM NORTH

Join us for an evening of musical performances by your mathematical friends and colleagues, and along the way we will recognize and honor those members of our Association who've been members for twenty-five years or more.

Master of Ceremonies:
Paul Zorn, *St. Olaf College, Former President of the MAA*

Organizers:
Deanna Haunsperger, *Carleton College, MAA President*
Dave Kung, *St. Mary's College of Maryland, Project NExT*

Graduate Student Reception

5:30 P.M. – 6:30 P.M., MARQUETTE ROOM

Graduate students are invited for some refreshments and to meet several of the invited speakers.

Organizers:
Estela A. Gavosto, *University of Kansas*
Edray Goins, *Purdue University*

POM SIGMAA Reception

5:30 P.M.– 6:00 P.M., SALON A-3

SIGMAA QL Reception and Business Meeting

6:30 P.M. – 7:30 P.M., SALON A-1

SOCIAL EVENTS CONTINUED

SIGMAA TAHSM Reception and Business Meeting

5:30 P.M. – 6:30 P.M., SALON C-4

Join your fellow SIGMAA TAHSM members at our annual reception and business meeting. Some SIGMAA business will be discussed, but mostly this is a time to communicate with your colleagues while enjoying some light hors d'oeuvres. We will also be recognizing the 2016 Edyth May Sliffe award winners.

FRIDAY, JULY 28

Networking Session on the Mathematical Education of Teachers

4:00 P.M. – 5:15 P.M., SALON C-8

Many mathematics departments offer courses specifically for preservice teachers, often designed and overseen by one or two faculty members per department. These courses can be stimulating to teach, yet also challenging because of the lack of shared wisdom in the community on what and how to teach in the courses. The organizers of this session are looking into the possibility of starting a SIGMAA to support the teaching of mathematics courses for preservice teachers. This session is an opportunity to gauge interest in such a SIGMAA, and more importantly, for faculty teaching these courses to share ideas and raise questions or concerns in a community. The organizers will facilitate discussion and conversation on what is known in the literature about the teaching and learning of mathematical knowledge for teaching at elementary and secondary levels, the perspectives represented in policy documents and commonly available textbooks, and approaches to these content courses.

Organizers:

Bonnie Gold, *Monmouth University (emerita)*
Yvonne Lai, *University of Nebraska-Lincoln*

MAA Committee on the Mathematical Education of Teachers (COMET)

Undergraduate Student Activity: Mock Trading with SIG

1:00 P.M. – 1:50 P.M., CONTINENTAL BALLROOM C

Join Susquehanna International Group (SIG) for a game that combines the world of trading with mathematical estimation. Working on a team, try to get better estimates for 8 numerical problems than the other teams as quickly as you can – if you fall behind, you'll lose valuable opportunities to make money*. The only way to get ahead is to trade with other teams who have worse guesses than you do. Whoever's got the best combination of math skills, strategy, and quick wits will take home the prize* -- will you be wolves or sheep? *in-game money is fake, prize money is real!

Organizers:

Todd Simkin and Sam Trabucco, *Susquehanna International Group*

Celebrating 80 Years of MAA Publishing

3:30 P.M. – 4:30 P.M., MAA PAVILION, SALON D (EXHIBIT HALL)

Estimathon!

4:15 P.M. – 5:45 P.M., CONTINENTAL BALLROOM C

They're called Fermi problems...

- How heavy is the Eiffel Tower?
- How many prime numbers have distinct digits?
- How many calories would you be eating if you had "one of everything" at the Cheesecake Factory?

If you're looking for a mindbending mixture of math and trivia, look no further! Jane Street Capital presents The Estimathon contest: teams will have 30 minutes to work on 13 problems, ranging from totally trivial to positively Putnamesque. Can your team beat the all-time best score?? The top teams will receive prizes! As in past years, we will run 2 contests. Feel free to show up to either one! *(Please show up 15 minutes before the start time of the contest you want to join.)*

Our target schedule is as follows:
4:15 PM. WELCOME, OVERVIEW OF RULES AND SCORING.
4:30 PM. ESTIMATHON CONTEST #1
5:15 PM. ESTIMATHON CONTEST #2

Organizer:

Andy Niedermaier, *Jane Street Capital*

WEB SIGMAA Reception and Business Meeting

5:30 P.M. – 7:00 P.M., SALON A-4

Pi Mu Epsilon Banquet

6:00 P.M. – 7:45 P.M., WALDORF

All PME members and their supporters are welcome. See the registration form for more information on this ticketed event.

Meet Attendees and Exhibitors and Coffee in the Exhibit Hall

Plenty of seating is available in Salon D which is accessible from the Exhibit Hall on the lower level, during Hall hours. Join other attendees' tables and network, whenever taking breaks from education sessions, or stroll through the exhibitors' booths and discover all the Exhibit Hall has to offer, including the MAA Pavilion. Coffee breaks will also be available in the Exhibit Hall.

Coffee Breaks *(Complimentary)*
THURSDAY, JULY 27:
10:00-10:30 AM, 2:30-3:30 PM
Sponsored by American Mathematical Society
FRIDAY, JULY 28:
10:00-10:30 AM, 3:00-3:30 PM
SATURDAY, JULY 29:
10:00-10:30 AM

SOCIAL EVENTS CONTINUED

SOCIAL EVENT

NSA's Women in Mathematics Society Reception

6:00 P.M. - 8:00 P.M., CONTINENTAL FOYER

FRIDAY, JULY 28, continued

MAA Ice Cream Social

8:00 P.M. – 9:00 P.M., CONTINENTAL FOYER

Besides cake and ice cream, we will recognize all students who gave talks in the MAA Student Paper Sessions. Prizes will be awarded for the best of these talks, and the AWM Student Chapter Awards will also be presented. All are invited.

SATURDAY, JULY 29

Math Wrangle

4:00 P.M. – 5:30 P.M., SALON C-1 AND C-2

Math Wrangle will pit teams of students against each other, the clock, and a slate of great math problems. The format of a Math Wrangle is designed to engage students in mathematical problem solving, promote effective teamwork, provide a venue for oral presentations, and develop critical listening skills. A Math Wrangle incorporates elements of team sports and debate, with a dose of strategy tossed in for good measure. The intention of the Math Wrangle demonstration at the Joint Math Meetings is to show how teachers, schools, circles, and clubs can get students started in this exciting combination of mathematical problem solving with careful argumentation via public speaking, strategy and rebuttal.

Organizers:

Doug Ensley, *Mathematical Association of America*
Ed Keppelmann, *University of Nevada, Reno*
Philip B. Yasskin, *Texas A&M*
Paul Zeitz, *University of San Francisco*

SIGMAA on Math Circles for Students and Teachers (SIGMAA-MCST)
American Mathematics Competitions

Undergraduate Student Activity: Mock Trading with SIG

1:00 P.M. – 1:50 P.M., CONTINENTAL BALLROOM C

Join Susquehanna International Group (SIG) for a game that combines the world of trading with mathematical estimation. Working on a team, try to get better estimates for 8 numerical problems than the other teams as quickly as you can – if you fall behind, you'll lose valuable opportunities to make money*. The only way to get ahead is to trade with other teams who have worse guesses than you do. Whoever's got the best combination of math skills, strategy, and quick wits will take home the prize* -- will you be wolves or sheep?

*in-game money is fake, prize money is real!

Organizers:

Todd Simkin and Sam Trabucco, *Susquehanna International Group*

CHRONOLOGICAL SCHEDULE

Wednesday, July 26

Committee Meeting

MAA Congress Meeting
8:30 A.M. - 5:00 P.M., CONTINENTAL BALLROOM A

Registration

1:00 P.M. - 8:00 P.M., 8TH ST SOUTH LOBBY (REGISTRATION)

Social Event

PME-MAA Student Reception
4:30 P.M. - 5:30 P.M., CONTINENTAL BALLROOM B

Social Event

Math Jeopardy
5:30 P.M. - 6:15 P.M., SALON A-5

Social Event

Exhibit Hall & Grand Opening Reception
6:00 P.M. - 8:00 P.M., SALON D (EXHIBIT HALL)

INVITED ADDRESS
Pi Mu Epsilon J. Sutherland Frame Lecture

Bones and Teeth: Analyzing Shapes for Evolutionary Biology
WEDNESDAY, JULY 26, 8:00 P.M. - 8:50 P.M., INTERNATIONAL BALLROOM NORTH

Ingrid Daubechies, *Duke University*

Thursday, July 27

Registration

8:00 A.M. - 7:00 P.M., 8TH ST SOUTH LOBBY (REGISTRATION)

INVITED ADDRESS
MAA Invited Address

An Introduction to Spatial Graph Theory
8:30 A.M. - 9:20 A.M., INTERNATIONAL BALLROOM NORTH

Erica Flapan, *Pomona College*

Note: All locations listed will be within the Hilton Chicago

GENERAL CONTRIBUTED PAPER SESSION
Algebra

8:30 A.M. - 10:10 A.M., SALON C-7

Fully Prime, Almost Fully Prime, and Fully Weakly Prime Ring
8:30 A.M. - 8:40 A.M.

Irawati Irawati, *Institut Teknologi Bandung*

Fermionic Representations of Twisted Toroidal Lie Algebras
8:45 A.M. - 8:55 A.M.

Chad R. Mangum, *Niagara University*
Kailash C. Misra, *North Carolina State University*
Naihuan Jing, *North Carolina State University*

Using Crystal Base Theory to Learn About Certain Demazure Crystals
9:00 A.M. - 9:10 A.M.

Margaret Rahmoeller, *Roanoke College*

When Is a Polynomial Isomorphic to an Even Polynomial?
9:15 A.M. - 9:25 A.M.

Chad Awtrey, *Elon University*

Is Equity Unusual ? (At least in Total Products)
9:30 A.M. - 9:40 A.M.

Thomas Q. Sibley, *St. John's University*

Graphing the Relationship of an Operation with the Relationships of Numbers Being Operated on
9:45 A.M. - 9:55 A.M.

Chandra Kethi-Reddy, *University of Central Florida*

Symmetries in Permutations
10:00 A.M. - 10:10 A.M.

Jennifer F. Vasquez, *The University of Scranton*
Michael P. Allocca, *Muhlenburg College*
Steven T. Dougherty, *The University of Scranton*

Thursday, July 27 (continued)

GENERAL CONTRIBUTED PAPER SESSION
Analysis

8:30 A.M. - 9:40 A.M., SALON C-6

Stability of Implicit Jungck-Kirk-Multistep Iterations for Generalized Contractive-type Mappings
8:30 A.M. - 8:40 A.M.

Hudson Akewe, *University of Lagos*

Some Fixed Point Theorems for Monotone Lipschitzian Mappings
8:45 A.M. - 8:55 A.M.

Buthinah Bin Dehaish, *King Abdullaziz University*

J-Holomorphic Curves in Rough Almost Complex Structures
9:00 A.M. - 9:10 A.M.

Adam Coffman, *Indiana - Purdue Fort Wayne*

On the Isomorphism and Centralizer Problems for Infinite Rank-One Transformations
9:15 A.M. - 9:25 A.M.

Alexander Kastner, *Williams College*
Johann Gaebler, *Harvard University*
Cesar Silva, *Williams College*
Xiaoyu Xu, *Princeton University*
Zirui Zhou, *University of California, Berkeley*

Caputo Boundary Value Problems in Nabla Fractional Calculus
9:30 A.M. - 9:40 A.M.

Julia St. Goar, *Merrimack College*

GENERAL CONTRIBUTED PAPER SESSION
History and Philosophy of Mathematics

8:30 A.M. - 9:55 A.M., SALON C-8

Olinde Rodrigues' Contribution to Catalan Numbers

8:30 A.M. - 8:40 A.M.

Johannes C. Familton, *Borough of Manhattan Community College*

From the Smithsonian Institution Exhibit for the MAA Centenary: Founding Member Richard P. Baker
8:45 A.M. - 8:55 A.M.

Joel Haack, *University of Northern Iowa*

A Line by Line English Translation of a 1402 AD Arabic Poem about Algebra
9:00 A.M. - 9:10 A.M.

Ishraq Al-Awamleh, *New Mexico State University*

The Mathematical Theories of the Capillary Action by Laplace, Gauss and Poisson
9:15 A.M. - 9:25 A.M.

Shigeru Masuda, *Long-Term Researcher, RIMS, Kyoto University*

The Library of Irish Mathematics
9:30 A.M. - 9:40 A.M.

Colm Mulcahy, *Spelman College*

UNDERGRADUATE STUDENT PAPER SESSION
MAA Student Paper Sessions

8:30 A.M. - 10:25 A.M., LAKE ONTARIO

PANEL SESSION
Math for Computing? Computing for Math? A Discussion of Interdependencies

8:30 A.M. – 9:50 A.M., SALON A-5

MAA MathFest 2017 Exhibit Hall

9:00 A.M. - 5:00 P.M., SALON D (EXHIBIT HALL)

UNDERGRADUATE STUDENT PAPER SESSION
PME Student Paper Sessions

9:10 A.M. - 10:25 A.M., CONFERENCE ROOMS 4C AND 4D

INVITED ADDRESS
AMS-MAA Joint Invited Address

Computational Math Meets Geometry
9:30 A.M. - 10:20 A.M., INTERNATIONAL BALLROOM NORTH

Douglas Arnold, *University of Minnesota*

INVITED ADDRESS
Earle Raymond Hedrick Lecture Series

Hedrick Lecture I
10:30 A.M. - 11:20 A.M., INTERNATIONAL BALLROOM NORTH

Dusa McDuff, *Barnard College, Columbia University*

OTHER MATHEMATICAL SESSION
MAA Prize Session

11:30 A.M. - 12:15 P.M., INTERNATIONAL BALLROOM SOUTH

Thursday, July 27 (continued)

INVITED ADDRESS

MAA Chan Stanek Lecture for Students Four Tales of Impossibility

1:00 P.M. - 1:50 P.M., INTERNATIONAL BALLROOM SOUTH

David Richeson, *Dickinson College*

INVITED PAPER SESSION

Spatial Graph Theory

1:00 P.M. - 5:00 P.M., CONTINENTAL BALLROOM A

Topological Symmetry Groups of Möbius Ladders and the Petersen Graph in R^3
1:00 P.M. - 1:20 P.M.

Emille Davie Lawrence, *San Francisco University*

Intrinsic Chirality of Graphs in R^3 and Other 3-Manifolds
1:30 P.M. - 1:50 P.M.

Hugh Howards, *Wake Forest University*

Alexander Polynomials of Spatial Graphs and Virtual Knots
2:00 P.M. - 2:20 P.M.

Blake Mellor, *Loyola Marymount University*

Realization of Knots and Links in a Spatial Graph
2:30 P.M. - 2:50 P.M.

Kouki Taniyama, *Waseda University*

Conway-Gordon Type Theorems
3:00 P.M. - 3:20 P.M.

Ryo Nikkuni, *Tokyo Woman's Christian University*

Legendrian Spatial Graphs
3:30 P.M. - 3:50 P.M.

Danielle O'Donnol, *Indiana University*

Oriented Matroid Theory and Linear Embeddings of Spatial Graphs
4:00 P.M. - 4:20 P.M.

Elena Pavelescu, *University of South Alabama*

Random Linear Embeddings of Spatial Graphs with Applications to Polymers
4:30 P.M. - 4:50 P.M.

Kenji Kozai, *Harvey Mudd College*

CONTRIBUTED PAPER SESSION WITH THEMES

Encouraging Effective Teaching Innovation, Part A

1:00 P.M. - 4:55 P.M., SALON C-4

Reading Guides Plus Active Learning
1:00 P.M. - 1:15 P.M.

Mary Shepherd, *Northwest Missouri State University*

Using Think-Pair-Share to Generate Insightful Student Questions
1:20 P.M. - 1:35 P.M.

Jenna P. Carpenter, *Campbell University, Buses Creek, NC*

Visualizing Mathematical Reasoning: A Diagrammatic Approach
1:40 P.M. - 1:55 P.M.

Rebecca Coulson, *Rutgers University*
Alejandro Ginory, *Rutgers University*

Using Portfolio Problems to Develop Metacognitive Thinking During Problem Solving
2:00 P.M. - 2:15 P.M.

Emilie Hancock, *University of Northern Colorado*
Gulden Karakok, *University of Northern Colorado*

Applying Cognitive Psychology in the Mathematics Classroom
2:20 P.M. - 2:35 P.M.

Lewis Ludwig, *Denison University*

UDL Math, What Is It and Why I Need to Know to Engage and Empower My Students
2:40 P.M. - 2:55 P.M.

John McGowan, *Texthelp*

Can Typesetting Mathematical Notation Improve Student Learning?
3:00 P.M. - 3:15 P.M.

Ksenyia Fuhrman, *Milwaukee School of Engineering*
Anthony van Groningen, *Milwaukee School of Engineering*

TA for the Day: Student Leadership in Flipped Calculus Classes
3:20 P.M. - 3:35 P.M.

Trefor Bazett, *University of Cincinnati*

TACTivities: Learning Tools for the Math Classroom
3:40 P.M. - 3:55 P.M.

Angie Hodge, *University of Nebraska Omaha*

Thursday, July 27 (continued)

The Teaching and Learning of Inverses
4:00 P.M. - 4:15 P.M.

Roger Wolbert, *Edinboro University of Pennsylvania*

Pedagogy for Poets: Guided-Inquiry for Groups in a Course of Mathematics for the Liberal Arts
4:20 P.M. - 4:35 P.M.

William Gryc, *Muhlenberg College*

History of Mathematics via London, Paris, and CERN
4:40 PM - 4:55 PM

Meri Hughes, *University of Mary Hardin-Baylor*

CONTRIBUTED PAPER SESSION WITH THEMES
Enrichment, Experiences, and Examples with Modeling in Differential Equations Courses

1:00 P.M. - 4:15 P.M., SALON A-4

What Can You Learn from Doing Modeling in a Differential Equations Course?
1:00 P.M. - 1:15 P.M.

Brian Winkel, *Emeritus, US Military Academy, West Point NY*

A Modeling First Approach in a Tradition Differential Equations Class
1:20 P.M. - 1:35 P.M.

Rosemary Farley, *Manhattan College*
Patrice Tiffany, *Manhattan College*

Inheritance: How Much Money Did I Really Receive?
1:40 P.M. - 1:55 P.M.

Ellen Swanson, *Centre College*

Human Population Modeling
2:00 P.M. - 2:15 P.M.

Jean Marie Linhart, *Central Washington University*

Using Harvesting Models to Teach Modeling Techniques, Bifurcation Analysis, and Solution Methods in Ordinary Differential Equations
2:20 P.M. - 2:35 P.M.

Danilo Diedrichs, *Wheaton College*

Pharmacokinetic Models for Active Learning
2:40 P.M. - 2:55 P.M.

Therese Shelton, *Southwestern University*
Theresa Laurent, *St. Louis College of Pharmacy*
Beulah Agyemang-Barimah, *Southwestern University*

Simulation of Adsorption Models—Instantaneous & Non-Instantaneous Mixing
3:00 P.M. - 3:15 P.M.

Chris McCarthy, *Borough of Manhattan Community College*
Jieying Li, *Borough of Manhattan Community College*
Jie Lan, *Borough of Manhattan Community College*

Verifying Two-Dimensional Groundwater Flow Models
3:20 P.M. - 3:35 P.M.

Michael Karls, *Ball State University*

An Unstoppable Force Meets an Immovable Object
3:40 P.M. - 3:55 P.M.

James S. Sochacki, *James Madison University*
Roger J. Thelwell, *James Madison University*
Anthony Tongen, *James Madison University*

Fine Tuning Torricelli's Law: Multiple Approaches to Estimating the Discharge Coefficient
4:00 P.M. - 4:15 P.M.

Reza O. Abbasian, *Texas Lutheran University*
John T. Sieben, *Texas Lutheran University*

CONTRIBUTED PAPER SESSION WITH THEMES
My Favorite Math Circle Problem, Part A

1:00 P.M. - 3:55 P.M., SALON C-1 & C-2

Superfactorials and Perfect Squares
1:00 P.M. - 1:15 P.M.

Diana White, *University of Colorado Denver*

Mathematical Ciphers: A Math Teachers' Circle Day Long Workshop
1:20 P.M. - 1:35 P.M.

David Crombecque, *USC*

Divide Your Cake (and Eat it, Too!)
1:40 P.M. - 1:55 P.M.

Mike Janssen, *Dordt College*

Islamic Geometric Pattern
2:00 P.M. - 2:15 P.M.

Rebin Muhammad, *Ohio University*

The Dissemination of Gossip
2:20 P.M. - 2:35 P.M.

Parth Sarin, *A&M Consolidated High School*
Philip B. Yasskin, *Texas A&M University*

Bulgarian Solitaire
2:40 P.M. - 2:55 P.M.

Douglas O'Roark, *Math Circles of Chicago*

Thursday, July 27 (continued)

Frogs and Toads
3:00 P.M. - 3:15 P.M.

Peter Tingley, *Loyola University Chicago*

Math News Snapshots for Senior High School Students
3:20 P.M. - 3:55 P.M.

Nitsa B. Movshovitz-Hadar, *Technion - Israel Inst. of Technology*

CONTRIBUTED PAPER SESSION WITH THEMES
Innovative Approaches to Calculus Preparation, Part A

1:00 P.M. - 3:55 P.M., SALON A-3

Rethinking Calculus 1 at a Metropolitan University
1:00 P.M. - 1:15 P.M.

Britney Hopkins, *University of Central Oklahoma*
Kristi Karber, *University of Central Oklahoma*

Analysis of ALEKS Mathematics Placement Test Data
1:20 P.M. - 1:35 P.M.

Teresa Woods, *Michigan Technological University*

Hits and Misses While Preparing Students for Calculus and Physics
1:40 P.M. - 1:55 P.M.

Grace E. Cook, *Bloomfield College*

Modernizing the Pathway to Calculus: Lessons Learned at Palomar College
2:00 P.M. - 2:15 P.M.

John Harland, *Palomar College*
Frank Savina, *The Charles A. Dana Center at the University of Texas at Austin*

Redesigning the Pathway to Calculus
2:20 P.M. - 2:35 P.M.

Emily Gismervig, University of Washington Bothell

Effects of a Change in Calculus Placement: A Four-Year Study
2:40 P.M. - 2:55 P.M.

Ryan Stuffelbeam, *Transylvania University*

Course Innovation Experiences for Calculus I Teaching at UHD
3:00 P.M. - 3:15 P.M.

Linda Becerra, *UH-Downtown*
Jeong-Mi Yoon, *UH-Downtown*

Active Learning in Trigonometry
3:20 P.M. - 3:35 P.M.

Steven Schlicker, *Grand Valley State University*
Ted Sundstrom, *Grand Valley State University*

The Use of Drawing As a Cognitive Tool in Undergraduate Mathematics
3:40 P.M. - 3:55 P.M.

Mile Krajcevski, *University of South Florida*
Deniz Kardes, *University of South Florida*

GENERAL CONTRIBUTED PAPER SESSION
Applied Mathematics

1:00 P.M. - 3:55 P.M., SALON C-7

Power in the U.S. Legislature
1:00 P.M. - 1:10 P.M.

Victoria Powers, *Emory University*

A Mathematical Comparison of Open and Closed Primaries through Fairness Criteria
1:15 P.M. - 1:25 P.M.

Joseph F. Kolacinski, *Elmira College*
Brandon Payne, *Elmira College*

Extending Difference of Votes Rules
1:30 P.M. - 1:40 P.M.

Sarah S. King, *University of Louisville*

The Root System and Combinatorics of Linear Voting Methods
1:45 P.M. - 1:55 P.M.

Prasad Senesi, *The Catholic University of America*

Non-standard Finite Difference Scheme for Vector Disease Models
2:00 P.M. - 2:10 P.M.

Collins Bekoe, *Prince of Songkla University*

Modeling Phytoplankton Population Dynamics
2:15 P.M. - 2:25 P.M.

TJ Leiterman, *St. Norbert College*

Modeling the Devastation of Hemlock Trees in the Great Smoky Mountains
2:30 P.M. - 2:40 P.M.

Jillian Stupiansky, *University of North Alabama*
Jessica Stovall, *University of North Alabama*

Reconstructing the Cheshire Cat in Technicolor: The Problem of Hyperspectral Medical Imaging
2:45 P.M. - 2:55 P.M.

Rachel Grotheer, *Goucher College*

Thursday, July 27 (continued)

Strict Inequalities between Bond Percolation Thresholds of Archimedean Lattices
3:00 P.M. - 3:10 P.M.

John C. Wierman, *Johns Hopkins University*

Trajectory Controllability of Nonlinear Systems: An Analytical and a Numerical Approach
3:15 P.M. - 3:25 P.M.

Dimplekumar N. Chalishajar, *Virginia Military Institute*

A Sinusoidal Twist with Exponential Influences
3:30 P.M. - 3:40 P.M.

Satyanand Singh, *New York City College of Technology*

Twin Interval Arithmetic and Its Application in Optimization Problems
3:45 P.M. - 3:55 P.M.

Sijie Liu, *University of Alabama*

GENERAL CONTRIBUTED PAPER SESSION
Geometry

1:00 P.M. - 3:25 P.M., SALON A-2

Reflections on Teaching Geometry Courses
1:00 P.M. - 1:10 P.M.

Sarah L. Mabrouk, *Framingham State University*

Folded Symplectic Four Manifolds
1:15 P.M. - 1:25 P.M.

Christopher R. Lee, *University of Portland*

BIU^2X_2
1:30 P.M. - 1:40 P.M.

Aldo Cruz Cota, *Texas Wesleyan University*

From a High-Dimensional Random Polygon to an Ellipse: A Fourier Analysis of Iterated Circular Convolutions
1:45 P.M. - 1:55 P.M.

Boyan Kostadinov, *City Tech, CUNY*

Blow-up Continuity in Mean Curvature Flow
2:00 P.M. - 2:10 P.M.

Kevin Sonnanburg, *The University of Tennessee*

Anchor Triangles in a Delaunay Triangulation
2:15 P.M. - 2:25 P.M.

Shirley L. Yap, *California State University East Bay*

Timelike Spiraling Geodesics in Staircase Metric Geometries
2:30 P.M. - 2:40 P.M.

Ryan Hood, *Austin College*
J. Mealy, *Austin College*

Evaluation of Pi by Nested Radicals
2:45 P.M. - 2:55 P.M.

Mu-Ling Chang, *University of Wisconsin-Platteville*

Everywhere Wild Knots
3:00 P.M. - 3:10 P.M.

Mr. Ollie Nanyes

3D Printing of Eugenia Cheng's "Associahedron"
3:15 P.M. - 3:25 P.M.

Edward Aboufadel, *Grand Valley State University*

GENERAL CONTRIBUTED PAPER SESSION
Outreach, Mentoring, and Assessment

1:00 P.M. - 4:40 P.M., SALON C-8

Gender, School, Location, Age, and Subject Combination as Predictors of Secondary School Students' Achievement in Mathematics
1:00 P.M. - 1:10 P.M.

John T. Ajai, *Taraba State University, Jalingo. Nigeria*
Herbert R. Hanawa, *Yola Electricity Distribution Company, Jalingo. Nigeria*

AMS Notices: Math and Diversity
1:15 P.M. - 1:25 P.M.

Frank Morgan, *Williams College*

American Indian-based Mathematics Materials for Undergraduate Courses
1:30 P.M. - 1:40 P.M.

Charles P. Funkhouser, *California State University Fullerton*
Miles R. Pfahl, *Turtle Mountain Community College*

Project Math T.R.A.C.K.
1:45 P.M. - 1:55 P.M.

Nicole M. Panza, *Francis Marion University*

Math-Cyber Security Conference for High School Students
2:00 P.M. - 2:10 P.M.

Violeta Vasilevska, *Utah Valley University*

Mathematics Outreach via the ETSU STEM Center
2:15 P.M. - 2:25 P.M.

Anant Godbole, *ETSU*
Ryan Andrew Nivens, *ETSU*

Thursday, July 27 (continued)

Math Camp for Junior High Students: Keep It Motivated and Fun
2:45 P.M. - 2:55 P.M.

Martha Lee H. Kilpack, *Brigham Young University*

Exposing General Audience to the Voice of Mathematics
3:00 P.M. - 3:10 P.M.

Neeti Sinha, *Johns Hopkins University (past), currently independent (author, speaker)*

Going from "Hidden Figures" to "Visible Figures": Mentoring African American Females in Mathematics and Other STEM Fields
3:15 P.M. - 3:25 P.M.

Viveka Brown, *Spelman College*

What Can Students Do with a Math Major? Five Basic Career Fields for Math Majors
3:30 P.M. - 3:40 P.M.

Paul R. Bialek, *Trinity International University*

Mathematical Modeling Contest for College Students
3:45 P.M. - 3:55 P.M.

Leonida Ljumanovic, *UW-Platteville*

Assessment in 10 Minutes!
4:00 P.M. - 4:10 P.M.

Alan Alewine, *McKendree University*

The Efficacy of Post Assessment Extra Credit Quizzes
4:15 P.M. - 4:25 P.M.

Rachel Frankel, *University of Cincinnati, Blue Ash College*

Student-led Error Analysis as Training for Pre-Service Teachers
4:30 P.M. - 4:40 P.M.

James R. Valles, *Prairie View A&M University*
Teresa Hughes, *Cypress-Fairbanks Independent School District*

WORKSHOP
What's the Story? A Graduate Student Workshop on Formulating a Research Presentation for an Undergraduate Audience

1:00 P.M. – 2:20 P.M., MOBLEY ROOM

MINICOURSE
Minicourse 1. Creating a Purposeful Student Learning Experience, Part A

1:00 P.M. – 3:00 P.M., SALON C-3

MINICOURSE
Minicourse 6. An Invitation to Euclid's Elements, Part A

1:00 P.M. – 3:00 P.M., SALON C-5

INVITED PAPER SESSION
Big Ideas About Big (and Less Than Big) Data

2:00 P.M. - 5:00 P.M., CONTINENTAL BALLROOM B

Know Thyself: Introspective Personal Data Mining
2:00 P.M. - 2:20 P.M.

Talithia Williams, *Harvey Mudd College*

Using Big and Less-than-Big Data Sets in Public Health
2:30 P.M. - 2:50 P.M.

Martin I. Meltzer, *Ph.D., Health Economics and Modeling Unit (HEMU), Division of Preparedness and Emerging Infections, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention (CDC)*

Let Me See Your Papers: Using Real-Time Network Graph Traversal to Uncover Suspicious Offshore Activity
3:00 P.M. - 3:20 P.M.

Abhishek Mehta, *Tresata*

Toward Unsupervised Learning for Social Media Using Linear Algebra
3:30 P.M. - 3:50 P.M.

Michael Berry, *University of Tennessee, Knoxville*

Finding and Telling Data Stories
4:00 P.M. - 4:20 P.M.

Dash Davidson, *Tableau Software*

Creating Partnerships with Industry and Finding Data Analytics Problems for Students
4:30 P.M. - 4:50 P.M.

Michael Dorff, *Brigham Young University*

Thursday, July 27 (continued)

CONTRIBUTED PAPER SESSION WITH THEMES
Recreational Mathematics: Puzzles, Card Tricks, Games, Gambling and Sports, Part A

2:00 P.M. - 4:55 P.M., SALON A-1

The BINGO Paradox
2:00 P.M. - 2:15 P.M.
Arthur Benjamin, *Harvey Mudd College*

Lucky Lines, Lucky links, And The Probability Of Crushing Disappointment
2:20 P.M. - 2:35 P.M.
Mark Bollman, *Albion College*

Some New Problems from Two Old Sources
2:40 P.M. - 2:55 P.M.
Robert W. Vallin, *Lamar University*

Logs and Explorations: Investigating a Classic of Magic
3:00 P.M. - 3:15 P.M.
John Harris, *Furman University*

Question Puzzles
3:20 P.M. - 3:35 P.M.
Jason Rosenhouse, *James Madison University*

Finite Group KenKen
3:40 P.M. - 3:55 P.M.
David Nacin, *William Paterson University*

NFL Team Ranking Methods and Their Abilities to Predict Games
4:00 P.M. - 4:15 P.M.
Eric Eager, *University of Wisconsin - La Crosse*

Systematic Counting, Binomial Coefficients, World Series Scenarios and the 2016 World Champion Chicago Cubs
4:20 P.M. - 4:35 P.M.
Jay L. Schiffman, *Rowan University*

UNDERGRADUATE STUDENT PAPER SESSION
MAA Student Paper Sessions

2:00 P.M. - 6:15 P.M., LAKE ONTARIO, LAKE ERIE, CONFERENCE ROOM 4M

PANEL SESSION
How to Apply for Jobs in Academia and Industry after Your PhD

2:35 P.M. – 3:55 P.M., SALON A-5

CONTRIBUTED PAPER SESSION WITH THEMES
Novel Introductions to Number Theory

3:00 P.M. - 4:35 P.M., SALON C-6

A Group Activities Approach to Number Theory
3:00 P.M. - 3:15 P.M.
Stefan Erickson, *Colorado College*

Presenting MAA Articles on Number Theory
3:20 P.M. - 3:35 P.M.
Susan H. Marshall, *Monmouth University*

The Wehmueller Conjecture
3:40 P.M. - 3:55 P.M.
Everette L. May, *Salisbury University*

Some Interesting Infinite Families of Primitive Pythagorean Triples
4:00 P.M. - 4:15 P.M.
David Terr, *UC Berkeley*

Arithmetical Structures on Graphs
4:20 P.M. - 4:35 P.M.
Darren Glass, *Gettysburg College*

OTHER MATHEMATICAL SESSION
MAA Section Officers Meeting

3:00 P.M. – 5:00 P.M., INTERNATIONAL BALLROOM SOUTH

UNDERGRADUATE STUDENT PAPER SESSION
PME Student Paper Sessions

2:00 P.M. - 6:15 P.M., CONFERENCE ROOMS 4C, 4D, 4K

MINICOURSE
Minicourse 3. Beyond Traditional Grading Schemes: Mastery Based Grading, Part A

3:30 P.M. – 5:30 P.M., SALON C-3

MINICOURSE
Minicourse 5. Teaching Introductory Statistics with Simulation-Based Inference, Part A

3:30 P.M. – 5:30 P.M., SALON C-5

Thursday, July 27 (continued)

PANEL SESSION
Town Hall Meeting: Revising Guidelines on Resources and Technology for Mathematics Faculty

4:10 P.M. – 5:30 P.M., SALON A-5

SIGMAA ACTIVITY
SIGMAA MCST Business Meeting

4:30 P.M. - 5:30 P.M., SALON C-1 & C-2

SIGMAA ACTIVITY
POM SIGMAA Reception

5:30 P.M. – 6:00 P.M., SALON A-3

SIGMAA ACTIVITY
IBL SIGMAA Business Meeting

5:30 P.M. - 6:30 P.M., SALON A-2

SIGMAA ACTIVITY
SIGMAA TAHSM Reception and Business Meeting

5:30 P.M. – 6:30 P.M., SALON C-4

SOCIAL EVENT
Graduate Student Reception

5:30 P.M. - 6:30 P.M., MARQUETTE ROOM

SIGMAA ACTIVITY
POM SIGMAA Guest Lecture

6:00 P.M. – 7:00 P.M., SALON A-3

Philosophical Implications of the Paradigm Shift in Model Theory
John Baldwin, *University of Illinois at Chicago*

SOCIAL EVENT
NSA's Women in Mathematics Society Reception

6:00 P.M. - 8:00 P.M., CONTINENTAL FOYER

SIGMAA ACTIVITY
SIGMAA QL Reception and Business Meeting

6:30 P.M. – 7:30 P.M., SALON A-1

SOCIAL EVENT
President's Gala: A Musical Celebration and MAA Membership Recognition

7:00 P.M - 8:30 P.M., INTERNATIONAL BALLROOM NORTH

Friday, July 28

Registration

8:00 A.M. - 6:00 P.M., 8TH ST SOUTH LOBBY (REGISTRATION)

INVITED ADDRESS
AWM-MAA Etta Z. Falconer Lecture

Not So Hidden Figures: Unveiling Mathematical Talent
8:30 A.M. - 9:20 A.M., INTERNATIONAL BALLROOM NORTH

Talithia Williams, *Harvey Mudd College*

CONTRIBUTED PAPER SESSION WITH THEMES
Encouraging Effective Teaching Innovation, Part B

8:30 A.M. - 11:45 A.M., SALON C-4

Using The Maple Technology To Connect Mathematics And Art
8:30 A.M. - 8:45 A.M.

Lina Wu, *Borough of Manhattan Community College*

A Partially Flipped Model for a College Trigonometry Course
8:50 A.M. - 9:05 A.M.

Ranthony A.C. Edmonds, *University of Iowa*

Back to the Drawing Board: Reshaping a Math Course in Walt Disney World
9:10 A.M. - 9:25 A.M.

Liz Bouzarth, *Furman University*
John Harris, *Furman University*
Kevin Hutson, *Furman University*

Using Exam Wrappers to Improve Student Outcomes Exam Wrappers to Improve Student Outcomes
9:30 A.M. - 9:45 A.M.

Senan Hayes, *Western CT State University*
Alicia Maloney, *Western CT State University*

A Team-Based Learning Approach to Linear Algebra
9:50 A.M. - 10:05 A.M.

Matthew J. Prudente, *Saint Vincent College*

Friday, July 28 (continued)

Using Case Scenarios in Teaching Discrete Mathematics
10:10 A.M. - 10:25 A.M.

Feryal Alayont, *Grand Valley State University*

The Pythagorean Theorem: A Gateway to Proofs
10:30 A.M. - 10:45 A.M.

Andrew J. Miller, *Belmont University*

Encouraging Metacognition Through Reflection Papers
10:50 A.M. - 11:05 A.M.

Jacqueline Jensen-Vallin, *Lamar University*

Comparing Mastery-based and Traditional Assessment in Calculus II Courses
11:10 A.M. - 11:25 A.M.

Amanda Harsy, *Lewis University*

Using Points-Free Grading to Promote Perseverance
11:30 A.M. - 11:45 A.M.

Austin Mohr, *Nebraska Wesleyan University*

GENERAL CONTRIBUTED PAPER SESSION

Number Theory

8:30 A.M. - 10:40 A.M., SALON C-8

Dividing by 9
8:30 A.M. - 8:40 A.M.

Ji Young Choi, *Shippensburg University of PA*

Properties of Rational Base Representations of Positive Integers
8:45 A.M. - 8:55 A.M.

Zoe Cramer, *Central Connecticut State University*
Frederic Latour, *Central Connecticut State University*

Generating Larger Near-Isosceles Primitive Pythagorean Triples Using Pell-Type Sequences
9:00 A.M. - 9:10 A.M.

Frederick D. Chichester, *Retired*

A Tale of Two Constants
9:15 A.M. - 9:25 A.M.

Andy Martin, *Kentucky State University*

Exploring Restricted *m*-ary Partitions
9:30 A.M. - 9:40 A.M.

Timothy B. Flowers, *Indiana University of Pennsylvania*

Generalizations of Delannoy Numbers
9:45 A.M. - 9:55 A.M.

Steven Edwards, *Kennesaw State University*
William Griffiths, *Kennesaw State University*

Multiplicative Persistence of Nonzero Fixed Point Digits
10:00 A.M. - 10:10 A.M.

Robert Styer, *Villanova University*
Colin Lubner, *Villanova University*

The Smallest Nontrivial Height of Abelian Totally p-adic Numbers
10:15 A.M. - 10:25 A.M.

Emerald T. Stacy, *Oregon State University*

On a Series Formula for the Area of the Mandelbrot Set and Zagier's Conjecture
10:30 A.M. - 10:40 A.M.

Patrick Bray, *Rowan University*
Hieu D. Nguyen, *Rowan University*

CONTRIBUTED PAPER SESSION WITH THEMES

Data Science: Big Data, Big Questions

8:30 A.M. - 12:05 P.M., SALON A-1

Building the Data Science Path Science Path
8:30 A.M. - 8:45 A.M.

Brian Camp, *Saint Leo University*
Monika Kiss, *Saint Leo University*
Jacci White, *Saint Leo University*

Developing an Academic Data Science Program
8:50 A.M. - 9:05 A.M.

James Quinlan, *University of New England*

Learning by Doing: Data Science for Mathematics and Statistics Undergraduates through Experiential Learning Collaboration with Industry Clients
9:10 A.M. - 9:25 A.M.

Marcus L. Walker, *University of Minnesota Duluth*

Modeling Expenses and Liabilities in an Army Accounting System
9:30 A.M. - 9:45 A.M.

Christopher Thron, *Texas A&M University-Central Texas*
Lucas Brandt, *Texas A&M University-Central Texas*

Big Data Bigger Mathematics: How Math Impacts Big Data and How College Curriculum Reflects This
9:50 A.M. - 10:05 A.M.

Joan E. DeBello, *St. John's University*

Friday, July 28 (continued)

Ingredients for a Worthwhile Data Analytics In-Class Project: A Comedian, Some Software, and Lots of Curiosity!
10:10 A.M. - 10:25 A.M.

Russ Goodman, *Central College*

Class Projects Dealing with Big Data
10:30 A.M. - 10:45 A.M.

Aihua Li, *Montclair State University*

Robust PCA and the Analysis of Surveillance Video
10:50 A.M. - 11:05 A.M.

Andy Keck, *Western State Colorado University*

Big Data and the Professional Workplace
11:10 A.M. - 11:25 A.M.

John P. Boardman, *Franklin College*

The Data Science of Fitting a Dinosaur
11:30 A.M. - 11:45 A.M.

Boyan Kostadinov, *City Tech, CUNY*

Clustering Algorithms and an Application to Acoustic Radiation Force Impulse (ARFI) Imaging
11:50 A.M. - 12:05 P.M.

Amanda J. Mangum, *Niagara University*
Mansoor Haider, *North Carolina State University*

CONTRIBUTED PAPER SESSION WITH THEMES
Innovative Approaches to Calculus Preparation, Part B

8:30 A.M. - 11:05 A.M., SALON A-3

Innovative Methods in the Teaching of Pre-Calculus in an Emporium Setup
8:30 A.M. - 8:45 A.M.

Keith Carlson, *University of Central Florida*

Everyone's a Math Major Creates Optimal STEM Mindset
8:50 A.M. - 9:05 A.M.

Gary Hagerty, Boise State University

Preparing to Study Trigonometry through Primary Historical Sources
9:10 A.M. - 9:25 A.M.

Daniel E. Otero, *Xavier University*

Developing Students' Understanding of Exponential Growth: A Research-Based Solution
9:30 A.M. - 9:45 A.M.

Alan E. O'Bryan, *Arizona State University*

Directionality of the Equals Sign
9:50 A.M. - 10:05 A.M.

Whitney George, *University of Wisconsin-La Crosse*
Tushar Das, *University of Wisconsin-La Crosse*
Nathan Warnberg, *University of Wisconsin-La Crosse*

A Unique Application of the Moore Method of Teaching College Precalculus
10:10 A.M. - 10:25 A.M.

Paul Howard, *Oklahoma Christian University*

Mathematical Maturity: Dualities, Domination, Approximation, Fixed Points, Slopes, etc.-- Concepts & Notations in Pre-Calculus
10:30 A.M. - 10:45 A.M.

G. Gerard Wojnar, *Frostburg State University*

Flipping the Precalculus Classroom
10:50 A.M. - 11:05 A.M.

Benjamin V.C. Collins, *University of Wisconsin-Platteville*

CONTRIBUTED PAPER SESSION WITH THEMES
Inquiry-Based Teaching and Learning, Part A

8:30 A.M. - 11:05 A.M., SALON A-2

An IBL Approach to Abstract Algebra
8:30 A.M. - 8:45 A.M.

Mona Mocanasu, MSU Denver

An IBL Introduction to Proofs Class with Specifications / Standards Grading and Group Work
8:50 A.M. - 9:05 A.M.

Justin Dunmyre, *Frostburg State University*

All In: My First Experience with Guided Student Presentations
9:10 A.M. - 9:25 A.M.

May Mei, *Denison University*

Lessons Learned Creating IBL Course Notes
9:30 A.M. - 9:45 A.M.

John Ross, *Southwestern University*

Reanimating the Dinosaurs: A Reflection on Inquiry-Based Learning and Faculty Renewal
9:50 A.M. - 10:05 A.M.

Adrian P. Gentle, *University of Southern Indiana*
Yalcin Sarol, *University of Southern Indiana*

Friday, July 28 (continued)

An Inquiry-Based Approach to IBL
10:10 A.M. - 10:25 A.M.

Sarah Dumnich, *Frostburg State University*

Mathematical Inquiry for Liberal Arts Students
10:30 A.M. - 10:45 A.M.

Elizabeth Thoren, *Pepperdine University*

Writing in an IBL Calculus Course
10:50 A.M. - 11:05 A.M.

William T. Mahavier, *Lamar University*

GENERAL CONTRIBUTED PAPER SESSION
GCPS on Teaching and Learning Advanced Mathematics

8:30 A.M. - 11:40 A.M., SALON C-7

Transitioning from the Finite to the Infinite in I2
8:30 A.M. - 8:40 A.M.

M. Leigh Lunsford, *Longwood University*

Students' Epistemological Frames and Their Interpretation of Advanced Mathematics
8:45 A.M. - 8:55 A.M.

Victoria Krupnik, *Rutgers University*
Keith Weber, *Rutgers University*
Timothy Fukawa-Connelly, *Temple University*

Slopes: An Interactive App for Exploring Differential Equations
9:00 A.M. - 9:10 A.M.

Timothy A. Lucas, *Pepperdine University*

Round Robin Proofs
9:15 A.M. - 9:25 A.M.

Heidi Hulsizer, *Benedictine College*

Bridging the Gap: Mid-level Proofs Courses and Their Effect on Student Learning and Outcomes
9:30 A.M. - 9:40 A.M.

Karin R. Saoub, *Roanoke College*

Flipping an Introduction to Proofs Course
9:45 A.M. - 9:55 A.M.

Miranda Bowie, *University of North Alabama*

Community Detection with Hierarchical Clustering Algorithms: Connecting Graph and Network Theory to Analyzing Social Networks
10:00 A.M. - 10:10 A.M.

Donna Beers, *Simmons College*

Coding and GUI Use in the Teaching of Undergraduate Numerical Analysis
10:15 A.M. - 10:25 A.M.

Paul von Dohlen, *William Paterson University*

Triangular Ramsey Numbers: An Undergraduate Research Project
10:30 A.M. - 10:40 A.M.

Timothy Trujillo, *Sam Houston State University*

In-Class Exercises in Complex Analysis
10:45 A.M. - 10:55 A.M.

Jane McDougall, *Colorado College*

Utilizing Truth Tables to Furnish Some Neat Mathematical Properties
11:00 A.M. - 11:10 A.M.

Kryssa C. Goodhart, *Rowan University*
Jay L. Schiffman, *Rowan University*

A Novel Idea: Teaching Mathematics using Apostolos Doxiadis's *Uncle Petros* and *Goldbach's Conjecture*
11:15 A.M. - 11:25 A.M.

Bill Linderman, *King University*

Is There a Topology on Q That Detects Continuous Extensions to R?
11:30 A.M. - 11:40 A.M.

Mike Krebs, *California State University, Los Angeles*

UNDERGRADUATE STUDENT PAPER SESSION
MAA Student Paper Sessions

8:30 A.M. – 11:45 A.M., LAKE ONTARIO, LAKE MICHIGAN, LAKE ERIE, CONFERENCE ROOMS 4M, 4Q

UNDERGRADUATE STUDENT PAPER SESSION
PME Student Paper Sessions

8:30 A.M. – 11:45 A.M., CONFERENCE ROOMS 4C, 4D, 4K

PANEL SESSION
Implementing Mathematics Pathways, Part I - State, System, and Transfer Level Strategies

8:30 A.M. – 9:50 A.M., SALON A-5

Friday, July 28 (continued)

MAA MathFest 2017 Exhibit Hall

9:00 A.M. - 5:00 P.M., SALON D (EXHIBIT HALL)

INVITED ADDRESS

Earle Raymond Hedrick Lecture Series

Hedrick Lecture II
9:30 A.M. - 10:20 A.M., INTERNATIONAL BALLROOM NORTH

Dusa McDuff, *Barnard College, Columbia University*

PANEL SESSION

Implementing Mathematics Pathways, Part II – Institution and Classroom Level Strategies

10:00 A.M. – 11:20 A.M., SALON A-5

INVITED ADDRESS

MAA Invited Address

Is There a Better Way to Elect a President?
10:30 A.M. - 11:20 A.M., INTERNATIONAL BALLROOM NORTH

Steven Brams, *New York University*

CONTRIBUTED PAPER SESSION WITH THEMES

Writing Across the Curriculum in Mathematics, Part A

11:10 A.M. - 11:45 A.M., SALON A-2

(Writing Enriched) Introduction to Proofs
11:10 A.M. - 11:25 A.M.

Katharine Shultis, *Gonzaga University*

Students' Experiences in a Transition to Proof Course
11:30 A.M. - 11:45 A.M.

Visala R. Satyam, *Michigan State University*
Mariana Levin, *Western Michigan University*
John P. Smith, *Michigan State University*
YoungGon Bae, *Michigan State University*
Kevin Voogt, *Michigan State University*

INVITED ADDRESS

NAM David Harold Blackwell Lecture

Hidden Figures: My Role as a Math Consultant for this Film
1:00 P.M. - 1:50 P.M., INTERNATIONAL BALLROOM SOUTH

Rudy L. Horne, *Morehouse College*

INVITED PAPER SESSION

Low Dimensional Symplectic and Contact Topology

1:00 P.M. - 4:00 P.M., CONTINENTAL BALLROOM B

Constructing Interlocking Solid Tori in Contact 3-Manifolds
1:00 P.M. - 1:20 P.M.

Doug LaFountain, *Western Illinois University*

The Weinstein Conjecture
1:30 P.M. - 1:50 P.M.

Bahar Acu, *University of Southern California and UCLA*

Contact Invariants and Reeb Dynamics
2:00 P.M. - 2:20 P.M.

Jo Nelson, *Barnard College and Columbia University*

The Flexibility and Rigidity of Lagrangian Cobordisms
2:30 P.M. - 2:50 P.M.

Lisa Tryanor, *Bryn Mawr College*

A New Approach to the Symplectic Isotopy Problem
3:00 P.M. - 3:20 P.M.

Laura Starkston, *Stanford University*

CONTRIBUTED PAPER SESSION WITH THEMES

Exploring Zeros of Polynomials

1:00 P.M. - 5:35 P.M., SALON C-6

When and Why Does Laguerre's Method Misbehave?
1:00 P.M. - 1:15 P.M.

Pavel Belik, *Augsburg College*

Reimagining Polynomial Root Solutions via Taylor Polynomial Transformations
1:40 P.M. - 1:55 P.M.

Craig J. George, *University of Houston*

Descartes' (and Budan's and Fourier's) Rules of Signs
2:00 P.M. - 2:15 P.M.

Paul Zorn, *Saint Olaf College*

Looking for a "Local" Gauss-Lucas Theorem
2:20 P.M. - 2:35 P.M.

Harry Richman, *University of Michigan*

Friday, July 28 (continued)

Geometry of Generalized Cubic Polynomials
2:40 P.M. - 2:55 P.M.

Christopher Frayer, *University of Wisconsin-Platteville*

Trajectories of Critical Points
3:00 P.M. - 3:15 P.M.

Michael Brilleslyper, *U. S. Air Force Academy*
Beth Schauboreck, *U. S. Air Force Academy*

Asymptotics of Random Processes and Zeros of Polynomials
3:20 P.M. - 3:35 P.M.

Barbara Margolius, *Cleveland State University*

Galois Theory for High School Students
3:40 P.M. - 3:55 P.M.

Jeff Johannes, *SUNY Geneseo*

Decent Polynomials
4:00 P.M. - 4:15 P.M.

Edward Early, *St. Edward's University*

The "Look and Say" Polynomial
4:20 P.M. - 4:35 P.M.

Jonathan Martin, *Lexington, KY*
Andy Martin, *Kentucky State University*

An Invitation to Polynomiography via Exponential Series
5:00 P.M. - 5:15 P.M.

Bahman Kalantari, *Rutgers University*

Avoiding Conflict using Zeros of Polynomials
5:20 P.M. - 5:35 P.M.

Axel Brandt, *Davidson College*

CONTRIBUTED PAPER SESSION WTH THEMES

Writing Across the Curriculum in Mathematics, Part B

1:00 P.M. - 4:55 P.M., SALON A-2

Writing to Learn Journals in a Math for Elementary Teachers Course
1:00 P.M. - 1:15 P.M.

Maria Fung, *Worcester State University*

Student Writing as a Tool for Synthesizing Ideas in Calculus
1:20 P.M. - 1:35 P.M.

Sarah Wolff, *Denison University*

Do Students Really Understand What They're Doing?
1:40 P.M. - 1:55 P.M.

Jason Molitierno, *Sacred Heart University*

Reflection Writing in Applied Calculus and Statistics Courses
2:00 P.M. - 2:15 P.M.

Chris Oehrlein, *Oklahoma City Community College*

Summative Portfolios in Mathematics Courses
2:20 P.M. - 2:35 P.M.

Sarah Hanusch, *SUNY Oswego*

Writing in Geometry Course
2:40 P.M. - 2:55 P.M.

Yelena Vaynberg, *LTU*

Using Discussion Boards and Papers in an Introductory Statistics Course
3:00 P.M. - 3:15 P.M.

Edwin P. Herman, *University of Wisconsin-Stevens Point*

Scientific Writing? What Is That?
3:20 P.M. - 3:35 P.M.

Magdalena Luca, *Mass College of Pharmacy*

Mathematical Writing Through Group Projects
3:40 P.M. - 3:55 P.M.

Dan Kemp, *South Dakota State University*

Writing on the Mathematics of a Great Mathematician from History
4:00 P.M. - 4:15 P.M.

Daniel Kiteck, *Indiana Wesleyan University*

Making Writing Meaningful in an Entry Level Math Course
4:20 P.M. - 4:35 P.M.

Emlee Nicholson, Millsaps College

Incorporating Reading/Writing Assignments into a Liberal Arts Mathematics Course
4:40 P.M. - 4:55 P.M.

Adam Giambrone, *University of Connecticut*

Friday, July 28 (continued)

CONTRIBUTED PAPER SESSION WTH THEMES

Connecting Introductory Mathematics Courses to Students' Intended Majors and Careers

1:00 P.M. - 4:55 P.M., SALON C-4

A 3-Pronged Approach for Helping Students Discover Careers in the Mathematical Sciences
1:00 P.M. - 1:15 P.M.

Lisa Holden, *Northern Kentucky University*
Brooke Buckley, *Northern Kentucky University*
Dhanuja Kasturiratna, *Northern Kentucky University*

Freshman Seminar in Applied Math: A Lesson in Adaptive Teaching
1:20 P.M. - 1:35 P.M.

Jenna Reis, *Fitchburg State University*

Math 299s: Introduction to the Math Major
1:40 P.M. - 1:55 P.M.

Brandy S. Wiegers, Central Washington University

Teaching Simulation in an Introductory Operations Research Course
2:00 P.M. - 2:15 P.M.

Timothy Yusun, *Simon Fraser University*
Tamon Stephen, *Simon Fraser University*

Community Based Learning in an Introduction to Data Course
2:20 P.M. - 2:35 P.M.

Phong Le, *Goucher College*

Customizing a Statistics Course for Business Majors
2:40 P.M. - 2:55 P.M.

Anders Hendrickson, *St. Norbert College*

Incorporating Partner Discipline Voices in Retooling Introductory Statistics in Washington State
3:00 P.M. - 3:15 P.M.

Helen E. Burn, *Highline College*

The Right Math for the Right Student at the Right Time: Facilitating Multidisciplinary Discussions
3:20 P.M. - 3:35 P.M.

Francisco Savina, *The Charles A. Dana Center at The University of Texas at Austin*

Renovating Calculus Through Conversations with the Partner Disciplines
3:40 P.M. - 3:55 P.M.

Suzanne I. Dorée, *Augsburg College*
Pavel Belik, *Augsburg College*
Jody Sorensen, *Augsburg College*

Pre-calculus Student Activities for STEM Intending Students
4:00 P.M. - 4:15 P.M.

Stuart Boersma, *Central Washington University*

Winning Students from Several Disciplines with a Course in Evolutionary Game Theory
4:20 P.M. - 4:35 P.M.

Robert G. Root, *Lafayette College*

Realistic Examples of Bayes's Rule from Cybersecurity
4:40 P.M. - 4:55 P.M.

Gregory V. Bard, *University of Wisconsin--Stout*

CONTRIBUTED PAPER SESSION WITH THEMES

Undergraduate Research Activities in Mathematical and Computational Biology

1:00 P.M. - 3:35 P.M., SALON A-4

Tiered Mentoring in REUs: DNA Nanostructure Self-Assembly Case Study
1:00 P.M. - 1:15 P.M.

Ada N. Morse, *University of Vermont*

An Age-Structured Pulse Vaccination Model for HPV
1:40 P.M. - 1:55 P.M.

Timothy D. Comar, *Benedictine University*

A Simplification and Quantitative Analysis of Stress Reaction System- HPA Axis
2:20 P.M. - 2:35 P.M.

Pengcheng Xiao, *University of Evansville*
Adam Lonnberg, *University of Evansville*

Feedback-Mediated Dynamics in a Model of a Long-Looped Nephron
2:40 P.M. - 2:55 P.M.

Hwayeon Ryu, *University of Hartford*
Quinton Neville, *St. Olaf College*

Artificial Neural Networks (ANN) Applied to Monte Carlo and Molecular Dynamic Simulations
3:00 P.M. - 3:15 P.M.

Barry C. Husowitz, *Wentworth Institute of Technology*

Friday, July 28 (continued)

Undergraduate Research on Discrete Models of the Impact of Drought and Invasive Crayfish on California Newt Populations
3:20 P.M. - 3:35 P.M.

Courtney L. Davis, *Pepperdine University*
Timothy A. Lucas, *Pepperdine University*

CONTRIBUTED PAPER SESSION WITH THEMES
My Favorite Math Circle Problem, Part B

1:00 P.M. - 3:55 P.M., SALON C-1 & C-2

Great Problems, Great Sessions, Great Circles
1:00 P.M. - 1:15 P.M.

Brianna Donaldson, *American Institute of Mathematics*

Exploring Patterns with Technology
1:20 P.M. - 1:35 P.M.

Jonas Meyer, *Loras College*
Amanda Matson, *Clarke University*

Problems with a Twist
1:40 P.M. - 1:55 P.M.

Gabriella Pinter, *University of Wisconsin-Milwaukee*

Recognizing Group Structure in Shapes and Images
2:00 P.M. - 2:15 P.M.

Angela Antonou, *University of St. Francis*
Mallory Johnson, *University of St. Francis*

Middle School Math Circle Problems
2:20 P.M. - 2:35 P.M.

Monika Kiss, *Saint Leo University*
Rachel Cunio, *Saint Leo University*

Roman Numeral Poker: Hilarity Did Ensue
2:40 P.M. - 2:55 P.M.

J. Lyn Miller, *Slippery Rock University*

Mathematical Explorations of Musical Scales
3:00 P.M. - 3:15 P.M.

Cory Johnson, *California State University, San Bernardino*
Jeremy Aikin, *California State University, San Bernardino*

Quilting Squares in a Math Circle
3:20 P.M. - 3:35 P.M.

Katie Haymaker, *Villanova University*

Math Unbounded: Math Circles without Borders
3:40 P.M. - 3:55 P.M.

Bob Klein, *Ohio University*

GENERAL CONTRIBUTED PAPER SESSION
Modeling or Applications

1:00 P.M. - 4:40 P.M., SALON C-7

Wildfire Modeling in a Project-Based Course
1:00 P.M. - 1:10 P.M.

Mami Wentworth, *Wentworth Institute of Technology*

Project Base Learning in Numerical Analysis via Artificial Neural Networks
1:15 P.M. - 1:25 P.M.

Barry C. Husowitz, *Wentworth Institute of Technology*

Experiences from Implementing an Industrial Project-Based Course in the Curriculum
1:30 P.M. - 1:40 P.M.

Michele L. Joyner, *East Tennessee State University*

Efficiency of Geometrical Designs in Engineering and Biology
1:45 P.M. - 1:55 P.M.

Malgorzata A. Marciniak, *CUNY*

An Interdisciplinary Undergraduate Research Project for Wind Turbine Modeling
2:00 P.M. - 2:10 P.M.

Jeong-Mi Yoon, *UH-Downtown*

Peace Movement Paradox in Generalized Gravity
2:30 P.M. - 2:40 P.M.

Dennis G. Collins, *UPR-Mayaguez*

Let's Get Physical! Teaching Math through the Lens of Physics
2:45 P.M. - 2:55 P.M.

L. Jeneva Clark, *University of Tennessee*
Peggy Bertrand, *University of Tennessee*

Dynamics of Neuronal Networks with Coupling Delays: A Modeling Study
3:15 P.M. - 3:25 P.M.

Hwayeon Ryu, *University of Hartford*

Machine Learning Approach for the Prediction of Dissolved Oxygen Concentration
3:30 P.M. - 3:40 P.M.

Cassia Smith, *University of the Virgin Islands*
Robert Stolz, *University of the Virgin Islands*
Jonathan Jossart, *University of the Virgin Islands*

Friday, July 28 (continued)

The Importance of Population Dynamics in Modeling the Control of Disease-carrying Mosquito Populations
3:45 P.M. - 3:55 P.M.

Tim Antonelli, *Worcester State University*

Tipping Points in Epidemics
4:00 P.M. - 4:10 P.M.

Suzanne M. O'Regan, *North Carolina A&T State University*

Using Market Data for Markov Chain Prediction
4:30 P.M. - 4:40 P.M.

Morteza Shafii-Mousavi, *Indiana University South Bend*

GENERAL CONTRIBUTED PAPER SESSION

Teaching and Learning Calculus, and Mathematics and Technology

1:00 P.M. - 3:40 P.M., SALON C-8

Solving Problems with Calculus, Not Calculus Problems
1:00 P.M. - 1:10 P.M.

Robert R. Rogers, *SUNY Fredonia*
Eugene Boman, *Penn State - Harrisburg*

Investigations To Improve Student Learning In Calculus
1:15 P.M. - 1:25 P.M.

Ken Collins, *Charlotte Latin School*

I Can't Lecture
1:30 P.M. - 1:40 P.M.

Rachel Weir, Allegheny College

Technology Mediated Active Learning in a Large Lecture Calculus Class
1:45 P.M. - 1:55 P.M.

John H. Johnson, *The Ohio State University*

Transitioning to IBL Teaching
2:00 P.M. - 2:10 P.M.

Gerard Ornas, *McNeese State University*

Teaching and Learning Mathematics in an Active Learning Classroom
2:15 P.M. - 2:25 P.M.

John A. Kerrigan, *Rutgers University*

Teaching Complex Analysis With A Spherical Camera
2:30 P.M. - 2:40 P.M.

Robert Jacobson, *Roger Williams University*

Teaching College Algebra with Knewton
2:45 P.M. - 2:55 P.M.

Peter Olszewski, *Penn State Behrend*

Continuing Development of MYMathApps Calculus
3:00 P.M. - 3:10 P.M.

Philip B. Yasskin, *Texas A&M University*
Andrew Crenwelge, *Texas A&M University*
Joseph Martinsen, *Texas A&M University*
Matthew Weihing, *Texas A&M University*
Eikagra Sharma, *Texas A&M University*
Shiva Saravanan, *A&M Consolidated High School*
Matthew Barry, *Texas Center for Applied Technology, Texas A&M Engineering Experiment Station*

A GeoGebra Project for Future Teachers
3:15 P.M. - 3:25 P.M.

Ashley Johnson, *University of North Alabama*

Fibonacci and Lucas Identities with Excel
3:30 P.M. - 3:40 P.M.

Azar Khosravani, *Columbia College Chicago*

UNDERGRADUATE STUDENT SESSION

Undergraduate Student Activity: Mock Trading with SIG

1:00 P.M. – 1:50 P.M., CONTINENTAL BALLROOM C

WORKSHOP

Examples and Experiences in Teaching a Modeling-Based Differential Equations Course

1:00 P.M. – 2:20 P.M., MOBLEY ROOM

PANEL SESSION

Reflections on Departmental Self-Studies and Reviews

1:00 P.M. – 2:20 P.M., SALON A-5

MINICOURSE

Minicourse 1. Creating a Purposeful Student Learning Experience, Part B

1:00 P.M. – 3:00 P.M., SALON C-3

Friday, July 28 (continued)

MINICOURSE

Minicourse 6. An Invitation to Euclid's Elements, Part B

1:00 P.M. – 3:00 P.M., SALON C-5

AWM INVITED PAPER SESSION

No Longer Hidden Figures: Women Mathematicians Share Their Path to the Profession

2:00 P.M. - 5:00 P.M., SALON A-3

The "Firsts" in STEM: Modern Day 'Hidden Figures'
2:00 P.M. - 2:20 P.M.

Talitha Washington, *Howard University*

A Quest to Cure Cancer with Math
2:30 P.M. - 2:50 P.M.

Shelby Wilson, *Morehouse College*

Young, Mathematically Gifted, and Black
3:00 P.M. - 3:20 P.M.

Candice Price, *University of San Diego*

A Path, Thus Far...
3:30 P.M. - 3:50 P.M.

Suzanne Weekes, *Worcester Polytechnic Institute*

Life Has Critical Points
4:00 P.M. - 4:20 P.M.

Emille Davie Lawrence, *University of San Francisco*

Panel Discussion
4:30 P.M. - 5:00 P.M.

INVITED PAPER SESSION

Mathematics and Democracy

2:00 P.M. - 5:00 P.M., CONTINENTAL BALLROOM A

Political Hypotheses and Mathematical Conclusions
2:00 P.M. - 2:20 P.M.

Paul H. Edelman, *Vanderbilt University*

Multiwinner Approval Voting: An Apportionment Approach
2:30 P.M. - 2:50 P.M.

D. Marc Kilgour, *Wilfrid Laurier University*

Voting and the Symmetric Group
3:00 P.M. - 3:20 P.M.

Michael Orrison, *Harvey Mudd College*

Consistent Criteria, Problematic Outcomes, and the Hypercube
3:30 P.M. - 3:50 P.M.

Tommy Ratliff, *Wheaton College*

Ready for Redistricting 2020?
4:00 P.M. - 4:20 P.M.

Karen Saxe, *Macalester College and AMS*

Orthogonal Decomposition and the Mathematics of Voting
4:30 P.M. - 4:50 P.M.

William S. Zwicker, *Union College*

CONTRIBUTED PAPER SESSION WITH THEMES

Recreational Mathematics: Puzzles, Card Tricks, Games, Gambling and Sports, Part B

2:00 P.M. - 4:55 P.M., SALON A-1

A Mathematical Analysis of Social Math
2:00 P.M. - 2:15 P.M.

Anne Quinn, *Edinboro University of PA*

TransAmerica and the Shortest Pat Problem on Triangular Grids
2:20 P.M. - 2:35 P.M.

Jie Mei, *University of Rhode Island*
Edmund A. Lamagna, *Department of Computer Science and Statistics, University of Rhode Island*

The n+k Kings Problem
2:40 P.M. - 2:55 P.M.

Doug Chatham, *Morehead State University*

Mathematical Explorations with Swish
3:00 P.M. - 3:15 P.M.

Dana P. Rowland, *Merrimack College*

How to Win at Tenzi
3:20 P.M. - 3:35 P.M.

Steve Bacinski, *Davenport University*
Tim Pennings, *Davenport University*
Stefana Rusu, *Davenport University*

The Expected Length of a Game of Tenzi
3:40 P.M. - 3:55 P.M.

Mark R. Snavely, *Carthage College*

Friday, July 28 (continued)

Probability Questions from the Game Pickomino
4:00 P.M. - 4:15 P.M.

Brian Heinold, *Mount St. Mary's University*

Computer Simulations as a Lens into the Mathematics of Crazy Eights and Farkle
4:20 P.M. - 4:35 P.M.

Stacy L. Hoehn, *Franklin College*

Card Games in an Undergraduate Geometry Course
4:40 P.M. - 4:55 P.M.

Cherith Tucker, *Oklahoma Baptist University*

UNDERGRADUATE STUDENT PAPER SESSION
MAA Student Paper Sessions

2:00 P.M. - 5:55P.M., LAKE ONTARIO, LAKE ERIE, LAKE MICHIGAN, CONFERENCE ROOMS 4M, 4Q

OTHER MATHEMATICAL SESSION
Alder Award Session

2:30 P.M. – 3:20 P.M., INTERNATIONAL BALLROOM NORTH

Tell Me How You Got Here
2:30 P.M. - 2:50 P.M.

Steven Klee, *Seattle University*

Teaching Mathematics as Though Their Lives Depend on It
3:00 P.M. - 3:20 P.M.

Mary De Raeve Beisiegel, *Oregon State University*

PANEL SESSION
Non-academic Mathematical Career Paths for Undergraduates

2:35 P.M. – 3:55 P.M., SALON A-5

POSTER SESSION
PosterFest 2017: An MAA Networking Event

3:30 P.M. - 5:00P.M., SALON D (EXHIBIT HALL)

MINICOURSE
Minicourse 2. Preparing Students for Success in Calculus: Aligning Placement, Curriculum and Assessment, Part A

3:30 P.M. – 5:30 P.M., SALON C-3

MINICOURSE
Minicourse 4. Visualizing Projective Geometry Through Photographs and Perspective Drawings, Part A

3:30 P.M. – 5:30 P.M., SALON C-5

SOCIAL EVENT
Celebrating 80 Years of MAA Publishing

3:30 P.M. – 4:30 P.M., MAA PAVILION, SALON D (EXHIBIT HALL)

SOCIAL EVENT
Networking Session on the Mathematical Education of Teachers

4:00 P.M. – 5:15 P.M., SALON C-8

PANEL SESSION
Math Camp: Combining Collaboration, Individualized Intervention, and Socio-Emotional Development

4:10 P.M. – 5:30 P.M., SALON A-5

SOCIAL EVENT
Estimathon!

4:15 P.M. – 5:45 P.M., CONTINENTAL BALLROOM C

SIGMAA ACTIVITY
WEB SIGMAA Reception and Business Meeting

5:30 P.M. - 7:00 P.M., SALON A-4

SOCIAL EVENT
Pi Mu Epsilon Banquet

6:00 P.M. - 7:45 P.M., WALDORF

SOCIAL EVENT
MAA Ice Cream Social

8:00 P.M. - 9:00 P.M., CONTINENTAL FOYER

Saturday, July 29

Registration

8:00 A.M. - 3:00 P.M., 8TH ST SOUTH LOBBY (REGISTRATION)

INVITED ADDRESS
MAA James R.C. Leitzel Lecture

Math's Other Half
8:00 P.M. - 9:00 P.M., CONTINENTAL FOYER

Dan Meyer, *Desmos*

GENERAL CONTRIBUTED PAPER SESSION
Teaching and Learning Developmental Mathematics

8:30 A.M. - 9:55 A.M., SALON C-6

Rafeef Begins to Learn Arithmetic in a Jordanian Kindergarten
8:30 A.M. - 8:40 A.M.

Radieah Banihani, *New Mexico State University*

Problem-Based Learning: Encouraging Girls in Secondary Mathematics
8:45 A.M. - 8:55 A.M.

Carmel Schettino, *Avenues: The World School*

Gender vs Character: Designing Inclusive Math Activities
9:00 A.M. - 9:10 A.M.

Eugenia Cheng, *School of the Art Institute of Chicago*

Pure Mathematics
9:15 A.M. - 9:25 A.M.

Nnenna K. Uka, *Department of Mathematics, Abia State Polytechnic, Aba, Nigeria*

Aesthetic Computing - Order of Operations Understanding Rescue
9:30 A.M. - 9:40 A.M.

Janet St.Clair, *Alabama State University*

Encouraging Mindfulness and a Growth Mindset in Developmental Mathematics Classrooms
9:45 A.M. - 9:55 A.M.

Mary B. Walkins, *The Community College of Baltimore County*

GENERAL CONTRIBUTED PAPER SESSION
Probability and Statistics

8:30 A.M. - 10:40 A.M., SALON C-7

Use Simple Math to Extract Business Information from Internet Data: a Study on Volkswagen's Emission Scandal
8:30 A.M. - 8:40 A.M.

Song Chen, *University of Wisconsin La Crosse*
Chad Vidden, *University of Wisconsin La Crosse*
Marco Vriens, *University of Wisconsin La Crosse*

What Would You Give for That: Grade Expectations vs. Performance in an Introductory Business Statistics Course
8:45 A.M. - 8:55 A.M.

Deborah Jean Gougeon, *University of Scranton*

Type I Error: Conditional or Unconditional?
9:00 A.M. - 9:10 A.M.

Nancy A. Hernandez, *TAMUCT-Department of Mathematics*
Christopher Thron, *TAMUCT-Department of Mathematics*

An Alternative Perspective on Consensus Priors with Applications to Phase I Clinical Trials
9:15 A.M. - 9:25 A.M.

Steven Kim, *California State University, Monterey Bay*

Improved Randomized Response Strategies for Collecting Sensitive Data
9:30 A.M. - 9:40 A.M.

Niharika Yennum, *Texas A & M University - Kingsville*
Stephen Sedory, *Texas A & M University - Kingsville*
Sarjinder Singh, *Texas A & M University - Kingsville*

Random Walks with Fractally Correlated Traps
10:15 A.M. - 10:25 A.M.

Alex Plyukhin, *Saint Anselm College*

Bayes' Rule and the Law
10:30 A.M. - 10:40 A.M.

Leila Setayeshgar, *Providence College*

Saturday, July 29 (continued)

CONTRIBUTED PAPER SESSION WITH THEMES
Inquiry-Based Teaching and Learning, Part B

8:30 A.M. - 11:45 A.M., SALON A-2

Competing to Learn: An In-Class Playing Card Competition Where Students Explore Set Theory Operations
8:30 A.M. - 8:45 A.M.

Jonathan Weisbrod, *Rowan College at Burlington County*

Level Up: A Continued Experiment in "Gamifying" an Active Learning Classroom
8:50 A.M. - 9:05 A.M.

Kayla B. Dwelle, *Ouachita Baptist University*

Student Guided Reinvention of Green's Theorem
9:10 A.M. - 9:25 A.M.

Robert Sachs, *George Mason University*

Finding Mathematics in Chaos - Invite Your Students to Persevere
9:30 A.M. - 9:45 A.M.

Amanda H. Matson, *Clarke University*

Coordinating IBL and non-IBL Calculus II
9:50 A.M. - 10:05 A.M.

Amy Ksir, *U.S. Naval Academy*

Hybrid IBL
10:10 A.M. - 10:25 A.M.

Patrick X. Rault, *University of Arizona*

Mathematical Habits of Mind - The Essential Dimension for Learning Mathematics
10:30 A.M. - 10:45 A.M.

Marshall Gordon, *Park School of Baltimore*

Understanding Two-Year College Mathematics Faculty Perceptions and Use of Cooperative Learning
10:50 A.M. - 11:05 A.M.

Adam J. Castillo, *The University of Texas at Austin*

Pedagogy of the Oppressed: Lessons for Inquiry-Based Learning in Mathematics
11:10 A.M. - 11:25 A.M.

Victor Piercey, *Ferris State University*

Equitable Practices in IBL
11:30 A.M. - 11:45 A.M.

Jessica Ellis, *Colorado State University*
Brian P. Katz, *Augustana College*

POSTER SESSION
PIC Math Conference

8:30 – 11:30 A.M., INTERNATIONAL BALLROOM SOUTH

Student Presentations
8:30 A.M. – 10:30 A.M.

Industry Speakers
10:30 A.M. – 11:30 A.M.

MAA MathFest 2017 Exhibit Hall
9:00 A.M. - 12:30 P.M., SALON D (EXHIBIT HALL)

UNDERGRADUATE STUDENT SESSION
MAA Mathematical Competition in Modeling (MCM) Winners

9:00 A.M. – 10:15 A.M., SALON C-4

INVITED ADDRESS
Earle Raymond Hedrick Lecture Series Hedrick Lecture III

9:30 A.M. - 10:20 A.M., INTERNATIONAL BALLROOM NORTH

Dusa McDuff, *Barnard College, Columbia University*

CONTRIBUTED PAPER SESSION WITH THEMES
Mathematics in Video Games

9:30 A.M. - 10:25 A.M., SALON A-5

The Skyrim Problem
9:30 A.M. - 9:45 A.M.

Andrew Sward, *Augustana College*
Dat Tran, *Augustana College*
Lan Dang, *Augustana College*

The Mathematics Behind The Hands of Time From Final Fantasy
9:50 A.M. - 10:05 A.M.

Kevin Murphy, *Saint Leo University*

Partitions by Harmonic Means and the Damage-Per-Second Indicator
10:10 A.M. - 10:25 A.M.

Anil Venkatesh, *Ferris State University*

MAA INVITED ADDRESS
How to Create Periodic Functions from Geometric Shapes

10:30 A.M. - 11:20 A.M., INTERNATIONAL BALLROOM NORTH

Ronald Mickens, *Clark Atlanta University*

Saturday, July 29 (continued)

OTHER MATHEMATICAL SESSION
MAA Business Meeting

11:30 A.M. - 12:00 P.M., CONTINENTAL BALLROOM B

INVITED PAPER SESSION
The Life and Legacy of J Ernest Wilkins (1923-2011)

1:00 P.M. - 4:00 P.M., SALON A-3

J Ernest Wilkins, Jr.: *My Friend, Colleague, and Collaborator*

1:00 P.M. - 1:20 P.M.

Ronald E. Mickens, *Clark Atlanta University*

The Remarkable Wilkins Family
1:30 P.M. - 1:50 P.M.

Carolyn Wilkins, *Professor Berklee College of Music*
Sharon Wilkins Hill, PhD
J Ernest Wilkins at the University of Chicago
2:00 P.M. - 2:20 P.M.

Bob Fefferman, *The University of Chicago*

My PhD Dissertation Advisor – J Ernest Wilkins
2:30 P.M. - 2:50 P.M.

Cleo Bentley, *Prairie View A&M University*

Dr. J Ernest Wilkins, Jr.: The Man and His Works
3:00 P.M. - 3:20 P.M.

Asamoah Nkwanta, *Morgan State University*

The Scientific and Mathematical Impact of J Ernest Wilkins
3:30 P.M. - 4:00 P.M.

Talitha Washington, *Howard University*

CONTRIBUTED PAPER SESSION WITH THEMES
Math Potluck: A Student Swap Session

1:00 P.M. - 2:55 P.M., SALON A-4

Job Wanted: Building a Math Club Talk About Internships and Career Opportunities
1:00 P.M. - 1:15 P.M.

Katie Anders, *University of Texas at Tyler*

"Bigs and Littles" Mentoring Program: Confronting the "Leaky Pipeline Effect"
1:20 P.M. - 1:35 P.M.

Monica E. Busser, *Youngstown State University*

The PME Ohio Xi Chapter Regional Conference: A How-To Guide
1:40 P.M. - 1:55 P.M.

Gabbie Van Scoy, *Youngstown State University*
Natalie Halavick, *Youngstown State University*

Open Source Hack Day at CSU East Bay
2:00 P.M. - 2:15 P.M.

Linda Beverly, *CSU East Bay*

Mathematical Modeling Contests for College Students
2:20 P.M. - 2:35 P.M.

Leonida Ljumanovic, *UW-Platteville*

So You Think You Know Math: The Math Club Game Show!
2:40 P.M. - 2:55 P.M.

Paul Fonstad, *Franklin College*

CONTRIBUTED PAPER SESSION WITH THEMES
Online Assessment: Where We Have Been, Where We Are, and Where We Are Going

1:00 P.M. - 3:35 P.M., SALON C-6

A Decade of Online Assessment at The University of Illinois
1:00 P.M. - 1:15 P.M.

Alison Reddy, *Univeristy of Illinois*

Building Online Assessments for Introductory Statistics
1:20 P.M. - 1:35 P.M.

Brooke Buckley, *Northern Kentucky University*

Using Online Technology to Improve Student Performance in Mathematics Courses
1:40 P.M. - 1:55 P.M.

Michael B. Scott, *California State University, Monterey Bay*

Asynchronous Online Office Hours with WeBWorK
2:05 P.M. - 2:15 P.M.

K. Andrew Parker, *NYC College of Technology*

Shifting to Conceptual Mathematics Teaching: What is Needed from an Online Homework System
2:20 P.M. - 2:35 P.M.

Grant Sander, *Arizona State University*

Saturday, July 29 (continued)

Scaffolding Online Math Homework for Effective Assessment
2:40 P.M. - 2:55 P.M.

Kristin Lassonde, *Contra Costa College*

Gratitude to Online Assessment – from COW to Now
3:00 P.M. - 3:15 P.M.

Aparna Higgins, *University of Dayton*

A Three Year Journey With Online Homework
3:20 P.M. - 3:35 P.M.

Jennifer Szczesniak, *Hagerstown Community College*

CONTRIBUTED PAPER SESSION WITH THEMES
Euclid and the Mathematics of Antiquity in the 21st Century

1:00 P.M. - 4:15 P.M., SALON A-1

Bring Back the Pappus-Guldin Theorems
1:00 P.M. - 1:15 P.M.

Andrew Leahy, *Knox College*

A Course in Geometry Based on Historical Sources
1:20 P.M. - 1:35 P.M.

Jerry Lodder, *New Mexico State University*

Euclid's Geometry Is Physical, Not Abstract
1:40 P.M. - 1:55 P.M.

Viktor Blasjo, *Utrecht University*

My Big Fat Greek Course
2:00 P.M. - 2:15 P.M.

Charlie Smith, *Park University*

Rationals, Irrationals, and Commensurable Magnitudes: Euclid and the Real Numbers
2:20 P.M. - 2:35 P.M.

Jeffrey Clark, *Elon University*

Solving Quadratic Equations with Geometric Algebra
2:40 P.M. - 2:55 P.M.

J Christopher Tweddle, *Governors State University*

Climbing Greek Ladders to Reach for Eigenvectors
3:00 P.M. - 3:15 P.M.

Ian Pierce, *US Air Force Academy*
Kurt Herzinger, *US Air Force Academy*
Courtney Kunselman, *US Air Force Academy*

FYS: Math of the Middle East and North Africa
3:20 P.M. - 3:35 P.M.

Kathi Crow, *Salem State University*

The Mathematics of the Sphaerica of Menelaus
3:40 P.M. - 3:55 P.M.

Marshall A. Whittlesey, *California State University San Marcos*

Geometry: It's *Element*-ary
4:00 P.M. - 4:15 P.M.

Maureen Carroll, *University of Scranton*
Elyn Rykken, *Muhlenberg College*

CONTRIBUTED PAPER SESSION WITH THEMES
Inquiry-Based Teaching and Learning, Part C

1:00 P.M. - 3:15 P.M., SALON A-2

Put Students in the Driver Seat on Their Mathematics Learning Journey
1:00 P.M. - 1:15 P.M.

Annie Han, *BMCC-The City University of New York*
Margaret Dean, *BMCC-The City University of New York*
DanPing Zhong, *BMCC-The City University of New York*

Visualizing Ideas from Calculus
1:20 P.M. - 1:35 P.M.

Alessandra Pantano, *University of California, Irvine*

Technology, 3D Printing, and Brochures in a Liberal Arts Course
1:40 P.M. - 1:55 P.M.

Lisa Driskell, *Colorado Mesa University*

Splines from Scratch using SageMathCloud
2:00 P.M. - 2:15 P.M.

Thomas Clark, *Dordt College*

Teaching an Interactive Introduction to Knot Theory
2:20 P.M. - 2:35 P.M.

Allison Henrich, *Seattle University*
Inga Johnson, *Willamette University*

Inquiry-Based Graph Theory for Non-Majors
2:40 P.M. - 2:55 P.M.

Jonathan Hulgan, *Oxford College of Emory University*

The Peano Axioms: Natural Numbers by IBL
3:00 P.M. - 3:15 P.M.

Jonathan White, *Coe College*

Saturday, July 29 (continued)

GENERAL CONTRIBUTED PAPER SESSION

Graph Theory

1:00 P.M. - 3:10 P.M., SALON C-8

Isoperimetric Constants of Paley Graphs
1:00 P.M. - 1:10 P.M.

Anthony Shaheen, *CSU Los Angeles*

The Generalized Steiner Cable-Trench Problem with Application to Error Correction in Vascular Image Analysis
1:15 P.M. - 1:25 P.M.

Eric Landquist, *Kutztown University*

Cycle Double Covers of Infinite Planar Graphs
1:30 P.M. - 1:40 P.M.

Mohammad Javaheri, *Siena College, School of Science*

Drawing Graphs as Superthrackles
1:45 P.M. - 1:55 P.M.

Kirsten Stor, *Fort Lewis College*

L(4)-labelings of Trees
2:00 P.M. - 2:10 P.M.

Samuel Iselin, *Valparaiso University*
Hector Reyes-Figueroa, *Valparaiso University*
Zsuzsanna Szaniszlo, *Valparaiso University*

Invariants of L(2,1)-Colorings
2:15 P.M. - 2:25 P.M.

Karrolyne Fogel, *California Lutheran University*
Aparna Higgins, *University of Dayton*
William Higgins, *Wittenberg University*
John Villalpando, *California Lutheran University*

Winning the Lights Out Game with the Most Edges
2:30 P.M. - 2:40 P.M.

Lauren Keough, *Grand Valley State University*
Darren Parker, *Grand Valley State University*

Enumerating Unimodal Rooted Forests Avoiding the Pattern 123
2:45 P.M. - 2:55 P.M.

Katie Anders, *University of Texas at Tyler*
Kassie Archer, *University of Texas at Tyler*

How Many Ways Can You Slice a Donut?
3:00 P.M. - 3:10 P.M.

Rob Thompson, *Carleton College*

GENERAL CONTRIBUTED PAPER SESSION

Teaching and Learning Introductory Mathematics

1:00 P.M. - 4:10 P.M., SALON C-7

Teaching and Learning Mathematics with Knitting
1:00 P.M. - 1:10 P.M.

Sara Jensen, *Carthage College*

Mathematics in a Feminist Theory Course
1:15 P.M. - 1:25 P.M.

Erin Moss, *Millersville University of Pennsylvania*

College Algebra Redesign: Shaping Institutional Change
1:30 P.M. - 1:40 P.M.

Jeremiah Hower, *Florida International University*

Examining the Variation of Mathematical Content Presented During College Algebra Instruction
1:45 P.M. - 1:55 P.M.

Claire Gibbons, *Oregon State University*

Student Academic Background and Their Success Rate in College Algebra
2:00 P.M. - 2:10 P.M.

Seongchun Kwon, *Missouri State University -West Plains*

A Gateway Math Course Re-Imagined and the Faculty Seminar Developed to Support It
2:15 P.M. - 2:25 P.M.

Marianna Bonanome, *New York City College of Technology*

Assignments to Help Students Reflect on their Learning
2:30 P.M. - 2:40 P.M.

Sarah Wolff, *Denison University*

Incorporating Network Science into a Discrete Structures Course
2:45 P.M. - 2:55 P.M.

Haley A. Yaple, *Carthage College*

The Mtile Means: An Instructional Tool for Teaching Introductory Statistics
3:00 P.M. - 3:10 P.M.

Ryan Savitz, *Neumann University*
David DiMarco, *Neumann University*
Fred Savitz, *Neumann University*

Saturday, July 29 (continued)

Tools for Teaching Logic
3:15 P.M. - 3:25 P.M.

Sarah Ann Fleming, *Belmont University*

Constructiveness-Learning
3:30 P.M. - 3:40 P.M.

Opeyemi Adekunle Kayode, *University of South Africa*

Physical Variables: An Introduction for Mathematicians
3:45 P.M. - 3:55 P.M.

Itai Seggev, *Wolfram Research*

A Mathematician Looks at American History
4:00 P.M. - 4:10 P.M.

Joseph F. Kolacinski, *Elmira College*

OTHER MATHEMATICAL SESSION
Special Interactive Presentation for High School Students, Parents, and Teachers

1:00 P.M. – 1:50 P.M., CONTINENTAL BALLROOM B

THOSE INFAMOUS EXPLODING DOTS: A Preview to Global Math Week
James Tanton, *Mathematical Association of America*

UNDERGRADUATE STUDENT SESSION
Undergraduate Student Activity: Mock Trading with SIG

1:00 P.M. – 1:50 P.M., CONTINENTAL BALLROOM C

POSTER SESSION
PIC Math Conference

1:00 P.M. – 3:00 P.M., INTERNATIONAL BALLROOM SOUTH

POSTER SESSION
1:00 P.M. – 3:00 P.M.

GRADUATE STUDENT PAPER SESSION
Great Talks for a General Audience: Coached Presentations by Graduate Students

1:00 P.M. – 5:00 P.M., BOULEVARD A / BOULEVARD B

PANEL SESSION
Getting Involved in Professional Organizations

1:00 P.M. – 2:20 P.M., SALON A-5

MINICOURSE
Minicourse 3. Beyond Traditional Grading Schemes: Mastery Based Grading, Part B

1:00 P.M. – 3:00 P.M., SALON C-3

MINICOURSE
Minicourse 5. Teaching Introductory Statistics with Simulation-Based Inference, Part B

1:00 P.M. – 3:00 P.M., SALON C-5

UNDERGRADUATE STUDENT SESSION
Student Problem Solving Competition

1:30 P.M. - 3:00 P.M., SALON C-4

OTHER MATHEMATICAL SESSION
Math Circle Demonstration

2:00 P.M. – 3:30 P.M., SALON C-1 AND C-2

MINICOURSE
Minicourse 2. Preparing Students for Success in Calculus: Aligning Placement, Curriculum and Assessment, Part B

3:30 P.M. – 5:30 P.M., SALON C-3

MINICOURSE
Minicourse 4. Preparing Students for Success in Calculus: Aligning Placement, Curriculum and Assessment, Part B

3:30 P.M. – 5:30 P.M., SALON C-5

OTHER MATHEMATICAL SESSION
Math Wrangle

4:00 P.M. – 5:30 P.M., SALON C-1 AND C-2

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American Mathematical Society
(BOOTHS 115- 119)

Founded in 1888 to further mathematical research and scholarship, today the American Mathematical Society fulfills its mission through programs and services that promote mathematical research and its uses, strengthen mathematical education, and foster awareness and appreciation of mathematics and its connections to other disciplines and to everyday life.

The D. E. Shaw Group
(BOOTH 101)

The D. E. Shaw group is a global investment and technology development firm with more than $42 billion in investment capital as of April 1, 2017, and offices in North America, Europe, and Asia. Since our founding in 1988, our firm has earned an international reputation for successful investing based on innovation, careful risk management, and the quality and depth of our staff. We have a significant presence in the world's capital markets, investing in a wide range of companies and financial instruments in both developed and developing economies.

Our culture rewards analytical rigor and adherence to the highest possible ethical and legal standards, and we've cultivated a collegial work environment that promotes collaboration across disciplines, geographies, and investment strategies. Our firm has been built in part by attempting to do what other companies might consider impossible, or never imagine at all. A single transformative idea that ultimately works—for a new business, a new trading model, or an improved back office process—is worth a dozen ideas that lead nowhere. We've learned that when an extraordinary team sets extraordinarily ambitious goals, astonishing breakthroughs can be expected.

MAA Pavilion

Publications
Membership
WebWork
PIC Math

EXHIBITORS	BOOTH
American Mathematical Association Of Two-Year Colleges	312
American Institute Of Mathematics	205
American Mathematical Society	115-119
Approval Voting Usa	311
Association For Women In Mathematics	404
Basic Books	303
Budapest Semesters In Mathematics Education	200
Cambridge University Press	306
CRC Press, Taylor & Francis	319-321
Facebook	402
Gradarius	204
Graphlock, Inc.	320
Hawkes Learning	302-304
Heidelberg Laureate Forum Foundation	310
Knewton, Inc.	209
Lyryx Learning	308
Sigmaa On Math Circles For Students And Teachers	109
Maplesoft	406
Mcgraw-Hill Education	202
National Association Of Math Circles	107
National Science Foundation	207
National Security Agency	305
Overleaf	307
Oxford University Press	210
Pearson	103-105
Princeton University Press	206
Springer	203
The D. E. Shaw Group	101
The Initative For Mathematics Learning By Inquiry	208
Wiley	211
Worldwide Center Of Mathematics	309

COMMERCIAL PRESENTATIONS

Pearson

FRIDAY, JULY 28, 11:00 A.M. - 12:00 P.M., LAKE HURON

Teaching Dynamic Ideas using Interactive Figures

A common challenge for students learning mathematics is developing the ability to visualize key mathematical concepts and relationships. This is particularly true for students taking precalculus, calculus, and linear algebra. In addition, instructors are often limited by static figures that simply cannot convey the dynamic ideas that they are trying to teach. MyLab Math features over 1,000 interactive figures that were created to address these challenges. In this session, Eric Schulz will discuss why he built these interactive figures and explore ways to use them to support in-class instruction and independent student learning outside the classroom.

Speaker:

Eric Schulz, *Professor at Walla Walla Community College*

Hawkes Learning

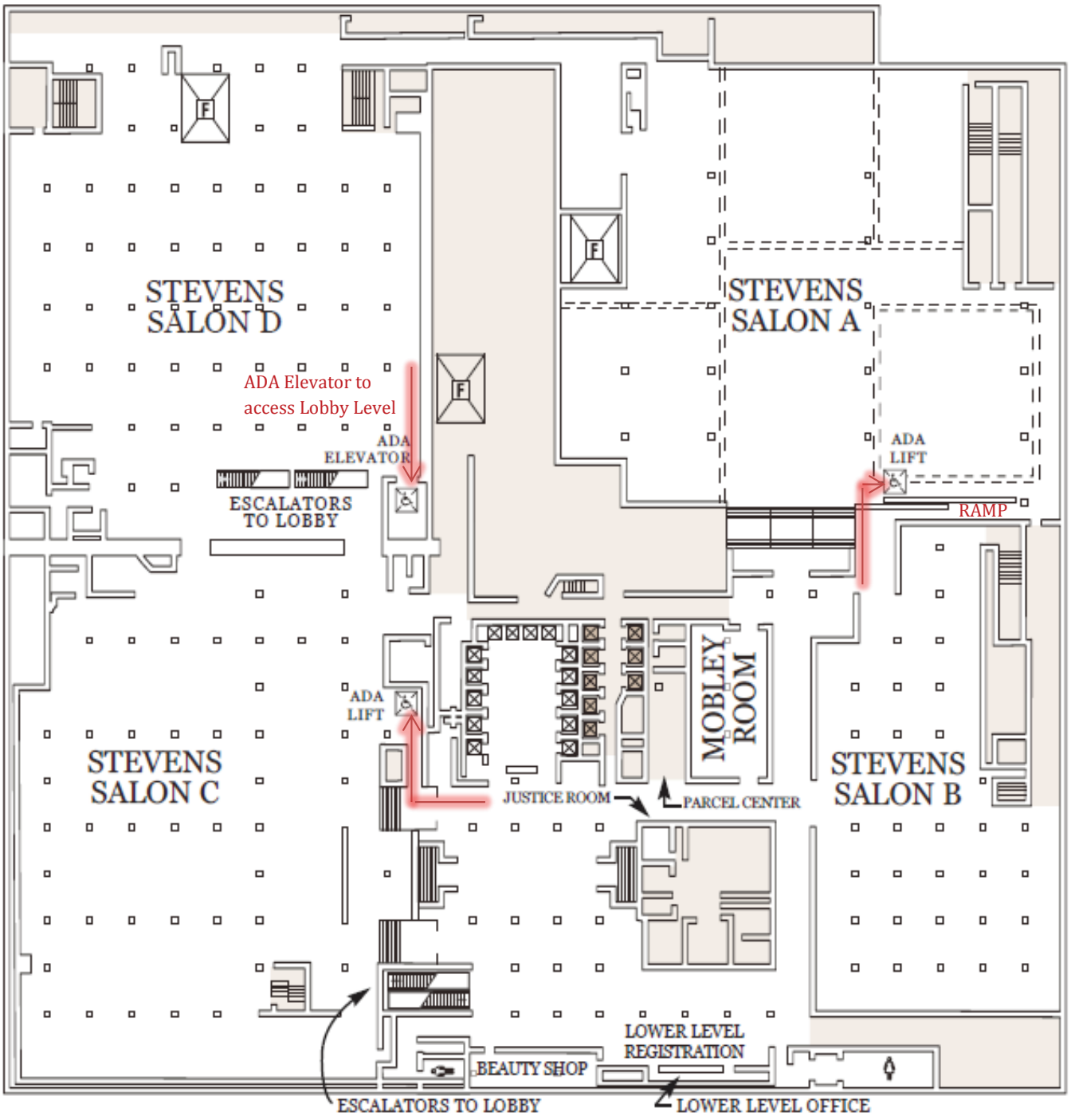
FRIDAY, JULY 28, 8:30 A.M. - 10:00 A.M., LAKE HURON

Beta Release of Calculus Courseware and NEW Course Customization Tools

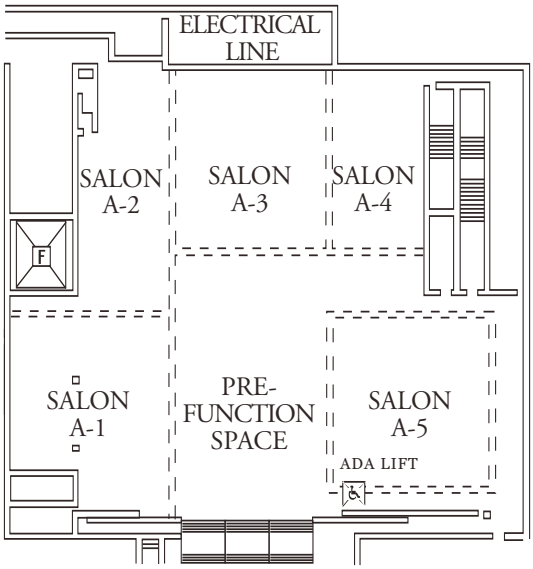
Hawkes Learning is proud to release the beta courseware of Single Variable Calculus with Early Transcendentals. Hawkes's mastery-based courseware promotes positive, active learning and adapts to each student's needs through algorithmically generated questions and tutorials. Artificial intelligence anticipates and diagnoses common student mistakes to provide insightful, error-specific feedback in the Explain Error tool.

Customize your curriculum with the newest question-authoring technology: Question Builder. This user-friendly tool allows you to create algorithmically generated questions, build in intelligent feedback and tutorials, and take advantage of the system's robust answer equivalency evaluation engine. Enter to win one of three $25 Amazon gift cards!

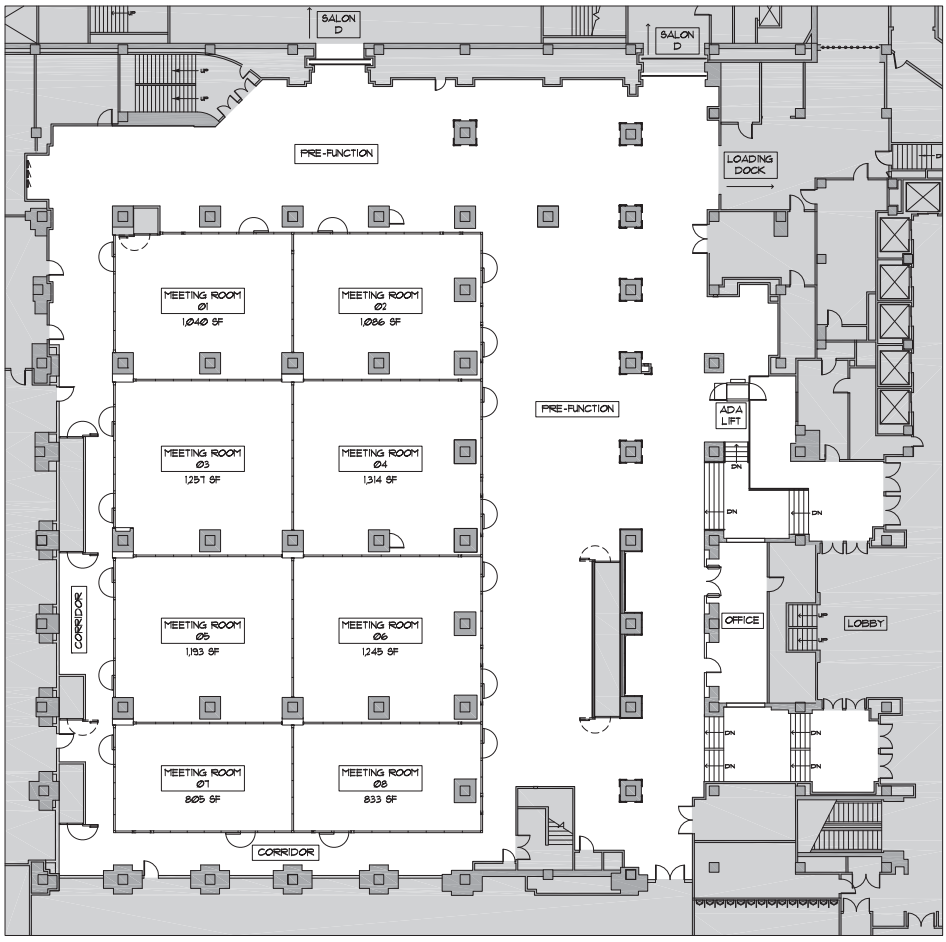
HILTON CHICAGO LOWER LEVEL



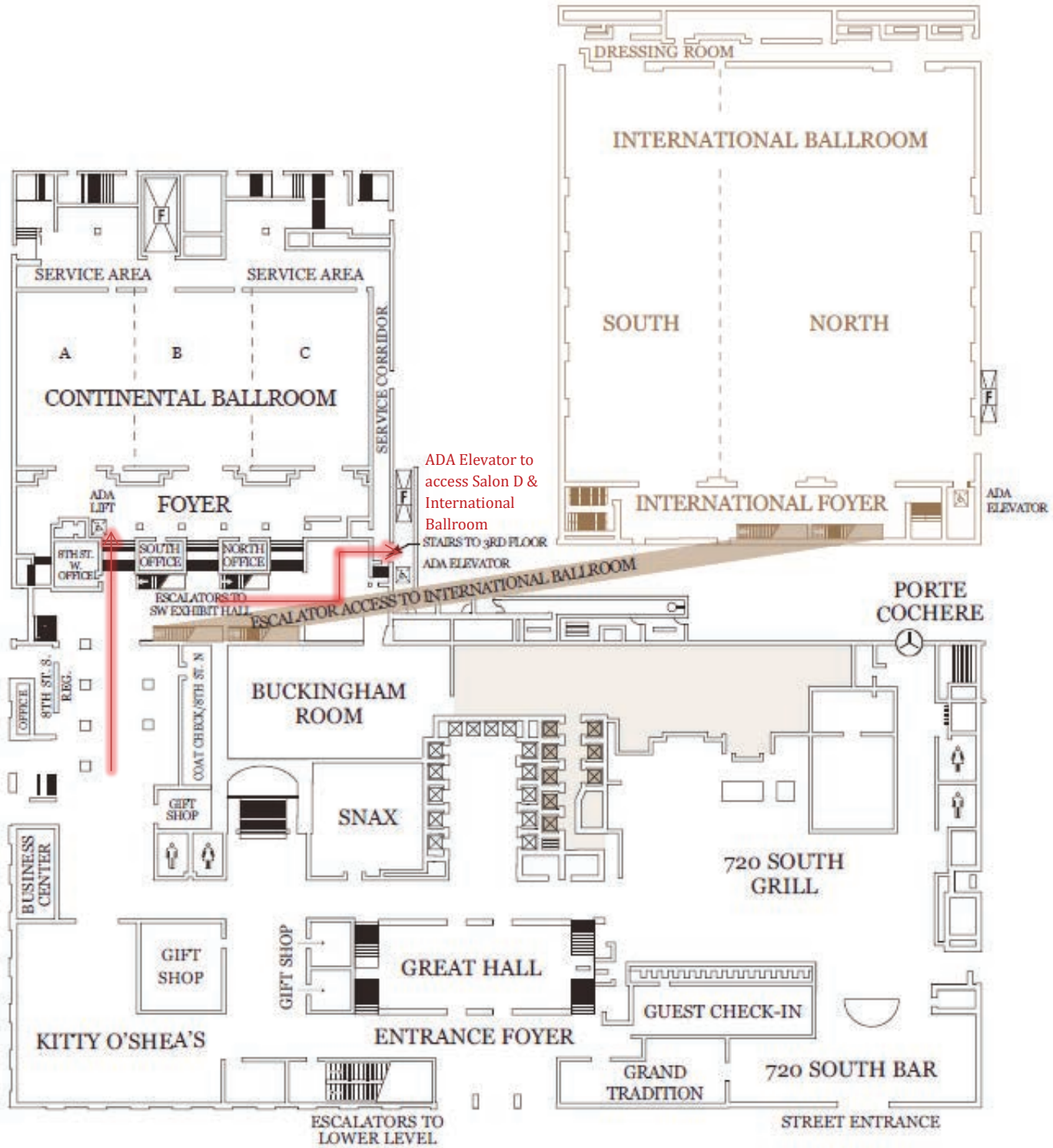
HILTON CHICAGO SALON A



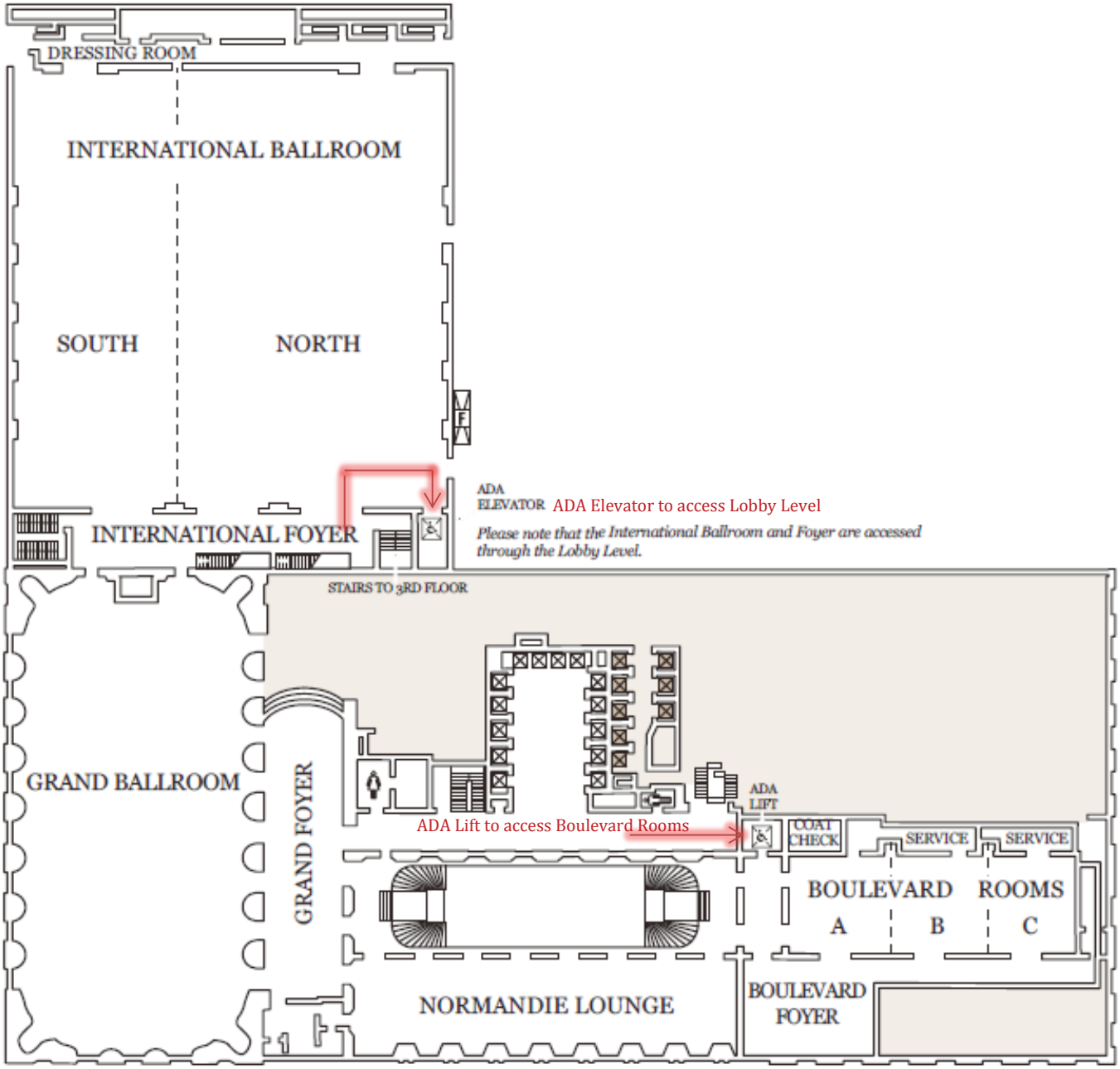
HILTON CHICAGO SALON C



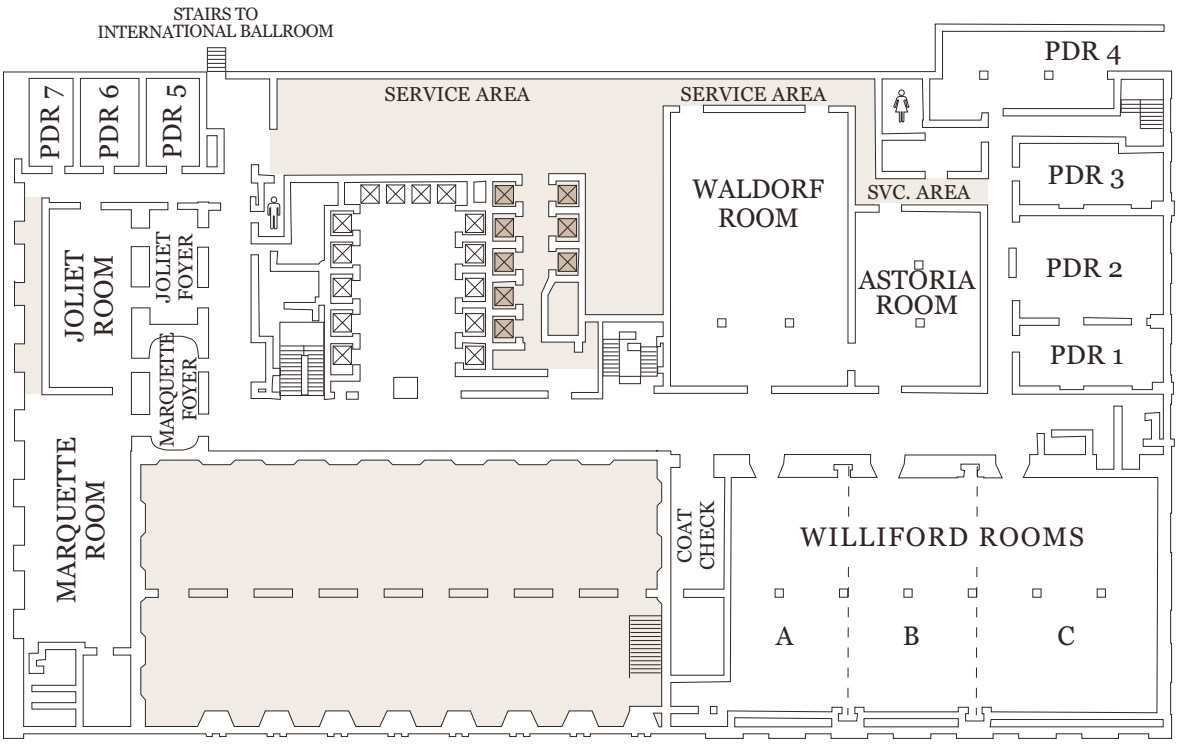
HILTON CHICAGO LOBBY LEVEL



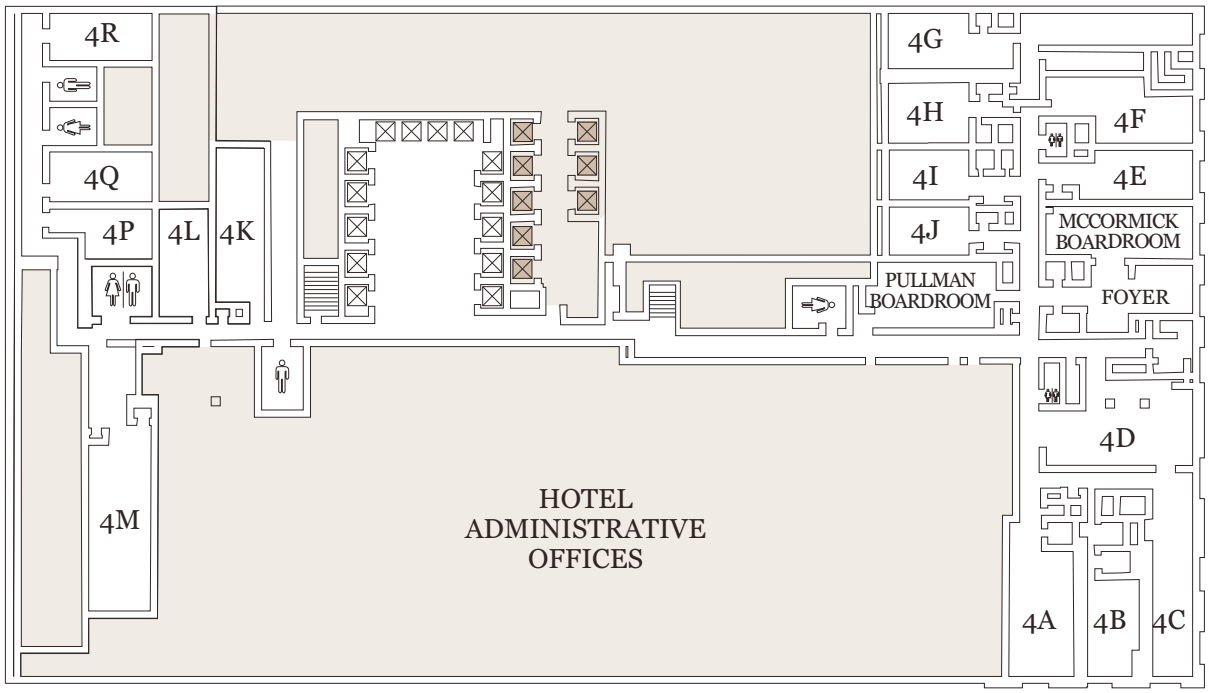
HILTON CHICAGO SECOND LEVEL



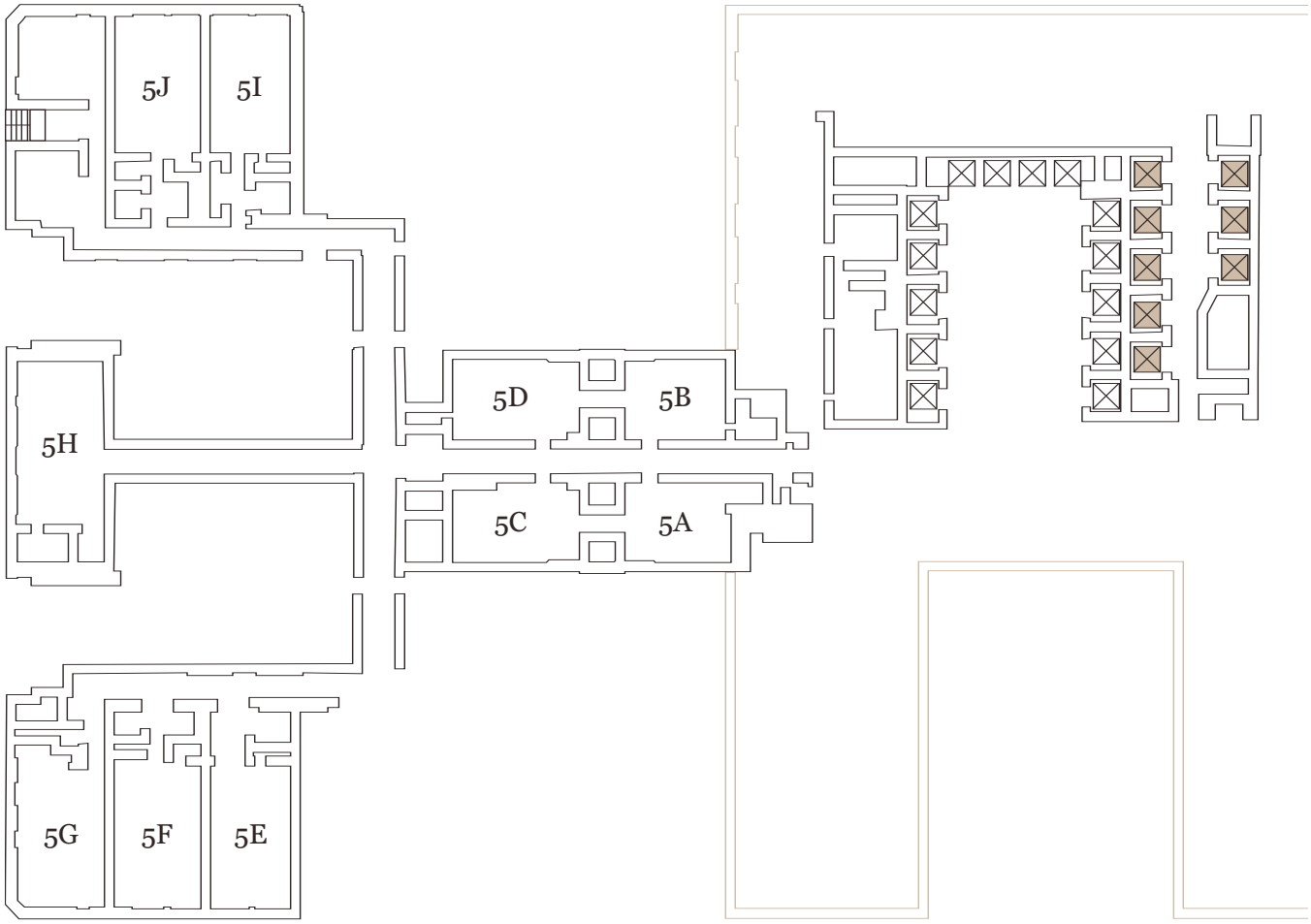
HILTON CHICAGO THIRD LEVEL



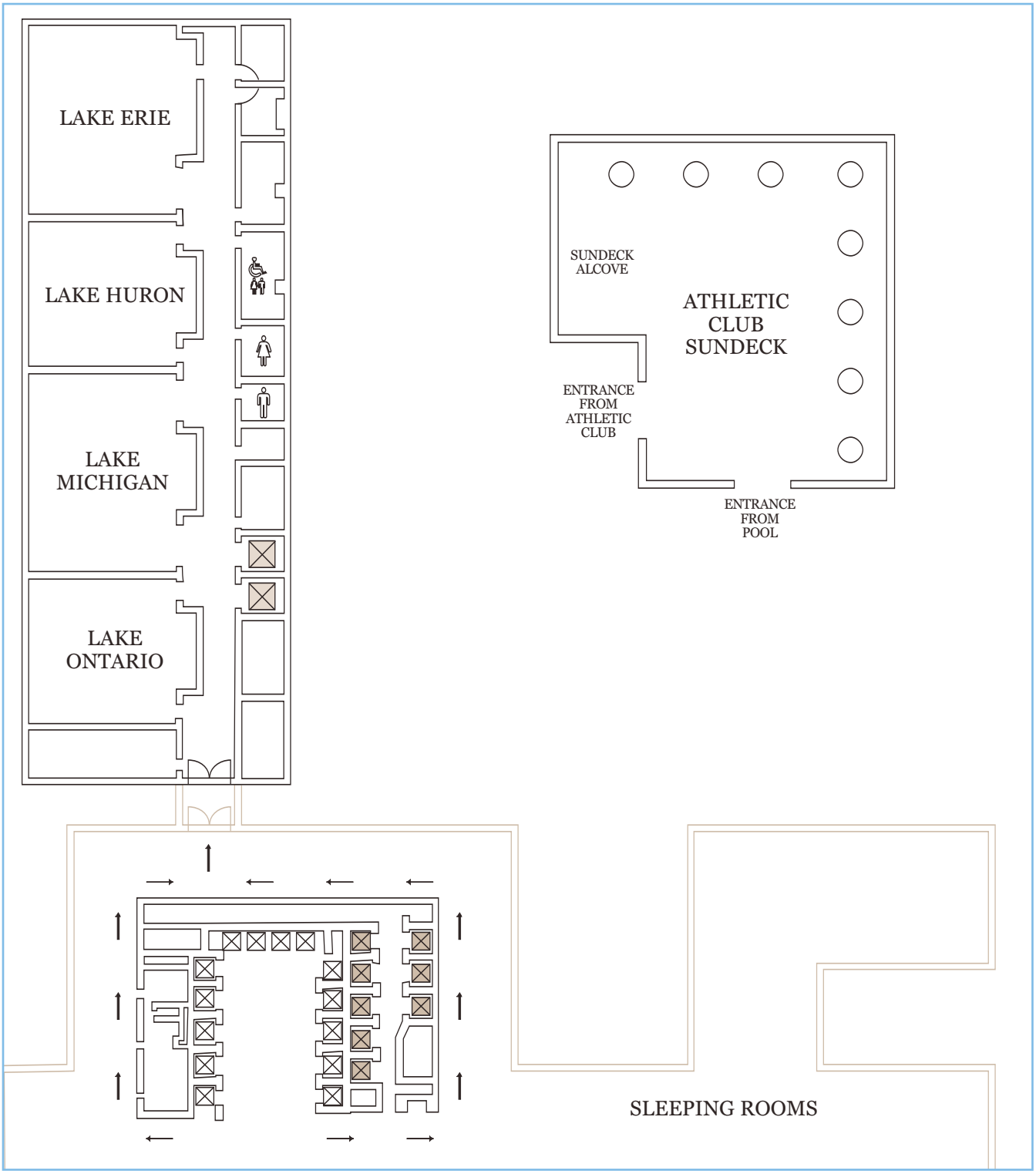
HILTON CHICAGO FOURTH LEVEL



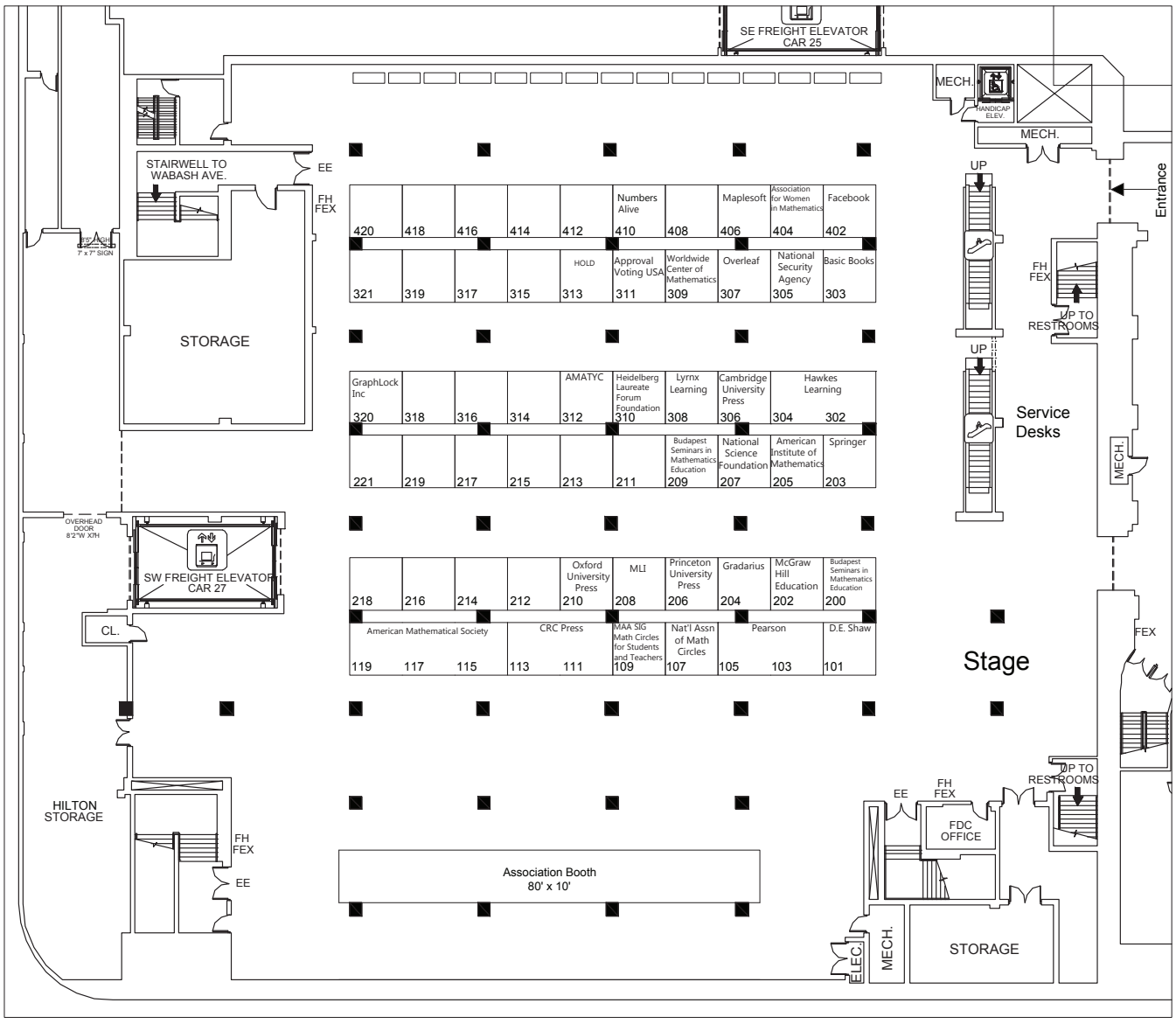
HILTON CHICAGO FIFTH LEVEL



HILTON CHICAGO EIGHTH LEVEL



HILTON CHICAGO EXHIBIT HALL

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See you in Denver, Colorado

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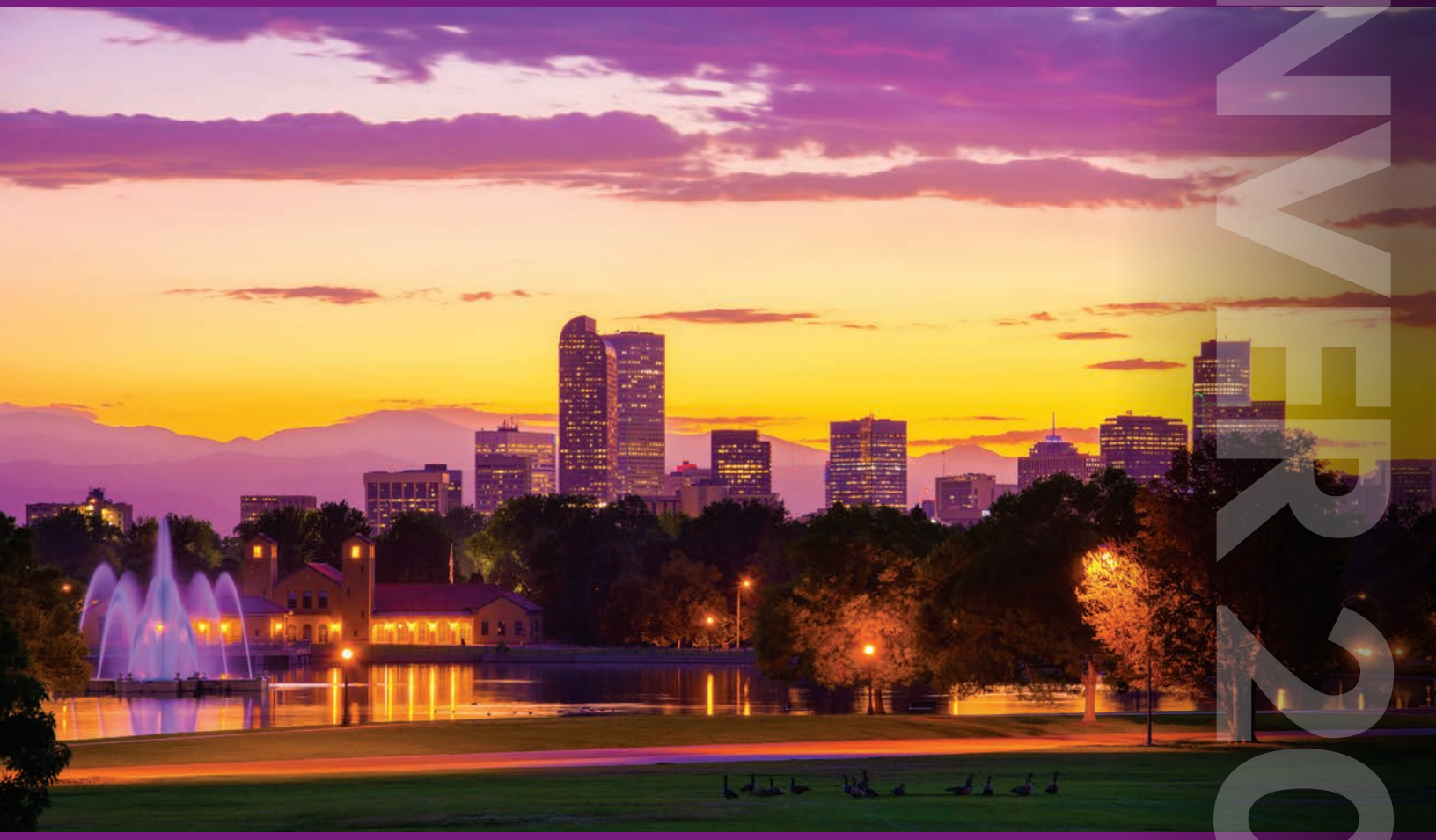

DENVER 2018