

MathFest

July 31 - August 2 | 2008
Madison, Wisconsin



Annual Summer Meeting of the Mathematical Association of America 



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MathFest

July 31 - August 2 | 2008
Madison, Wisconsin

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Monday, July 28

- 11:00am–5:00pm** **Project NExT Registration**
*1st Floor Lobby
 Univ. of Wisconsin
 Lowell Center*
- 1:30pm–9:00pm** **Project NExT Workshop
 (for 2008–2009 Fellows)**
*Univ. of Wisconsin
 Lowell and Pyle Centers*

Tuesday, July 29

- 8:00am–5:00pm** **Project NExT Registration**
*1st Floor Lobby
 Univ. of Wisconsin
 Lowell Center*
- 8:30am–5:25pm** **Project NExT Workshop
 (for 2008–2009 Fellows)**
*Univ. of Wisconsin
 Lowell and Pyle Centers*
- 9:00am–5:00pm** **Part 1: Two Day
 Short Course**
*Capital Ballroom B
 Concourse Hotel*
- Game–Theoretic Modeling:
 Techniques and Applications**
*Michael A. Jones,
 Montclair State University*
- 2:00pm–8:00pm** **New Governors
 Orientation**
Capitol A, Concourse Hotel

Wednesday, July 30

- 8:00am–5:00pm** **MAA Board of Governors**
Capital AB, Concourse Hotel

- 8:00am–5:00pm** **Project NExT Registration**
*1st Floor Lobby
 Univ. of Wisconsin
 Lowell Center*
- 8:15am–5:30pm** **Project NExT Workshop
 (for 2007–2008 and
 2008–2009 Fellows)**
*Univ. of Wisconsin
 Lowell and Pyle Centers*
- 8:30am–2:30pm** **The Madison Tour**
Main Entrance, Concourse Hotel
- 9:00am–5:00pm** **Part 2: Two Day
 Short Course**
*Capital Ballroom B
 Concourse Hotel*
- Game–Theoretic Modeling:
 Techniques and Applications**
*Michael A. Jones,
 Montclair State University*
- 2:00pm–7:00pm** **Registration**
*Lakeside Commons, Level 1
 Monona Terrace*
- 2:45pm–4:00pm** **CUSAC Meeting**
*Concourse Hotel,
 Conference Room II*
- 4:30pm–5:30pm** **MAA–PME Student
 Reception**
*Senate Rooms AB
 Concourse Hotel*
- 5:30pm–6:45pm** **Undergraduate Activity**
*Wisconsin Ballroom
 Concourse Hotel*
- Math JEOPARDY**
John Harris, Furman University
- Mike Berry,
 University of Tennessee*
- Mike Mossinghoff,
 Davidson College*

6:30pm–7:30pm **Opening Reception**
*Madison Ballroom
Monona Terrace*

7:30pm–9:30pm **Opening Banquet**
*Capitol AB Ballroom,
Monona Terrace*

Thursday, July 31

8:00am – 4:00pm **Registration**
*Lakeside Commons
Level 1, Monona Terrace*

8:30am–9:20am **MAA Invited Address**
Ballroom AB, Monona Terrace
**Intellectual Need and its Role
in Mathematics Instruction**
*Guershon Harel, University of
California, San Diego*

8:30am–10:30am **Contributed Paper Session**
Hall Ideas E, Monona Terrace
**Fascinating Examples from
Combinatorics, Discrete
Mathematics, and Graph
Theory**
Suzanne Dorée, Augsburg College
*Nancy Ann Neudauer,
Pacific University*

8:30am–8:45am **Applications of Graph
Theory to Conservation
Biology**
Kay Smith, Saint Olaf College

8:50am–9:05am **Equal Circle Packing On a
Square Torus**
*William Dickinson, Grand Valley
State University*

9:10am–9:25am **Solving Instant Insanity
Without Going Insane**
*Rachel Marie Robertson, Michigan
Technological University*

9:30am–9:40am **The Guessing Secrets
Problem: Classical
and Quantum Algorithms**
*Michael Nathanson, St. Mary's
College of California*

9:50am–10:05am **Permutation Patterns and
Patience Sorting:
Sophisticated Combinatorics
From a Simple Card Game**
*Isaiah Lankham,
Simpson University*

8:30am–10:30am **Contributed Paper Session**
Hall Ideas F, Monona Terrace
**Interesting Topics in History
of Mathematics That
Enhance the Teaching and
Learning of Mathematics I**
*Daniel Curtin, Northern
Kentucky University*
*Amy Shell–Gellasch,
Pacific Lutheran University*

8:30am–8:40am **Conjectures on Egyptian
Fractions**
*Mehdi Radjabalipour,
University of Keman*

8:45am–8:55am **Brain Injury and
Mathematical Discovery:
The Enigma of Stanislaw
Ulam**
*Alexander G. Atwood, Suffolk
County Community College*

9:00am–9:10am **Edlin's Enigma**
*Anne E. Edlin,
La Salle University*

9:15am–9:25am **Maya Mathematical
Presentation**
*Doy O. Hollman,
Lipscomb University*

Schedule of Events | Thursday

9:30am–9:40am	<p>My Mathematician is Better than Your Mathematician</p> <p><i>Sarah Mabrouk, Framingham State University</i></p>
9:45am–9:55am	<p>Positive Impacts From Using the History of Mathematics When Teaching Students With Weak Mathematical Backgrounds</p> <p><i>Ciaran Mac an Bhaird, National University of Ireland, Maynooth</i></p>
10:00am–10:10am	<p>The Calculation of Galois Groups By Classical Methods With the Aid of Mathematica</p> <p><i>Matt David Lunsford, Union University</i></p>
10:15am–10:30am	<p>The Role of History of Mathematics</p> <p><i>Dr. Pragati, Jain, SIMS, Indore</i></p>
8:30am–10:30am	<p>General Contributed Paper Session I</p> <p><i>Meeting Room O Monona Terrace</i></p> <p><i>Sarah Mabrouk, Framingham State College</i></p>
8:30am–8:40am	<p>Redesigning Developmental Math to More Efficient and Effective</p> <p><i>Sue Beck, Morehead State University</i></p>
8:45am–8:55am	<p>Report on Progress in Developmental Algebra at Lindsey Wilson College</p> <p><i>Scott Dillery, Lindsey Wilson College</i></p>
9:00am–9:10am	<p>Using a Homework Notebook in College Algebra</p> <p><i>Patricia Kihne, Illinois College</i></p>

9:15am–9:25am	<p>Math Chats: Engaging Students in Mathematics Outside the Classroom</p> <p><i>Robin Lydiann Anderson, Southwestern Illinois College</i></p>
9:30am–9:40am	<p>Mathematics Skills Assessment and Training in Freshman Engineering Courses</p> <p><i>Janet Marie McShane, Phillip Mlsna, Jennifer Maynard, Chester Ismay, and Sarah Brown, Northern Arizona University</i></p>
9:45am–9:55am	<p>Lessons Learned From a Calculus Redesign Project</p> <p><i>Jennifer McLoud–Mann, University of Texas at Tyler</i></p>
10:00am–10:10am	<p>Google’s PageRank for Beginners: A Directed Graph Example for Liberal Arts Math Courses</p> <p><i>Rebecca S. Wills, Roanoke College</i></p>
10:15am–10:25am	<p>Frontloading Statistical Inference Topics in an Introductory Statistics Course</p> <p><i>Kate McGivney, Shippensburg University</i></p>
8:30am–10:30am	<p>MAA Student Paper Session (1)</p> <p><i>Meeting Room L Monona Terrace</i></p>
8:30am–10:30am	<p>MAA Student Paper Session (2)</p> <p><i>Meeting Room M Monona Terrace</i></p>
8:30am–10:30am	<p>MAA Student Paper Session (3)</p> <p><i>Meeting Room N, Monona Terrace</i></p>

8:30am–10:30am **MAA Student Paper Session (4)**
Meeting Room Q, Monona Terrace

8:30am–10:30am **MAA Student Paper Session (5)**
Meeting Room R, Monona Terrace

9:00am–10:20am **Panels and Other Sessions**
Ballroom C, Monona Terrace

The Role of Quantitative Literacy Centers in Supporting Students and Faculty
Maura Mast, University of Massachusetts, Boston

9:00am–5:00pm **Art Exhibit**
*Exhibit Hall B
 Monona Terrace*

9:00am–5:00pm **Exhibits and Book Sales**
*Exhibit Hall B
 Monona Terrace*

9:00am–5:00pm **Undergraduate Activities**
*Exhibit Hall B, Monona Terrace
 Student Hospitality Center*

*Richard and Araceli Neal,
 American Society for the
 Communications of Math*

9:30am–10:20am **MAA Invited Address**
Ballroom AB, Monona Terrace

Ecological and Evolutionary Consequences of Species Interactions
*Claudia Neuhauser,
 University of Minnesota*

9:30am–10:30am **Contributed Paper Session**
Hall Ideas I, Monona Terrace

Teaching Mathematics and Statistics Through Current Civic Issues
*Rikki Wagstrom and
 Cynthia Kaus,
 Metropolitan State University*

9:30am–9:45am **Developing “Mathematics and Social Justice.” A Course Which Incorporates Social Justice Issues and Service–Learning Projects**
Lisa Marano, West Chester University of Pennsylvania

9:50am–10:05am **Global Consciousness, Social Responsibility, Ethical Awareness (and MATH!) at Westminster**
*Bradford Bynum,
 Westminster College*

10:10am–10:25am **Integrating Service Learning Projects in a Differential Equations Course**
John Zobitz, Augsburg College

10:30am–11:20am **Earle R. Hedrick Lecture Series**
Ballroom AB, Monona Terrace

Lecture 1 | Mathematics Meets Art, Puzzles, and Magic
Erik Demaine, Massachusetts Institute of Technology

1:00pm–1:50pm **MAA Lecture for Students**
Ballroom A, Monona Terrace

Sudoku: Questions, Variations, and Research
*Laura Taalman,
 James Madison University*

1:00pm–2:20pm **Panels and Other Sessions**
Lecture Hall, Monona Terrace

Writing for MAA Periodicals
Lowell Beineke, Indiana University–Purdue University Fort Wayne and Editor, The College Mathematics Journal

Ivars Peterson, MAA Director of Publications for Journals and Communications

1:00pm–3:00pm **Contributed Paper Session**
Ballroom D, Monona Terrace

Integrating Biology and Mathematics
James Fulton, Suffolk County Community College

Timothy Comar, Benedictine University

1:00pm–1:20pm **Analyzing the Interaction of Species: Game Theory in a Calculus Course**
Lee Stemkoski, Adelphi University

1:20pm–1:40pm **Biofuels, Useful Arithmetic and Embodied Energy**
Ben Fusaro, Florida State University

1:40pm–2:00pm **Biology, Discrete Mathematics and Theoretical Computer Science**
Dr. Atabong Timothy Agendia and Dr. Awunglefack Dominic Fobellah, BaaP Systems

2:00pm–2:20pm **Using Knot Theory to Model DNA: An Undergraduate Research Project**
William Schellhorn, Simpson College

2:20pm–2:40pm **Teaching Mathematics to Biology Majors Using the Scientific Method**
James Fulton and Linda Sabatino, Suffolk County Community College

2:40pm–3:00pm **Discussion on Integrating Biology and Mathematics**
James Fulton, Suffolk County Community College

Timothy Comar, Benedictine University

1:00pm–3:00pm **Contributed Paper Session**
Hall Ideas E, Monona Terrace

Advances in Recreational Mathematics
Paul R. Coe and Kristen Schemmerhorn, Dominican University

1:00pm–1:15pm **Problems From the Pages of the Journal of Recreational Mathematics That are Still Unsolved**
Charles Ashbacher, Mount Mercy College

1:20pm–1:35pm **Combinatorics, Probabilities, and the NCAA Basketball Tournaments**
Matthew Menzel, Marietta College

1:40pm–1:55pm **Re-Distributing and Reconstruction Probabilities in Horse Races, Voting Theory, and Poker**
Michael Jones and John Stevens, Montclair State University

2:00pm–2:15pm **Voting Off: How Bad Can It Be?**
Dylan Helliwell, Seattle University

2:20pm–2:35pm **Mathematical Thinking With Magic Squares**
Hossein Behforooz, Utica College

2:40pm–2:55pm **Stuck in a Sudoku**
Helen Schroeder, University of Wisconsin – Stout

1:00pm–3:00pm **Contributed Paper Session**
Hall Ideas I, Monona Terrace
Teaching Mathematics and Statistics Through Current Civic Issues
Rikki Wagstrom and Cynthia Kaus, Metropolitan State University

1:00pm–1:20pm **Authentic Discovery Learning Projects in Statistics with Constructs From Environmental and Social Science Disciplines**
Diana Spence and Robb Sin, North Georgia College & State University

1:20pm–1:40pm **The Gini Coefficient: Measuring Inequality in Resource Allocation**
Michael Catalano, Dakota Wesleyan University

1:40pm–2:00pm **Confounder Influence on Cases Attributed**
Milo Schield, W. M. Keck Statistical Literacy Project

2:00pm–2:20pm **Equity: Not Just a Goal, But a Vehicle in Introductory Statistics**
Lawrence Lesser, The University of Texas at El Paso

2:20pm–2:40pm **College Algebra in Context: A Report and Examples From an NSF Project**
Michael Catalano, Thomas Pfaff and Tanya Leise, Dakota Wesleyan University

2:40pm–3:00pm **The Homeless Average Age 9? Examining a Bad Statistic**
Adam Molnar, Bellarmine University

1:00pm–3:00pm **Minicourse | 1**
Hall Ideas G, Monona Terrace
A Game Theory Path to Quantitative Literacy
Rick Gillman, Valparaiso University
David Housman, Goshen College

1:00pm–3:00pm **General Contributed Paper Session 2**
Meeting Room O Monona Terrace
Sarah Mabrouk, Framingham State College

1:00pm–1:10pm **Mathematical Myths: Some Interesting Facts and Fictions**
Linda Becerra and Ron Barnes, University of Houston–Downtown

1:15pm–1:25pm **Resourceful Session Before a Developmental Math Test**
Gowribalan Ananda Vamadeva, University of Cincinnati

1:30pm–1:40pm **Developing Mathematical Thinkers – Laying the Foundation for Successful Math Majors**
Trae Holcomb, United States Air Force Academy

1:45pm–1:55pm **The “No WAY!” Moment in Mathematics**
Mike Krebs, California State University, Los Angeles

Schedule of Events | Thursday

Schedule of Events | Thursday

2:00pm–2:10pm **Visual Mathematics for the Visually Impaired: Reflections and Strategies**
Mandi Shea Maxwell, Trinity Christian College

2:15pm–2:25pm **The Ultimate Class Project ...and No Grade!**
Terry Jo Leiterman, St. Norbert College

2:30pm–2:40pm **The Mathematics of Games as Experiential Learning**
Jacob Robert Heidenreich, Loras College

2:45pm–2:55pm **Academic Program Review**
Siamack Bondari and Monika Vo, Saint Leo University

1:00pm–3:00pm **Minicourse | 2**
Hall Ideas J, Monona Terrace
The Ubiquitous Catalan Numbers and Their Applications
Thomas Koshy, Framingham State College

1:00pm–4:00pm **Invited Paper Session**
Ballroom C, Monona Terrace
Classical Euclidean Geometry
Paul Yiu, Florida Atlantic University

1:00pm–1:30pm **The Circles of Lester, Evans, Parry, and Their Generalizations**
Paul Yiu, Florida Atlantic University

1:30pm–2:00pm **Use of Oriented Angles and Their Extension to n -Sections**
Eisso J. Atzema, University of Maine

2:00pm–2:30pm **High Points in the Encyclopedia of Triangle Centers**
Clark Kimberling, University of Evansville

2:30pm–3:00pm **Special Quadrilaterals and Special Conics**
James L. Parish, Southern Illinois University at Edwardsville

3:00pm–3:30pm **Algebraic Ramifications in Triangle Geometry**
Steve Sigur, The Paideia School, Atlanta, Georgia

3:30pm–4:00pm **The Equation of Euler’s Line Yields a Tzitzeica Surface**
Bogdan Suceava, California State University, Fullerton

1:00pm–5:00pm **Project NExT**
Doty, Hilton

1:00pm–5:00pm **Project NExT**
Vilas, Hilton

1:00pm–5:00pm **Project NExT**
Tenny, Hilton

2:00pm–3:00pm **Green Tour**
Meet at Lakeside Commons, Monona Terrace

2:00pm–5:00pm **Invited Paper Session**
Hall Ideas H, Monona Terrace
Isoperimetric Problems and Manifolds With Density
Frank Morgan, Williams College

2:00pm–3:55pm **Pi Mu Epsilon Student Paper Session 1**
Meeting Room L, Monona Terrace

2:00pm–3:55pm **Pi Mu Epsilon Student Paper Session 2**
Meeting Room M, Monona Terrace

2:00pm–3:55pm **MAA Student Paper Session 6**
Meeting Room N, Monona Terrace

2:00pm–3:55pm **MAA Student Paper Session 7**
Meeting Room Q, Monona Terrace

2:00pm–3:55pm **MAA Student Paper Session 8**
Meeting Room R, Monona Terrace

2:30pm–5:00pm **Panels and Other Sessions**
Ballroom B, Monona Terrace
MAA Section Officers Meeting
Moderator: Nancy L. Hagelgans, Ursinus College

3:00pm–4:20pm **Panels and Other Sessions**
Lecture Hall, Monona Terrace
SUMMA Special Session on MAA Summer Research Programs
William Hawkins, MAA and University of the District of Columbia
Robert Megginson, University of Michigan

3:15pm–5:15pm **General Contributed Paper Session 3**
Meeting Room O Monona Terrace
Sarah Mabrouk, Framingham State College

3:15pm–3:25pm **Pizza Delivery: 2–Stop–Return Distances in Graphs**
Raluca Gera, Naval Postgraduate School
Linda Eroh, Steven J. Winters, and Grady Bullington, University of Wisconsin-Oshkosh

3:30pm–3:40pm **Three Colorings in Graphs**
Gary Chartrand and Ping Zhang, Western Michigan University
Futaba Okamoto, University of Wisconsin–La Crosse
Zsolt Tuza, Hungarian Academy of Sciences, University of Pannonia

3:45pm–3:55pm **Signed Graph Coloring, a Theorem of Jacobi, and the Art of Linear Algebra**
Steven Morse and Elisha Peterson, United States Military Academy (West Point)

4:00pm–4:10pm **Open Source Software: What Can It Do for You?**
Tony Weathers, Adams State College

4:15pm–4:25pm **Validating the Warrant $P(k) \rightarrow P(k+1)$: Does Any Means Justify the Ends?**
Tabitha T. Mingus, Western Michigan University
Richard M. Grassl, University of Northern Colorado

4:30pm–4:40pm **The Lorentz Transformation as a Visual Consequence of the Swiveled Line Theorem**
John E. dePillis, University of California, Riverside

4:45pm–4:55pm **The Explicit Solution to an Infinite Linear Differential Equation System**
Mahmoud F. Almanassra, University of Wisconsin–Marinette

5:00pm–5:10pm **Exploring Prime Gaps with CAS (Computer Algebra System) Technology**
Jay Lawrence Schiffman, Rowan University

3:15 pm–5:45pm	<p>Invited Paper Session <i>Ballroom D, Monona Terrace</i></p> <p>Graph Theory With Connections to Geometry and Topology</p> <p><i>Joshua Laison, Willamette University</i></p>	3:35pm–3:50pm	<p>What is Mathematics and Why Won't It Go Away?</p> <p><i>Susan Jane Colley, Oberlin College</i></p>
3:15pm–3:45pm	<p>An Adventurer's Guide to the Colorful Tale of Thickness—Two Graphs</p> <p><i>Ellen Gethner, University of Colorado – Denver</i></p>	3:55pm–4:10pm	<p>Teaching Art, Literature, Science, Theater, Speech, and Computer Science All in One Mathematics Course</p> <p><i>Julie Barnes, Western Carolina University</i></p>
3:45pm–4:15pm	<p>Visibility Graphs: Different Models of Sight</p> <p><i>Stephen Hartke, University of Nebraska – Lincoln</i></p>	4:15pm–4:30pm	<p>Viewing Mathematics as Human Endeavor</p> <p><i>Mike Pinter, Belmont University</i></p>
4:15pm–4:45pm	<p>Recent Rectangle Visibility Results</p> <p><i>Alice Dean, Skidmore College</i></p>	4:35pm–4:50pm	<p>MathTV: A Curiously Funny Mathematical Production</p> <p><i>Michelle Ghrist, U.S. Air Force Academy</i></p>
4:45pm–5:15pm	<p>Crossing Numbers</p> <p><i>Michael Pelsmajer, Illinois Institute of Technology</i></p>	4:55pm–5:10pm	<p>This World, and Others: <i>FLATLAND</i> in the Classroom, Rehearsal Studio, Theater, and Beyond</p> <p><i>Mary Paulson, Madison East High School</i></p>
5:15pm–5:45pm	<p>Recognition Algorithms for Some Generalization of Interval Graphs</p> <p><i>Art Busch, University of Dayton</i></p>	5:15pm–5:30pm	<p>Mathematicians Can Participate in Faculty Development for the Arts & Humanities</p> <p><i>David Edward Boliver, University of Central Oklahoma</i></p>
3:15pm–6:15pm	<p>Contributed Paper Session <i>Hall Ideas F, Monona Terrace</i></p> <p>Incorporating Humanities and the Arts into the Mathematics Classroom (and Vice Versa)</p> <p><i>Michelle Ghrist, U.S. Air Force Academy</i></p>	5:35pm–5:50pm	<p>Combinators, Topology, and Graph Theory in Jorge Luis Borges' Short Story "The Library of Babel"</p> <p><i>William L. Bloch, Wheaton College</i></p>
3:15pm–3:30pm	<p>Mandala as the Key to Teaching Trigonometry to Multiple Intelligences</p> <p><i>Paul F. Stang</i></p>		

5:55pm–6:10pm **Running Circles ‘round the Truth: A Mathematical Perspective on Deconstructive**
Michael Wodzak, Viterbo University

3:15pm–6:15pm **Contributed Paper Session**
Hall Ideas I, Monona Terrace
Actual Problems, Actual Mathematics – Applied Mathematics in Science and the Classroom I
William Stone, New Mexico Institute of Mining and Technology
Stephen Davis, Davidson College

3:15pm–3:30pm **Quartic Equations Applied to 6–DOF Wiimote Tracking**
William Stone, New Mexico Institute of Mining and Technology
Stephen Davis, Davidson College

3:35pm–3:50pm **Energy Efficient Flight: Decision–Making Mathematics Glider Pilots Use to Soar Great Distance**
Michael Lundin, Central Washington University

3:55pm–4:10pm **What Else Can You Do With an Open Topped Box?**
Doug Shaw, University of Northern Iowa

4:15pm–4:30pm **The Math Behind a Roll–Call Vote**
Chen–Han Sung, Texas A&M International University

4:35pm–4:50pm **Gender Division of Labor in Parenting: A Game–Theoretic Perspective**
Angela Vierling–Claassen, Lesley University

4:55pm–5:10pm **Four Stories in Applied Mathematics**
William Joseph Stazer, 3M Company

5:15pm–5:30pm **Elementary Physical Chemistry Problems in Multi–Variable Calculus**
George Rublein, College of William and Mary

5:35pm–5:50pm **Predator–Prey Models – A Generalization of Lotka–Volterra Model**
Leon Kaganovskiy, New College of Florida

5:55pm–6:10pm **The Brachistochrone Revisited: A Timely Consideration**
Alfred Paul Lehnen, Madison Area Technical College

3:30pm–5:00pm **Graduate Student Sessions**
Exhibit Hall B, Monona Terrace
Graduate Student Poster Session
James Freeman, Cornell College

3:30pm–5:30pm **Minicourse | 3**
Hall Ideas G, Monona Terrace
Teaching a Proof–Based Course as the Gateway to the Mathematics Major
James Sandefur, Georgetown University
Connie Campbell, Millsaps College

3:30pm–5:30pm	<p>Minicourse 4 <i>Hall Ideas J, Monona Terrace</i></p> <p>How to Run a Successful Math Circle <i>Matthias Beck, San Francisco State University</i></p> <p><i>Tatiana Shubin, San Jose State University</i></p> <p><i>Sam Vandervelde, Saint Lawrence University</i></p>
4:00pm–5:00pm	<p>Panels and Other Sessions <i>Ballroom A, Monona Terrace</i></p> <p>SIGMAA on the History of Mathematics</p> <p>Grand Unveiling and Reception <i>Amy Shell–Gellasch, Pacific Lutheran University</i></p>
4:20pm–6:15pm	<p>Undergraduate Activities</p> <p>Pi Mu Epsilon Student Paper Session 3 <i>Meeting Room L, Monona Terrace</i></p>
4:20pm–6:15pm	<p>Pi Mu Epsilon Student Paper Session 4 <i>Meeting Room M, Monona Terrace</i></p>
4:20pm–6:15pm	<p>MAA Student Paper Session 9 <i>Meeting Room N, Monona Terrace</i></p>
4:20pm–6:15pm	<p>MAA Student Paper Session 10 <i>Meeting Room Q, Monona Terrace</i></p>
4:20pm–6:15pm	<p>MAA Student Paper Session 11 <i>Meeting Room R, Monona Terrace</i></p>

5:00pm–6:00pm	<p>Graduate Student Session <i>Senate AB, Concourse Hotel</i></p> <p>Graduate Student Reception <i>David Manderscheid, University of Nebraska–Lincoln</i></p> <p><i>James Freeman, Cornell College</i></p>
5:00pm–6:30pm	<p>SIGMAA on Teaching Advanced High School Mathematics <i>Ballroom C, Monona Terrace</i></p> <p>Business Meeting and Reception</p> <p>Creating a Post–Calculus Pre–Calculus Course for Advanced High School Students</p>
7:00pm–10:00pm	<p>Jazz on the Terrace <i>Rooftop, Monona Terrace</i></p>

Friday, August 1

8:00am – 4:00pm	<p>Registration <i>Lakeside Commons, Level 1, Monona Terrace</i></p>
8:30am–9:20am	<p>MAA Invited Address <i>Ballroom AB, Monona Terrace</i></p> <p>The Chaotic Evolution of Newton’s Universe <i>Donald Saari, University of California, Irvine</i></p>
8:30am–10:30am	<p>General Contributed Paper Session 4 <i>Meeting Room O, Monona Terrace</i></p> <p><i>Sarah Mabrouk, Framingham State College</i></p>

8:30am–8:40am **The Status of Mathematics Education in Palestine**
AbdelNaser Al–Hasan, MSOE & An–Najah National University

8:45am–8:55am **Assessing General Education Mathematics Courses**
James Hamblin, Shippensburg University

9:00am–9:10am **Calculus: One Lesson Study at a Time**
Joy Becker, Christopher P. Bendel, and Helen Schroeder, University of Wisconsin–Stout

9:15am–9:25am **Applying Active–Cooperative Learning in Calculus 1**
Christopher K. Cartwright, Lawrence Technological University

9:30am–9:40am **Calculus: Where We’ve Been; Where Are We Going?**
Karen Rhea, University of Michigan

9:45am–9:55am **CAGD, Geometer’s Sketchpad and Secondary Mathematics**
Murphy Waggoner, Simpson College

10:00am–10:10am **Mathematicians’ Uses of Computer Algebra Systems in Mathematics Teaching in the UK, US, and Hungary**
Zsolt Lavicza, University of Cambridge
Laszlo Erdodi, Eastern Michigan University

10:15am–10:25am **Teaching Statistics from A to Z**
Jason Joseph Moliterno, Sacred Heart University

8:30am–10:30am **MAA Student Paper Session 12**
Meeting Room L, Monona Terrace

8:30am–10:30am **MAA Student Paper Session 13**
Meeting Room M Monona Terrace

8:30am–10:30am **MAA Student Paper Session 14**
Meeting Room N Monona Terrace

8:30am–10:30am **MAA Student Paper Session 15**
Meeting Room Q Monona Terrace

8:30am–10:30am **MAA Student Paper Session 16**
Meeting Room R Monona Terrace

8:30am–10:30am **Contributed Paper Session**
Hall Ideas E, Monona Terrace
Fascinating Examples from Combinatorics, Discrete Mathematics, and Graph Theory
Suzanne Dorée, Augsburg College
Nancy Ann Neudauer, Pacific University

8:30am–8:45am **Adapting Hosoya’s Topological Index as a Local Vertex Environment Descriptor**
Matthew G. Hudelson, Washington State University

8:50am–9:05am **Viewing the Hamming Code in its Natural Habitat**
Paul Weiner, Saint Mary’s University of Minnesota

Schedule of Events | Friday

9:10am–9:25am MIT vs. Harvard: The Mathematics of Good Will Hunting
Kristina Garrett, St. Olaf College

9:30am–9:45am Generalized Permutation Descents and Inversions Controlled By a Drop Sequence
William Griffiths IV and Albert Bush, Southern Polytechnic State University

9:50am–10:05am Edge Cut Cycles and Cutting Numbers of Cycles and Graphs
Dianna Spence, Brad Bailey, and John Holliday, North Georgia College and State University
Peter D. Johnson, Auburn University

10:10am–10:25am Cover Times for Stars, Sparklers, and the Petersen Graph
Robert Dobrow, Rebecca Ferrell, Miranda Fix and Michael Duyzend, Carleton College

8:30am–10:30am Contributed Paper Session
Hall Ideas F, Monona Terrace
Creative Uses of Emerging Technologies for Mathematics Teaching
Lila F. Roberts, Clayton State University
David R. Hill, Temple University

8:30am–8:45am Mathematics on the iPhone
Lila F. Roberts, Clayton State University

8:50am–9:05am Using Video Podcasts to Model Critical Thinking in Undergraduate Mathematics
Jennifer Kosiak, University of Wisconsin

9:10am–9:25am Using Technology to Promote Reflective Discourse: Combining Dynamically Connected Representations With Video Reflection
Douglas A. Lapp, Central Michigan University

9:30am–9:45am Popcorn Statistics
Allan Struthers, Michigan Technological University

9:50am–10:05am YouTube in the Classroom
Andrew S. Leahy, Knox College

10:10am–10:25am Online Collaboration with a Wiki in Real Analysis
Elisha Peterson, United States Military Academy

8:30am–10:30am Contributed Paper Session
Hall Ideas I, Monona Terrace
Incorporating Humanities and the Arts into the Mathematics Classroom (and Vice Versa)
Michelle Ghrist, U.S. Air Force Academy

8:30am–8:45am Math Modeling Can Help Build Bridges to the Humanities
Rick L. Spellerberg, Simpson College

8:50am–9:05am Group Theory is Child's Play
Pamela Warton, University of Findlay

9:10am–9:25am **Mathematical World:
Liberal Arts Mathematics
With an Art Emphasis**
Patricia Oakley, Goshen College

9:30am–9:45am **Perspective Drawing
Experiment in a Freshman
Interdisciplinary Seminar**
*Anna Davis,
Ohio Dominican University*

9:50am–10:05am **An Artistic Exploration
Within an Introduction
to Measure Theory and
Dimension**
*Zdenka Guadarrama,
Rockhurst University*

10:10am–10:25am **An “Unreasonable” Reading
Component to a Reasonable
Course: Readings for a
Transitional Class**
Gizem Karaali, Pomona College

9:00am–10:30am **SIGMAA on Research in
Undergraduate
Mathematics Education**
Meeting Room K, Monona Terrace

**Workshop on Essential
Reasoning Abilities and
Conceptual Foundations of
Calculus**
*Marilyn P. Carlson,
Arizona State University*

9:00am–5:00pm **Art Exhibit**
Exhibit Hall B, Monona Terrace

9:00am–5:00pm **Exhibits and Book Sales**
Exhibit Hall B, Monona Terrace

9:00am–5:00pm **Undergraduate Activities**
Exhibit Hall B, Monona Terrace

Student Hospitality Center
*Richard and Araceli Neal,
American Society for the
Communications of Math*

9:30am–10:20am **Earle R. Hedrick
Lecture Series**
Ballroom AB, Monona Terrace

**Lecture 2 | Origami, Linkages
and Polyhedra: Geometric
Folding Algorithms**
*Erik Demaine, Massachusetts
Institute of Technology*

10:30am–11:20am **James R. Leitzel Lecture**
Ballroom AB, Monona Terrace

**Building Mathematical
Communities**
*T. Christine Stevens,
Saint Louis University*

11:30am–12:00pm **MAA Prize Session**
Ballroom AB, Monona Terrace

Moderator: Martha J. Siegel

11:30am–12:30pm **Green Tour**
*Meet at Lakeside Commons,
Monona Terrace*

11:30am–1:30pm **Square Wheeled Bicycle
Demonstration**
Exhibit Hall B, Monona Terrace

1:00pm–1:50pm **NAM David Blackwell
Lecture**
Lecture Hall, Monona Terrace

**Random Dynamics and
Memory: Structure Within
Chaos**
*Salah–Eldin A. Mohammed,
Southern Illinois University–
Carbondale*

1:00pm–1:50pm **Undergraduate Activities
Session**
Ballroom A, Monona Terrace

What is the Color of My Hat?
Ezra (Bud) Brown, Virginia Tech

Schedule of Events | Friday

1:00pm–1:50pm Undergraduate Student Activities Session
Ballroom B, Monona Terrace

Mathematics in Forensics
Dan Russel, Oklahoma State Bureau of Investigation

1:00pm–3:00pm Invited Paper Session
Ballroom C, Monona Terrace

Ramanujan’s Impact on Number Theory—Then and Now
James Sellers, Penn State University
Krishna Alladi, University of Florida
George Andrews, Penn State University
Bruce Berndt, University of Illinois at Urbana–Champaign
Ken Ono, University of Wisconsin

1:00pm–3:00pm Invited Paper Session
Ballroom D, Monona Terrace

1:00pm–1:15pm Mathematical Biology
Julie Mitchell, University of Wisconsin

1:20pm–1:35pm Multiple Equilibria and Global Attractors in Biochemical Reaction Network Dynamics
Gheorghe Craciun, University of Wisconsin

1:40pm–1:55pm Physical Chemical Principles for Mathematical Analysis and Simulation of Large–Scale Biochemical Systems
Daniel Beard, Medical College of Wisconsin

2:00pm–2:15pm Modeling Protein – DNA Complexes Using Tangles
Isabel Darcy, University of Iowa

2:20pm–2:35pm Mathematical Modeling of Immune Response in Tissue
Bo Su, Iowa State University

1:00pm–3:00pm Contributed Paper Session
Hall Ideas H, Monona Terrace

Interesting Topics in History of Mathematics that Enhance the Teaching and Learning of Mathematics II
Daniel Curtin, Northern Kentucky University
Amy Shell–Gellasch, Pacific Lutheran University

1:00pm–1:15pm Motivating Infinite Series Through Modified Leap Years
Robert Myers, Bethel College

1:20pm–1:35pm Napier’s “Logarithms” Weren’t
Andrew deLong Martin, Kentucky State University

1:40pm–1:55pm Fermat’s Shrinking Rectangles
Amy Shell–Gellasch, Pacific Lutheran University

2:00pm–2:15pm It’s Just Thin Air: Resistance and Projectile Motion
Shawnee McMurrin, California State University San Bernardino

2:20pm–2:35pm Thomas Harriot’s Pythagorean Triples: Could He List Them All?
Janet L. Beery, University of Redlands

2:40pm–2:55pm What’s Interesting About the Number 1729?
Peter Schumer, Middlebury College

1:00pm–3:00pm **General Contributed Paper Session 5**
Meeting Room K, Monona Terrace
Sarah Mabrouk,
Framingham State College

1:00pm–1:10pm **Angle Trisection in the Nine Pointed Star, and Introducing Ψ**
Paul Stang

1:15pm–1:25pm **Dissecting $2n$ -Gons to Approximate the Circle–Squaring Process**
Pamela B. Pierce and
Jeffrey Willert,
The College of Wooster

1:30pm–1:40pm **Exploring a Quartet of Triangle Theorems – Old and New Insights via Geometer’s Sketchpad**
Gregory Gerard Wojnar, Frostburg State University

1:45pm–1:55pm **Limit Cycles From a Sum and Number of Digits Concatenated Sequence**
Richard Brazier, Penn State University– DuBois Campus
Shauna Knarr and
Andra Barraclough,
Penn State University

2:00pm–2:10pm **The Harmonic Series: Used, Abused, and Confused**
Scott Hochwald,
University of North Florida

2:15pm–2:25pm **A Streamfunction–Velocity Based Simulation of the Laminar Flow Past a Square Cylinder**
Jiten C. Kalita, Indian Institute of Technology Guwahati, INDIA

2:30pm–2:40pm **The Elementary Mathematical Theory of Parallelism, Convergence and Divergence**
Stewart Ernest Brekke,
International University for Graduate Studies

1:00pm–3:00pm **Minicourse | 2**
Hall Ideas J, Monona Terrace

The Ubiquitous Catalan Numbers and Their Applications

Thomas Koshy,
Framingham State College

1:00pm–3:00pm **Minicourse | 1**
Hall Ideas G, Monona Terrace

A Game Theory Path to Quantitative Literacy

Rick Gillman,
Valparaiso University

David Housman,
Goshen College

1:00pm–3:20pm **Contributed Paper Session**
Hall Ideas E, Monona Terrace

Projects and Demonstrations That Enhance a Differential Equations Course

Shawnee McMurrin,
California State University, San Bernardino

Richard Marchand,
Slippery Rock University

1:00pm–1:20pm **Exploring Differential Equations Using MS Excel**
Sarah Mabrouk,
Framingham State College

Schedule of Events | Friday

Schedule of Events | Friday

1:20pm–1:40pm	<p>The Laplace Transform: Motivating the Definition</p> <p><i>Howard I. Dwyer, Monmouth College</i></p>	1:20pm–1:35pm	<p>Using CaluMath Software to Create Interactive Web Pages for College Algebra, Pre–Calculus, and Calculus</p> <p><i>Peter Turbek, Purdue University Calumet</i></p>
1:40pm–2:00pm	<p>Integrating Synaptic Models into a Different Equations Course</p> <p><i>Joe Latulippe, Cal Poly Pomona</i></p>	1:40pm–1:55pm	<p>Interactive CaluMath Web Pages for College Algebra and Pre–Calculus</p> <p><i>Jeff Gregg, Purdue University Calumet</i></p>
2:00pm–2:20pm	<p>Desktop Circuits: Audio Data Collection</p> <p><i>Allen Struthers, Michigan Technological University</i></p>	2:00pm–2:15pm	<p>Capturing a Class: Adventures with Tegrity</p> <p><i>Kevin William Dennis and Chad Kjørlien, Saint Mary’s University of Minnesota</i></p>
2:20pm–2:40pm	<p>Getting Your Hands Wet in a Differential Equations Course</p> <p><i>Terry Jo Leiterman, St. Norbert College</i></p>	2:20pm–2:35pm	<p>“Tabulating” Mathematics</p> <p><i>Denise LeGrand and Sally Robinson, UALR</i></p>
2:40pm–3:00pm	<p>Fundamental Solutions of Dirac System</p> <p><i>Wen Liu and Gro Hovhannisyan, Kent State University</i></p>	2:40pm–2:55pm	<p>Using Tablet PCs in Calculus 1</p> <p><i>Christopher K. Cartwright, Lawrence Technological University</i></p>
3:00pm–3:20pm	<p>Stabilizing Elastic Beams</p> <p><i>Richard Marchand, Slippery Rock University</i></p>	3:00pm–3:15pm	<p>Using Clickers to Encourage Discussion and Communication in Mathematics</p> <p><i>Erick Hofacker and Kathryn Teresa Ernie, University of Wisconsin – River Falls</i></p>
1:00pm–4:00pm	<p>Contributed Paper Session</p> <p><i>Hall Ideas F, Monona Terrace</i></p> <p>Creative Uses of Emerging Technologies for Mathematics Teaching</p> <p><i>Lila F. Roberts, Clayton State University</i></p> <p><i>David R. Hill, Temple University</i></p>	3:20pm–3:35pm	<p>Using Clickers Toward Conceptual Understanding: Experiences in Statistical Courses</p> <p><i>Teri Jo Murphy, University of Oklahoma</i></p>
1:00pm–1:15pm	<p>Mathematical Handwriting Recognition for Education</p> <p><i>Peter Garst, Enventra, Inc.</i></p>	3:40pm–3:55pm	<p>ICLICK the MATH in Class</p> <p><i>Chen–Han Sung, Texas A&M International University</i></p>

1:00pm–5:00pm **Project NExT**
Doty, Hilton

1:00pm–5:00pm **Project NExT**
Vilas, Hilton

1:00pm–5:00pm **Project NExT**
Tenny, Hilton

2:00pm–3:30pm **Panels and Other Sessions**
Lecture Hall, Monona Terrace
MAA Alder Awards Session
Moderator—Joseph Gallian, University of Minnesota, Duluth, MAA President

2:00pm–4:55pm **Pi Mu Epsilon Student Paper Session 5**
Meeting Room L, Monona Terrace

2:00pm–4:55pm **Pi Mu Epsilon Student Paper Session 6**
Meeting Room M, Monona Terrace

2:00pm–4:55pm **Pi Mu Epsilon Student Paper Session 7**
Meeting Room N, Monona Terrace

2:00pm–4:55pm **MAA Student Paper Session 17**
Meeting Room Q, Monona Terrace

2:00pm–4:55pm **MAA Student Paper Session 18**
Meeting Room R, Monona Terrace

2:15pm–3:35pm **Panels and Other Sessions**
Ballroom A, Monona Terrace
Teachers for a New Era’s Impact on Mathematics Education
Magnhild Lien, California State University, Northridge
Nancy Marcus, University of Texas, El Paso

Aaron Brakoniecki, Michigan State University

Henry Kepner, Kevin McLeod, and DeAnn Huinker, University of Wisconsin-Milwaukee

Joel Zeitlin and Jerrold Gold, California State University, Northridge

2:15pm–3:35pm **Panels and Other Sessions**
Ballroom B, Monona Terrace
Using On-Line Homework in Mathematics Classes
Michael E. Gage, Arnold L. Pizer and Vicki Roth, University of Rochester

3:15pm–5:15pm **Invited Paper Session**
Ballroom D, Monona Terrace
Implications for Teaching of Research on Learning
Patrick Thompson, Arizona State University

3:15pm–3:30pm **The Role of Quantitative Reasoning in Learning Word Problems in Pre-Calculus Mathematics**
Marilyn Carlson, Arizona State University

3:35pm–3:50pm **From Individual Interviews to Whole-Class Experiments: Reconstructing a Course in Abstract Algebra**
Sean Larsen, Portland State University

3:55pm–4:10pm **Successful and Unsuccessful Students’ Learning Strategies in Real Analysis**
Keith Weber, Rutgers University

Schedule of Events | Friday

4:15pm–4:30pm Learning Without Understanding and Its Implications for the Mathematics That Teachers Teach

*Pat Thompson,
Arizona State University*

3:15pm–4:35pm Panels and Other Sessions
Ballroom C, Monona Terrace

How to Apply for Jobs

*David Manderscheid,
University of Nebraska–Lincoln*

3:15pm–5:30pm General Contributed Paper Session 6

*Meeting Room O
Monona Terrace*

*Sarah Mabrouk,
Framingham State College*

3:15pm–3:25pm Challenging Gifted High School Students

Vince Matsko, IMSA

3:30pm–3:40pm Cross–Cultural Analysis of Females Identified with Exceptional Mathematical Talent

Janet E. Mertz, University of Wisconsin – Madison

*Titu Andreescu,
University of Texas – Dallas*

Joseph A. Gallian, University of Minnesota Duluth

Jonathan Kane, University of Wisconsin – Whitewater

3:45pm–3:55pm Compass and Straightedge Constructions, Without a Compass

*Charlotte Schulze–Hewett,
Harper College*

4:00pm–4:10pm Teach Concepts and Understanding, and Do Not Concentrate on Manipulations Which Hinder This

*Herman Rubin,
Purdue University*

4:15pm–4:25pm Strengthening and Assessing College Students' Learning Outcomes in General Education Mathematics Courses

Xuhui Li, California State University, Long Beach

4:30pm–4:40pm The Effect of Knotting on the Shape of Polymers

*Kenneth Cary Millett,
University of California*

4:45pm–4:55pm SPLN–What is it?

*Monika Vo,
St. Leo University*

5:00pm–5:10pm Teaching Mathematics to Lebanese Engineers: The Experience of the Ecole Supérieure d'Ingénieurs de Beyrouth

*Salim Wehbé Salem,
Ecole Supérieure d'Ingénieurs de Beyrouth*

5:15pm–5:25pm Facilitating IBL Classroom Issues With Technology

*Glenn Hurlbert,
Arizona State University*

3:15pm–6:15pm **Contributed Paper Session**

Hall Ideas H, Monona Terrace

Projects, Applications and Demonstrations to Enhance a Numerical Analysis or Computational Mathematics Course

*Olga Brezhneva,
Miami University*

David Coulliette, Asbury College

3:15pm–3:30pm

Muscle Contraction Modeling – This Will Pump You Up!

David Coulliette, Asbury College

3:35pm–3:50pm

If I May Make a Generalization, Generalizations are Generally Good (in numerics)

*Anthony Tongen,
James Madison University*

3:55pm–4:10pm

Expert vs. Novice Understanding of Estimation Using Taylor Series

*Jason Howard Martin,
University of Oklahoma*

4:15pm–4:30pm

Computational Applications in Mathematical Biology

Nicoleta Eugenia Tarfulea, Purdue University Calumet

4:35pm–4:50pm

Exploring Computational Mathematics: Unfolding Polyhedra

*Brittany Terese Fasy,
Duke University*

*David Millman,
UNC – Chapel Hill*

4:55pm–5:10pm

Some Interesting Applications of Numerical Analysis in Science and Engineering

*Muhammad Usman,
University of Dayton*

5:15pm–5:30pm

Truth, Justice and the Search for Rigorous Error Bounds: A Case Study in Interval Analysis

*Matthew Glomski,
Marist College*

5:35pm–5:50pm

Providing Options: Making Projects Work for a Diverse Audience

*Andrew John Miller,
Belmont University*

5:55pm–6:10pm

Projects and Illustrations That Can Be Used In a Numerical Analysis Course

*Olga Brezhneva,
Miami University*

3:30pm–5:30pm

Contributed Paper Session

Hall Ideas E, Monona Terrace

How To Get Students to Read the Text and Does This Matter?

Mike Axtell, Wabash College

*Joe A. Stickles Jr. and
Paula R. Stickles,
Millikin University*

3:30pm–3:45pm

Read It— Techniques to Get It to Happen

Allen Hibbard, Central College

3:50pm–4:05pm

“Do Real Mathematicians Read The Book?": Encouraging Mathematical Maturity Via Reading Checks

*Andrea Frazier,
North Central College*

4:10pm–4:25pm	Assessing Student Growth in Reading Mathematics <i>Bonnie Gold, Monmouth University</i>
4:30pm–4:45pm	Learning Styles and Measurable Reading Assignments <i>Rachel Esselstein, California State University, Monterey Bay</i>
4:50pm–5:05pm	What Do Students Actually Read, and Its Educational Implications? <i>Bill Rybolt, Babson College</i>
5:10pm–5:25pm	What Students Read is Not Necessarily What They “Get” <i>Mary D. Shepherd, Northwest Missouri State University</i>
3:30pm–5:30pm	Minicourse 5 <i>Hall Ideas G, Monona Terrace</i> Perspective Viewing and Drawing Make Good Math Problems <i>Marc Frantz, Indiana University</i> <i>Annalisa Crannell, Franklin & Marshall College</i>
3:30pm–5:30pm	Minicourse 6 <i>Hall Ideas J, Monona Terrace</i> Mathematics and the Geometry of Voting <i>Donald G. Saari, University of California Irvine</i>

4:00pm–5:30pm	SIGMAA on the Philosophy of Mathematics <i>Ballroom A, Monona Terrace</i> Guest Lecture and Reception <i>Mo Hirsch, University of California, Berkeley</i>
4:00pm–5:45pm	Panels and Other Sessions <i>Lecture Hall, Monona Terrace</i> <i>Hard Problems: Movie</i> <i>George Csicsery, Zala Films</i>
4:15pm–5:15pm	Contributed Paper Session <i>Hall Ideas E, Monona Terrace</i> Advances in Recreational Mathematics <i>Paul R. Coe and Kristen Schemmerhorn, Dominican University</i>
4:15pm–4:30pm	Falling Through the Earth in the <i>Mirror of the World</i> <i>Andrew Simoson, King College</i>
4:35pm–4:50pm	$N + k$ Queens Reflection <i>Doug Chatham, Morehead State University</i>
4:55pm–5:10pm	First Occurrence Counterexamples in Odd Abundant Number Sequences <i>Jay Schiffman, Rowan University</i>
4:30pm–6:00pm	SIGMAA on Environmental Mathematics <i>Ballroom D, Monona Terrace</i> Guest Lecturer and Business Meeting Models for Managing Forested Landscape <i>Joseph Buongiorno, University of Wisconsin</i>

- 6:00pm–7:45pm** **Undergraduate Activities**
Grand Terrace, Monona Terrace
- Pi Mu Epsilon Student Banquet and Awards Ceremony**
- 7:00pm–9:00pm** **UW-Madison Alumni Reunion**
UW-Madison Campus, Van Vleck Hall
- 8:00pm–8:50pm** **Pi Mu Epsilon J. Sutherland Frame Lecturer**
Ballroom AB, Monona Terrace
- The Symmetries of Things**
John H. Conway, Princeton University
- 9:00pm–10:00pm** **MAA Ice Cream Social**
Grand Terrace, Monona Terrace

Saturday, August 2

- 7:00am–9:00am** **5K Fun Run/Walk**
Meet in the Lobby, Monona Terrace
- 8:00am–2:00pm** **Registration**
Lakeside Commons, Level 1 Monona Terrace
- 8:30am–9:20am** **AWM–MAA Etta Z. Falconer Lecture**
Ballroom AB, Monona Terrace
- The Circle: From Antiquity to Today**
Rebecca Goldin, George Mason University
- 8:30am–10:30am** **Contributed Paper Session**
Hall Ideas I, Monona Terrace
- Actual Problems, Actual Mathematics – Applied Mathematics in Science and the Classroom**

- William Stone, New Mexico Institute of Mining and Technology*
- Stephen Davis, Davidson College*
- 8:30am–8:45am** **Problem Formulation for Sustainability**
Chulin Likasiri, Chiang Mai University
- 8:50am–9:05am** **A Modular Approach to Teaching a Course in Application–Based Problem Solving**
Benjamin Galluzzo, University of Iowa
- Theodore Wendt, University of Wisconsin – La Crosse*
- 9:10am–9:25am** **Using Simulation to Verify Biological Model Fit with Field Data**
Scott Searcy and Paul Bartelt, Waldorf College
- 9:30am–9:45am** **Modeling the Buoyancy Properties of Virginia Class Submarines**
James S. Rolf and Kimberly Swetz, United States Air Force Academy
- 9:50am–10:05am** **Euler’s Constant in Interstate Highway Driving**
Mostafa Ghandehari and Siamak Ardekani, University of Texas at Arlington
- 10:10am–10:25am** **Wavelet Transforms: The Linear Algebra Approach**
Jenae Beauchamp, Eastern Connecticut State University
- 8:30am–10:30am** **General Contributed Paper Session 7**
Hall Ideas I, Monona Terrace
- Sarah Mabrouk, Framingham State College*

Schedule of Events | Saturday

8:30am–8:40am	<p>Statistics'r'us – Reshaping Students' Attitude From Aversion and Anxiety to Curiosity and Confidence</p> <p><i>Laszlo Erdodi,</i> <i>Eastern Michigan University</i></p> <p><i>Zsolt Lavicza,</i> <i>University of Cambridge</i></p>	10:00am–10:10am	<p>Common Misconceptions in Middle School Math Textbooks</p> <p><i>Jerome Dancis,</i> <i>University of Maryland</i></p>
8:45am–8:55am	<p>Data Mining: An Emerging Topic in Mathematical/ Statistical Education</p> <p><i>Deborah Gougeon,</i> <i>University of Scranton</i></p>	10:15am–10:25am	<p>Maplets for Calculus– Tutoring Without the Tutor</p> <p><i>Philip B. Yasskin,</i> <i>Texas A&M University</i></p> <p><i>Douglas B. Meade,</i> <i>University of South Carolina</i></p>
9:00am–9:10am	<p>The Next Phase In Developing Effective Teaching Techniques For Undergraduate College Algebra Courses</p> <p><i>Jonathan Paul Lambright,</i> <i>Savannah State University</i></p>	8:30am–10:30am	<p>Contributed Paper Session</p> <p><i>Meeting Room M</i> <i>Monona Terrace</i></p> <p>Fascinating Examples from Combinatorics, Discrete Mathematics, and Graph Theory</p> <p><i>Suzanne Dorée,</i> <i>Augsburg College</i></p> <p><i>Nancy Ann Neudauer,</i> <i>Pacific University</i></p>
9:15am–9:25am	<p>Let's Do This Once: Folding Vector Calculus into Multivariable Calculus Using Geometry and Language</p> <p><i>Aaron Wangberg,</i> <i>Winona State University</i></p>	8:30am–8:45am	<p>Changing Dimensionality in Data Processing</p> <p><i>Amy Mihnea,</i> <i>Florida Atlantic University</i></p>
9:30am–9:40am	<p>Dual Enrollment Using Mathxl</p> <p><i>William Calbeck,</i> <i>LSU–Alexandria</i></p>	8:50am–9:05am	<p>Building Fast Communications Networks: A Brief Introduction to Expanders and Ramanujan Graphs</p> <p><i>Mike Krebs,</i> <i>California State University,</i> <i>Los Angeles</i></p>
9:45am–9:55am	<p>College Entrance Examinations You Need to Pass to Be a Middle School or High School Mathematics Teacher in Japan</p> <p><i>Kazuko Ito West,</i> <i>Keio Academy of New York</i></p>	9:10am–9:25am	<p>Minimum Spanning Trees: An In–Class Project</p> <p><i>Pallavi Jayawant,</i> <i>Bates College</i></p>
		9:30am–9:45am	<p>Egalitarian Matching and Normalized Matching</p> <p><i>Mark Joseph Logan,</i> <i>University of Minnesota – Morris</i></p>

9:50am–10:05am **A Graph Theoretic Proof That There Are Only Five Platonic Solids**
Alan Alewine, McKendree University

10:10am–10:25am **The Pohlig–Hellman Exponentiation Cipher as a Bridge Between Classical and Modern Cryptography**
Joshua Holden, Rose–Hulman Institute of Technology

8:30am–10:30am **Contributed Paper Session**
Meeting Room N, Monona Terrace
How To Get Students to Read the Text and Does This Matter?
Mike Axtell, Wabash College
Joe A. Stickles, Jr. and Paula R. Stickles, Millikin University

8:30am–8:45am **Learning to Read and Reading to Learn: The Value of Reading the Text Before Class**
Matt Boelkins, Grand Valley State University

8:50am–9:05am **Homework Can Motivate Students to Read the Book**
Richard Maher, Loyola University Chicago

9:10am–9:25am **Journal Forms to Test Student’s Understanding**
Amy Wehe and Rala Diakite, Fitchburg State College

9:30am–9:45am **An Analysis Sketchbook: Rethinking Texts to Generate Student Interest**
Clark Wells, Grand Valley State University

9:50am–10:05am **Students and College Algebra Textbooks**
Satish C. Bhatnagar, UNLV

8:30am–10:30am **Contributed Paper Session**
Meeting Room Q, Monona Terrace
Incorporating Humanities and the Arts into the Mathematics Classroom (and Vice Versa)
Michelle Ghrist, U.S. Air Force Academy

8:30am–8:45am **Teaching the Mathematics of Music**
Rachel Hall, Saint Joseph’s University

8:50am–9:05am **Mathematics in Music: An Interdisciplinary Course**
James Richard Hughes, Elizabethtown College

9:10am–9:25am **A Musical Journey Through Abstract Algebra**
Samuel A. Lopes, University of Poto, Portugal

9:30am–9:45am **Leading a Book Discussion in a Liberal Arts Mathematics Class**
Russell Goodman, Central College

9:50am–10:00am **Honor–ing Mathematics History**
Tracey McGrail, Marist College

10:10am–10:25am **Finite, Infinite, and Countable Infinite**
Timothy Agendia Atabong, Madonna University, Nigeria

8:30am–10:30am **Contributed Paper Session**
Meeting Room R Monona Terrace

Schedule of Events | Saturday

Schedule of Events | Saturday

	<p>Interesting Topics in History of Mathematics that Enhance the Teaching and Learning of Mathematics</p> <p><i>Daniel Curtin, Northern Kentucky University</i></p> <p><i>Amy Shell–Gellach, Pacific Lutheran University</i></p>	<p>9:00am–10:30am</p> <p>Math Matters: Numerate Approaches to Everyday Issues</p> <p><i>Ballroom C, Monona Terrace</i></p> <p><i>Maura Mast, University of Massachusetts at Boston</i></p>
8:30am–8:45am	<p>Connecting Pascal’s Triangle to Geometry and Trigonometry</p> <p><i>Tom McMillian and Jim Fulmer, University of Arkansas at Little Rock</i></p>	<p>9:00am–10:30am</p> <p>Undergraduate Activity</p> <p><i>Hall Ideas E, Monona Terrace</i></p> <p>MAA Mathematical Contest in Modeling (MCM) Winners</p> <p><i>Ben Fusaro, Florida State University</i></p>
8:50am–9:05am	<p>Treasures in Three</p> <p><i>Joyati Debnath, Winona State University</i></p>	<p>9:00am–10:30am</p> <p>SIGMAA on Research in Undergraduate Mathematics Education</p> <p><i>Hall Ideas F, Monona Terrace</i></p> <p>Workshop on Essential Reasoning Abilities and Conceptual Foundations of Calculus</p> <p><i>Marilyn P. Carlson, Arizona State University</i></p>
9:10am–9:25am	<p>“Vedic” Decimal Fraction Patterns</p> <p><i>Jeff Johannes, SUNY Geneseo</i></p>	<p>9:00am–2:00pm</p> <p>Art Exhibit</p> <p><i>Exhibit Hall B, Monona Terrace</i></p>
9:30am–9:45am	<p>Ghosts of Departed Errors: Berkeley’s Mathematical Objections to the Calculus</p> <p><i>Eugene Boman, Penn State University, Harrison Campus</i></p>	<p>9:00am–2:00pm</p> <p>Exhibits and Book Sale</p> <p><i>Exhibit Hall B, Monona Terrace</i></p>
9:50am–10:05am	<p>Mathematician or Poet</p> <p><i>Mohammad Moazzam, Salisbury University</i></p>	<p>9:00am–2:00pm</p> <p>Undergraduate Activities</p> <p><i>Exhibit Hall B, Monona Terrace</i></p> <p>Student Hospitality Center</p> <p><i>Richard and Araceli Neal, American Society for the Communications of Math</i></p>
10:10am–10:25am	<p>Who Discovered Discontinuous Derivatives?</p> <p><i>Dave Lawrence Renfro, ACT, Inc.</i></p>	<p>9:30am–10:20am</p> <p>Earle R. Hedrick Lecture Series</p> <p><i>Ballroom AB, Monona Terrace</i></p> <p>Lecture 3 Transformers: Reconfigurable Robots and Hinged Dissections</p> <p><i>Erik Demaine, Massachusetts Institute of Technology</i></p>
9:00am–10:20am	<p>Finding a Good Fit in a Graduate Program</p> <p><i>Hall Ideas H, Monona Terrace</i></p> <p><i>Abbe H. Herzig, SUNY at Albany</i></p>	

9:30am–10:30pm **Math Horizons Session**
Lecture Hall, Monona Terrace

10:30am–11:20am **MAA Invited Address**
Ballroom AB, Monona Terrace
Generalizing “ ℓ ”: The Combinatorics of “ ℓ ” Sequences
Carla Savage, North Carolina State University

11:00am–12:00pm **Green Tour**
Meet at Lakeside Commons, Monona Terrace

11:30am–12:00pm **MAA Business Meeting**
Ballroom AB, Monona Terrace
Moderated by Martha J. Siegel, Towson University, MAA Secretary

1:00pm–2:00pm **Flatland: Movie**
Ballroom B, Monona Terrace

1:00pm–2:20pm **Creating a Post–Calculus Pre–Calculus Course for Advanced High School Students**
Lecture Hall, Monona Terrace
Dan Teague, NC School of Science and Mathematics
Dan Lotesto, Milwaukee Public Schools

1:00pm–2:20pm **First–Year Courses Designed to Attract Students to the Serious Study of Mathematics**
Ballroom A, Monona Terrace
Michael Starbird, University of Texas
James Sellers, Penn State University

1:00pm–3:00pm **Invited Paper Session**
Ballroom D, Monona Terrace
History of Mathematics
Amy Shell–Gellasch, Pacific Lutheran College
Shawnee L. McMurrin, California State University, San Bernardino

1:00pm–1:15pm **Motivating Infinite Series Through Modified Leap Years**
Robert Myers, Bethel College

1:20pm–1:35pm **Napier’s “Logarithms” Weren’t**
Andrew deLong Martin, Kentucky State University

1:40pm–1:55pm **Fermat’s Shrinking Rectangles**
Amy Shell–Gellasch, Pacific Lutheran University

2:00pm–2:15pm **It’s Just Thin Air: Resistance and Projectile Motion**
Shawnee McMurrin, California State University, San Bernardino

2:20pm–2:35pm **Thomas Harriot’s Pythagorean Triples: Could He List Them All?**
Janet L. Beery, University of Redlands

2:40pm–2:55pm **What’s Interesting About the Number 1729?**
Peter Schumer, Middlebury College

1:00pm–3:00pm **Contributed Paper Session**
Hall Ideas F, Monona Terrace
Innovations in Mathematics Education I
Nancy Leveille and Carol Vobach, University of Houston–Downtown

Schedule of Events | Saturday

1:00pm–1:10pm	Supplementing Pre–Service Mathematical Content Courses with Online Homework <i>Michael B. Scott, California State University, Monterey Bay</i>
1:15pm–1:25pm	Development of a Survey to Assess Pre–Service Teachers’ Views and Uses of Problem–Solving in Mathematics <i>Jane Ries Cushman, Buffalo State College</i>
1:30pm–1:40pm	Focusing Pre–Service Elementary Teachers’ Thinking on Children’s Thinking in Order to Deepen Their Mathematical Understanding <i>Jeff Gregg and Gayle Millsaps, Purdue University Calumet</i>
1:45pm–1:55pm	Using Cryptography to Teach Number Theory to Future Middle School Teachers <i>Bonnie Saunders and Janet Simpson Bessinger, University of Illinois at Chicago</i>
2:00pm–2:10pm	Vertically Connecting College and Middle Grades Mathematics: The Two–Problem Comparison Paper <i>Theresa A. Jorgensen, University of Texas at Arlington</i>
2:15pm–2:25pm	The Impact of Teaching for Understanding Experiment in 8–12th Grade Mathematics <i>John Hasenbank and Jennifer Kosiak, University of Wisconsin – La Crosse</i>

2:30pm–2:40pm	Technology, Conjecture and Proof: Exposing the Thinking of Teachers <i>Kathryn Shafer, Bethel College</i>
2:45pm–2:55pm	University Geometry: Pre–Service Teachers’ Views on Its Role in the Classroom <i>Angela Marie Hodge, North Dakota State University</i>
1:00pm–3:00pm	Minicourse 3 <i>Hall Ideas G, Monona Terrace</i>
	Teaching a Proof–Based Course as the Gateway to the Mathematics Major <i>James Sandefur, Georgetown University</i> <i>Connie Campbell, Millsaps College</i>
1:00pm–3:00pm	General Contributed Paper Session 8 <i>Hall Ideas I, Monona Terrace</i> <i>Sarah Mabrouk, Framingham State College</i>
1:00pm–1:10pm	The Impact of K-12 Mathematics on College Mathematics <i>Magdalena Luca, Massachusetts College of Pharmacy and Health Sciences</i>
1:15pm–1:25pm	Induced Topologies and Separation Axioms <i>Jay Stine, Misericordia University</i>
1:30pm–1:40pm	An Integral Representation for Zeta(n) <i>Ranjith A Munasinghe, WVU Institute of Technology</i>

1:45pm–1:55pm Addressing the Hammer-and-Nail Phenomenon in Mathematics Classrooms
Kien Hwa Lim, University of Texas at El Paso

2:00pm–2:10pm Modified Taylor Polynomials
Sayel Ali, Minnesota State University, Moorhead & The Petroleum Institute/Abu Dhabi
Radwan Al-jarrah, Southwestern Oklahoma State University

2:15pm–2:25pm Obsession From the Greeks: Doubling Cubes, Squaring Circles, Trisecting Angles, and Constructing Regular Polygons
Charlie Smith, Park University

2:30pm–2:40pm Factor, Factor - Who's Got the Factor?
Leslie Horton, Delta State University

2:45pm–2:55pm An Idealized Mathematical Model of a Runner Built-Up From the Angle-of-Lean
Michael Edward Zeidler, Retired

1:00pm–3:00pm Minicourse | 4
Hall Ideas J, Monona Terrace
How to Run a Successful Math Circle
Matthias Beck, San Francisco State University
Tatiana Shubin, San Jose State University
Sam Vandervelde, Saint Lawrence University

1:00pm–3:00pm Graduate Paper Session
Meeting Room M, Monona Terrace
James Freeman, Cornell College

1:00pm–4:15pm Contributed Paper Session
Hall Ideas E, Monona Terrace
Fascinating Examples from Combinatorics, Discrete Mathematics, and Graph Theory
Suzanne Dorée, Augsburg College
Nancy Ann Neudauer, Pacific University

1:00pm–1:20pm Fibonacci Trees: A Dream Come True
Benjamin V.C. Collins, University of Wisconsin – Platteville

1:25pm–1:45pm Using Recursion to Study Mathematical Induction, Schur Numbers, and the Pill Problem
Keith Brandt, Rockhurst University

1:50pm–2:10pm An Unexpected Appearance of Continued Fractions
David Molnar and Adam McDougall, University of Iowa

2:15pm–2:35pm Numerals Based on the Golden Ration
Bruce Walker Atkinson, Samford University

2:40pm–3:00pm Activities Exploring the Collatz Conjecture – An Unsolved Problem in Fifth Grade Arithmetic
Doug Shaw, University of Northern Iowa

3:05pm–3:25pm Edge Nets of Cubes
Vince Matsko, IMSA

3:30pm–3:50pm Hard to Guard Art Galleries
T.S. Michael, United States Naval Academy

Schedule of Events | Saturday

Schedule of Events | Saturday

3:55pm–4:15pm	<p>Paint By Numbers: Constructing a Map That Needs Nineteen Colors</p> <p><i>Todd Cadwallader Olsker, California State University, Fullerton</i></p>
1:00pm–5:00pm	<p>Invited Paper Session</p> <p><i>Ballroom C, Monona Terrace</i></p> <p>Research With Undergraduates</p> <p><i>Mario Martelli, Claremont–McKenna College</i></p>
1:00pm–1:30pm	<p>From Chaos to Colleagues</p> <p><i>Annalisa Crannell, Franklin & Marshall College</i></p>
1:30pm–2:00pm	<p>Knot Theory Research with Undergraduates</p> <p><i>Colin Adams, Williams College</i></p>
2:00pm–2:30pm	<p>Compactness in Metric Trees</p> <p><i>Asuman Aksoy, Claremont-McKenna College</i></p>
2:30pm–3:00pm	<p>Building Communities Through REU Programs</p> <p><i>Carlos Castillo–Chavez, Arizona State University</i></p>
3:00pm–3:30pm	<p>How to Juggle Seven Undergraduate Student Projects Without Dropping Any</p> <p><i>Jacqueline Jensen, Sam Houston State University</i></p>
3:30pm–4:00pm	<p>The Applied Representation Theory Group at Harvey Mudd College</p> <p><i>Michael Orrison, Harvey Mudd College</i></p>
4:00pm–4:30pm	<p>Tracing Certain n – Dimensional Space Point</p> <p><i>Aihua Li, Montclair State University</i></p>

4:30pm–5:00pm	<p>Ramanujan’s Dream</p> <p><i>Marc Chamberland, Grinnell College</i></p>
1:30pm–5:00pm	<p>Aldo Leopold Legacy Center Trip</p> <p><i>Meet in the Lobby, Monona Terrace</i></p>
2:00pm–3:15pm	<p>Undergraduate Activity</p> <p><i>Meeting Room R, Monona Terrace</i></p> <p>Do Dogs Know Calculus? Bifurcations at the Beach</p> <p><i>Tim Pennings, Hope College and his dog Elvis</i></p>
2:30pm–3:45pm	<p>Undergraduate Activity</p> <p><i>Ballroom A, Monona Terrace</i></p> <p>Student Problem Solving Competition</p> <p><i>Richard Neal, American Society for the Communication of Mathematics</i></p>
3:00pm–4:20pm	<p>The Role of Open Source Math Projects in the Mathematics Community</p> <p><i>Lecture Hall, Monona Terrace</i></p> <p><i>Charles Weaver, University of Phoenix</i></p> <p><i>Jason Aubrey, University of Missouri</i></p> <p><i>Michael Scott, California State University, Monterey Bay</i></p>
3:15pm–5:15pm	<p>General Contributed Paper Session 9</p> <p><i>Hall Ideas I, Monona Terrace</i></p> <p><i>Sarah Mabrouk, Framingham State College</i></p>

3:15pm–3:25pm **Illuminating Group Lattices**
Nancy Rodgers, Hanover College
Doug Anewalt, University of Kentucky

3:30pm–3:40pm **Elastic–plastic Transition of Transversely Isotropic Thin Rotating Disc**
Sanjeev Sharma and Noida Manojshani, Jaypee Institute of Information Technology University

3:45pm–3:55pm **Creep Transition of Transversely Isotropic Thin Rotating Disc**
Noida Manojshani and Sanjeev Sharma, Jaypee Institute of Information Technology University

4:00pm–4:10pm **A Generalization of Taylor’s Theorem: A Determinant Approach Using Mathematica**
Radwan Al–jarrah, Southwestern Oklahoma State University
Sayel Ali, Minnesota State University, Moorhead & The Petroleum Institute/Abu Dhabi

4:15pm–4:25pm **Probe into Goldbach Problem**
Liu Maocheng, Shengli Petroleum Bureau

4:30pm–4:40pm **Beyond Classic: New Solution to Generalized Quadratic Function and Equation**
Roland Shen, Olympia Institute

4:45pm–4:55pm **Multipliers and Operators on The Tempered Ultra–distributional Spaces of Roumieu Type for The Hankel Type Transformation**
Shrideh Khalaf Alomari

5:00pm–5:10pm **Biharmonic–Extension Space**
Ibtesam Bajunaid, King Saud University

3:15pm–5:15pm **Invited Paper Session**
Ballroom B, Monona Terrace
Gems in Number Theory
Sarah Mabrouk, Framingham State College

3:15pm–3:40pm **A Tale of Two Curves**
Ezra Brown, Virginia Tech

3:45pm–4:05pm **Farey Fractions and Ford Circles**
Richard K. Guy, University of Calgary

4:10pm–4:30pm **Two Ways to Count to Polynomial Equations Solutions**
Margaret Robinson, Mt. Holyoke College

4:35pm–5:10pm **Biscuits of Number Theory**
Art Benjamin, Harvey Mudd College
Ezra Brown, Virginia Tech

3:15pm–5:15pm **Contributed Paper Session**
Hall Ideas E, Monona Terrace
Innovations in Mathematics Education II
Nancy Leveille and Carol Vobach, University of Houston–Downtown

3:15pm–3:25pm **Geometer’s Sketchpad Software (GPS) as a Teaching Aid for Secondary School Level**
Abd Rahim Abd Salim, University Teknologi Petronas

Schedule of Events | Saturday

3:30pm–3:40pm	Putting a STAMP on Mathematics Teacher Education <i>Tim Hendrix, Meredith College</i>
3:45pm–3:55pm	Constructing a World of Mathematics in the Middle School <i>Melissa A. Stoner, Lehigh University</i>
4:00pm–4:10pm	PRAXIS Project WI: Interactive Learning Objects <i>Kathryn Teresa Ernie and Erick Hofacker, University of Wisconsin – River Falls</i>
4:15pm–4:25pm	Math 201: Mathematics, Education, and Access to Power <i>Alan P. Knoerr, Occidental College</i>
4:30pm–4:40pm	Place Value Arithmetic via Polynomials <i>Jeff Johannes, SUNY Geneseo</i>
4:45pm–4:55pm	Preparing Elementary School Teaching Candidates to Meet Changing Licensure Requirements in Mathematics <i>Donna Beers, Simmons College</i>
5:00pm–5:10pm	Using Prediction Items and Clickers to Address Misconceptions <i>Kien Hwa Lim, University of Texas at El Paso</i>
3:15pm–5:15pm	Graduate Student Paper Session <i>Meeting Room M Monona Terrace</i> <i>James Freeman, Cornell College</i>

3:15pm–5:15pm	General Contributed Paper Session 10 <i>Meeting Room N Monona Terrace</i> <i>Sarah Mabrouk, Framingham State College</i>
3:15pm–3:25pm	The Box Method for Teaching Ratio and Proportion Problems <i>Jim Sullivan, Dallas ISD</i>
3:30pm–3:40pm	Simultaneous Binary Collision for the Collinear Four Body Problem <i>Duokui Yan, Brigham Young University</i>
3:45pm–3:55pm	Paracycles in Snell Geometries <i>Jack Mealy and Cicily Smith, Austin College</i>
4:00pm–4:10pm	Thin Film Over Thin Porous Layers <i>Kummit Nong, George Mason University</i>
4:15pm–4:25pm	On the Representation of Recursive Functions by Integrals <i>Raymond Stanley Puzio, PlanetMath</i>
4:30pm–4:40pm	Milking the Fascinating Applications of Geometric Power Series <i>Mulatu Lemma, Savannah State University</i>
4:45pm–4:55pm	Lagrangian Formulations of Mechanics With Designer Conservation Laws <i>Artem Yankov, BYU REU</i>

3:30pm–5:30pm **Minicourse | 5**
Hall Ideas G, Monona Terrace

Perspective Viewing and Drawing Make Good Math Problems

Marc Frantz, Indiana University

*Annalisa Crannell,
 Franklin & Marshall College*

3:30pm–5:30pm **Minicourse | 6**
Hall Ideas J, Monona Terrace

Mathematics and the Geometry of Voting

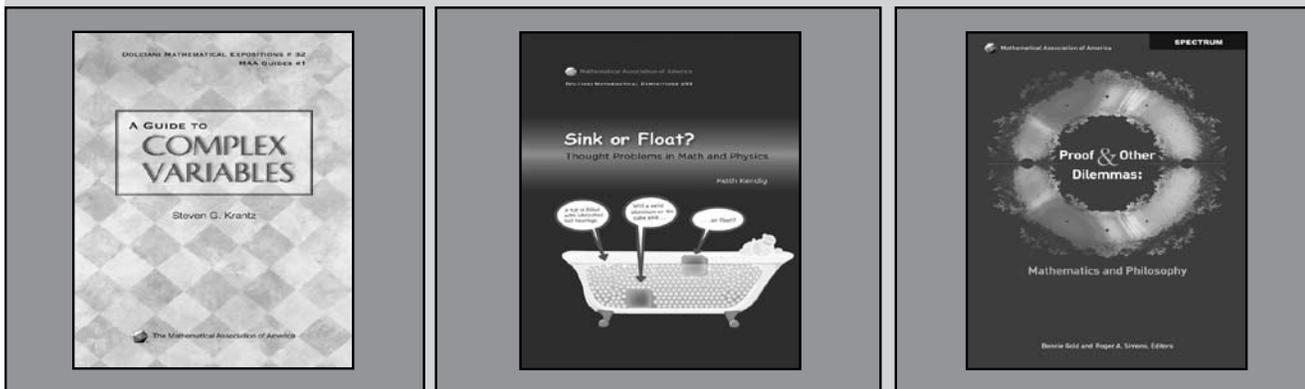
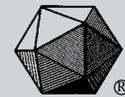
*Donald G. Saari,
 University of California, Irvine*

6:00pm–9:00pm **MAA Silver and Gold Reception and Banquet**
Grand Terrace, Monona Terrace

Sunday, August 3

8:15am–12:15pm **Taliesin Tour**
*Meet in the Lobby
 Concourse Hotel*

New Titles from the Mathematical Association of America:



Also, Join Us at the Publications Booth for Signings by these Authors:

Thursday, July 31:

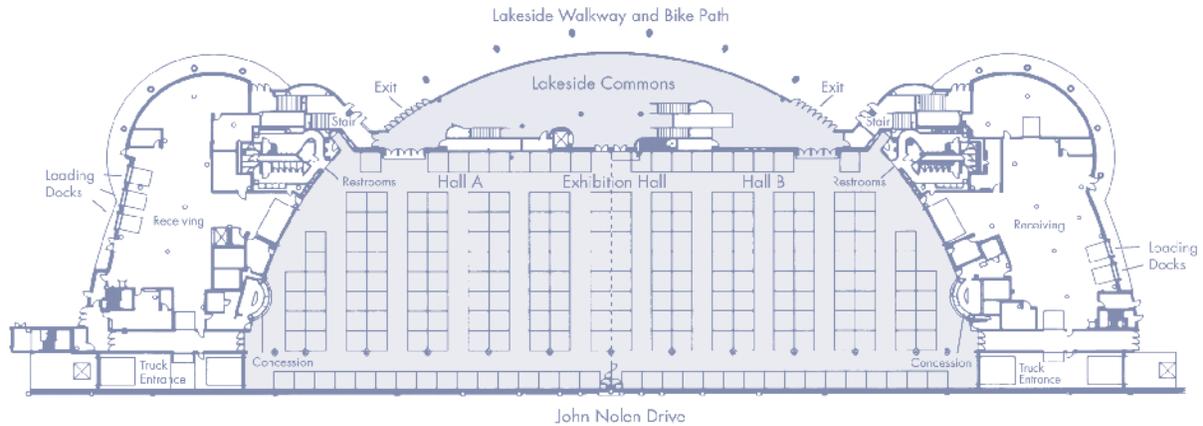
11:30am-12:00pm- **John DePillis** author of “777 Mathematical Conversation Starters”

Friday, August 1:

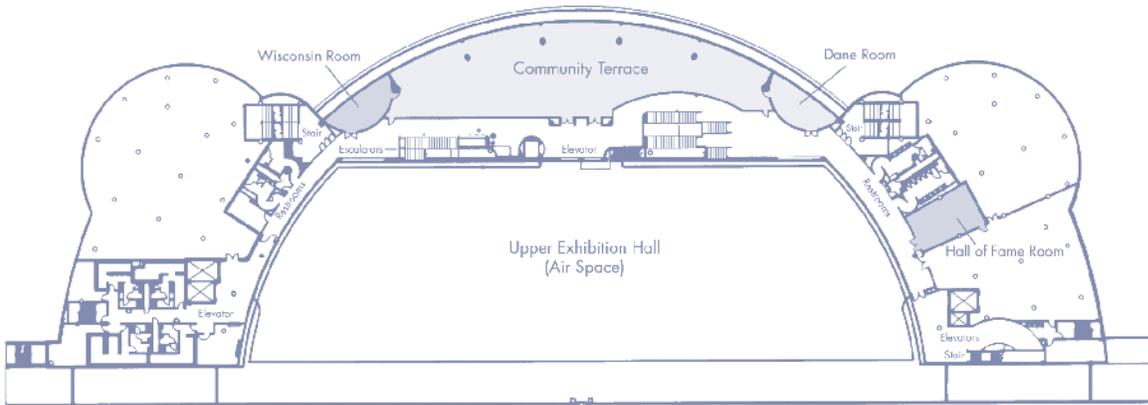
11:30am-12:00pm- **Art Benjamin** author of “Secrets of Mental Math”

12:00pm-12:30pm- **Keith Kendig** author of “Sink or Float? Thought Problems in Math and Physics”

LEVEL 1 - LAKESIDE



LEVEL 2 - MEZZANINE



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Stick It To 'Em

- * What is your vision for a perfect MathFest?
- * What kinds of talks would you like to hear?
- * What kinds of activities would you like to see?

In Madison, you will have a chance to Stick it to the Man—or at least to a piece of poster paper.

Come to the Exhibit Hall to participate in a fun activity involving colorful stickers, ideas about MathFest, and your opinions.

(You may have participated in a similar activity at your Section meeting. When you see it, you'll get it.)

Can You Do the Math?

Solve the following math challenges and enter the answers in the blanks below.
The solution is a way to connect with other bright people like you!

1. $400 \times 2 =$

2. $(44 + 56) 6 + 68 - 2 =$

3. $11,016 \times \frac{1}{3} =$

Solution: 1 - _____ **-** _____ **-** _____
Enter answer to challenge #1 Enter answer to challenge #2 Enter answer to challenge #3

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Earle R. Hedrick Lecture Series

FUN WITH ALGORITHMS AND FOLDING

Erik Demaine, Massachusetts Institute of Technology



Lecture 1

Mathematics Meets Art, Puzzles, and Magic

Thursday, July 31

10:30 a.m.–11:20 a.m.

Ballroom AB, Monona Terrace

Solving and designing puzzles, creating sculpture and architecture, and inventing magic tricks all lead to fun and interesting algorithmic problems. I will describe some of our explorations into these areas (much together with my father, Martin Demaine).

Lecture 2

Origami, Linkages, and Polyhedra: Geometric Folding Algorithms

Friday, August 1 | 9:30 a.m.–10:20 a.m.

Ballroom AB, Monona Terrace

What forms of origami can be designed automatically by algorithms? What shapes can result by folding a piece of paper flat and making one complete straight cut? What polyhedra can be cut along their surface and unfolded into a flat piece of paper without overlap? When can a linkage of rigid bars be untangled or folded into a desired configuration? Geometric folding algorithms is a branch of discrete and computational geometry that addresses these and many other intriguing questions.

Lecture 3

Transformers, Reconfigurable Robots, and Hinged Dissections

Saturday, August 2 | 9:30 a.m.–10:20 a.m.

Ballroom AB, Monona Terrace

How might we build reconfigurable robots like Transformers or Terminator 3? There are several geometric folding algorithms related to this question. I will focus on one such problem: designing a hinged chain of polygons or polyhedra that can be folded into several desired shapes.

The James R. Leitzel Lecture

BUILDING MATHEMATICAL COMMUNITIES

T. Christine Stevens, Saint Louis University

Friday, August 1 | 10:30 a.m.–11:20 a.m.

Ballroom AB, Monona Terrace



Now in its 15th year, Project NExT (New Experiences in Teaching) is an MAA program that has welcomed more than a thousand new PhD's into our profession. We will describe some of the achievements of this remarkable community of mathematical scientists

and explore their impact on the mathematical community at large. We will also reflect on the nature of professional communities and the role that they might play in pursuing the MAA's mission of advancing the mathematical sciences.

MAA Invited Address

INTELLECTUAL NEED AND ITS ROLE IN MATHEMATICAL INSTRUCTION

Guershon Harel, University of California at San Diego

Thursday, July 31 | 8:30 a.m.–9:20 a.m.

Ballroom AB, Monona Terrace



Most students, even those who desire to succeed in school, are intellectually aimless in mathematics classes because often they do not realize an intellectual need for what we intend to teach them. The notion of intellectual need is inextricably linked to the

notion of epistemological justification. Generally speaking, epistemological justification refers to the learner's discernment of how and why a particular piece of knowledge came to be. We will discuss historical and philosophical aspects of these two notions, as well as ways teachers can be aware of students' intellectual need and address it directly in the undergraduate mathematics classroom.

MAA Lecture for Students

SUDOKU: QUESTIONS, VARIATIONS AND RESEARCH

Laura Taalman, James Madison University

Thursday, July 31 | 1:00 p.m.–1:50 p.m.
Ballroom A, Monona Terrace



Sudoku puzzles and their variants are linked to many mathematical problems involving combinatorics, Latin squares, magic squares, polyominoes, symmetries, computer algorithms, the rook problem, graph colorings, and permutation group theory. In this talk we will explore variations of Sudoku and the many open problems and new results in this new field of recreational mathematics. Many of the problems we will discuss are suitable for undergraduate research projects. Puzzle handouts will be available for all to enjoy!

MAA Invited Address

ECOLOGICAL AND EVOLUTIONARY CONSEQUENCES OF SPECIES INTERACTIONS

Claudia Neuhauser, University of Minnesota

Thursday, July 31 | 9:30 a.m.–10:20 a.m.
Ballroom AB, Monona Terrace



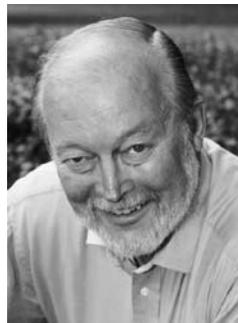
Community genetics is a synthesis of community ecology and population genetics. It takes into account the interplay between genetic variation and community dynamics, which is of importance when selective forces are strong. Selective forces may be particularly strong when systems undergo large perturbations, such as habitat fragmentation or introduction of new organisms. Mathematical modeling can play an important role in predicting the outcome of such interactions and in assessing when both ecological and evolutionary forces need to be taken into account. We will discuss models on host-symbiont systems, evolution of resistance to transgenic plants, and persistence of populations in fragmented habitats to highlight the importance of including both ecological and evolutionary forces into account.

MAA Invited Address

THE CHAOTIC EVOLUTION OF NEWTON'S UNIVERSE

Donald G. Saari, University of California, Irvine

Friday, August 1 | 8:30 a.m.–9:20 a.m.
Ballroom AB, Monona Terrace



After solving the two-body problem, Newton claimed that the three-body problem gave him a headache. It should; this is where chaos was discovered. In this talk, I will describe some of this story while showing why “chaos” must be expected in n -body systems. Then I will describe the asymptotic evolution of all n -body systems; i.e., how our universe evolves.

NAM David Blackwell Lecture

RANDOM DYNAMICS AND MEMORY: STRUCTURE WITHIN CHAOS

Salah-Eldin A. Mohammed, Southern Illinois University-Carbondale

Friday, August 1 | 1:00 p.m.–1:50 p.m.
Lecture Hall, Monona Terrace



We give an overview of the dynamics and long-term evolution of probabilistic models with finite memory. Such models are widely used to analyze dynamical systems whose evolution is influenced by random fluctuations and past history. These models are important in diverse areas such as signal processing, option-pricing, economic and labor models, aircraft dynamics, materials science and population dynamics. Further details, please visit the Web link: <http://sfde.math.siu.edu/Blackwellabstract1.pdf>.

AWM-MAA Etta Z. Falconer Lecture

THE CIRCLE: FROM ANTIQUITY TO TODAY

Rebecca Goldin, George Mason University

Saturday, August 2 | 8:30 a.m.–9:20 a.m.
Ballroom AB, Monona Terrace



In this talk, we will give a brief overview of several historically important aspects of the circle. We will then elaborate on some of the ways in which the circle is used currently in research in mathematics, with an emphasis on its role in geometry. The circle remains a fundamental object for modern mathematics.

MAA Invited Address

GENERALIZING “ ℓ ”: THE COMBINATORICS OF “ ℓ ” SEQUENCES

Carla Savage, North Carolina State University

Saturday, August 2 | 10:30 a.m.–11:20 a.m.
Ballroom AB, Monona Terrace



The ℓ -sequences, cousins of the Fibonacci sequence, are defined by the recurrence $a(n) = \ell a(n-1) - a(n-2)$, with initial conditions $a(0)=0$, $a(1)=1$. They arise in diverse areas of combinatorics and we will highlight some of their fascinating properties. Many fundamental identities in combinatorics involve binomial coefficients and their interpretations. We use ℓ -sequences to define the “ ℓ -nomial coefficient,” a generalization of the binomial coefficient, and consider extending classical binomial combinatorics to the “ ℓ -world”.

Join us on a MathFest Scavenger Hunt

Win great prizes in the Exhibit Hall

Level 1, Monona Terrace and Convention Center



Prize Drawings
 Friday | August 1

Grand Prize Drawing
 Saturday | August 2

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Invited Paper Sessions

Classical Euclidean Geometry

Paul Yiu, Florida Atlantic University

Thursday, July 31 | 1:00 p.m. – 4:00 p.m.

Ballroom C, Monona Terrace

Isoperimetric Problems and Manifolds With Density

Frank Morgan, Williams College

Thursday, July 31 | 2:00 p.m. – 5:00 p.m.

Hall Ideas H, Monona Terrace

Graph Theory With Connections to Geometry and Topology

Joshua Laison, Willamette University

Thursday, July 31 | 3:15 p.m. – 5:45 p.m.

Ballroom D, Monona Terrace

Mathematical Biology

Julie Mitchell, University of Wisconsin

Gheorghe Craciun, University of Wisconsin

Friday, August 1 | 1:00 p.m. – 3:00 p.m.

Ballroom D, Monona Terrace

Ramanujan's Impact on Number Theory—Then and Now

James Sellers, Pennsylvania State University

Friday, August 1 | 1:00 p.m. – 3:00 p.m.

Ballroom C, Monona Terrace

Implications for Teaching of Research on Learning

Patrick Thompson, Arizona State University

Friday, August 1 | 3:15 p.m. – 5:15 p.m.

Ballroom D, Monona Terrace

History of Mathematics

Amy Shell-Gellasch, Pacific Lutheran College

Shawnee L. McMurrin, California State University,
San Bernardino

Saturday, August 2 | 1:00 p.m. – 3:00 p.m.

Ballroom D, Monona Terrace

Research With Undergraduates

Mario Martelli, Claremont-McKenna College

Saturday, August 2 | 1:00 p.m. – 5:00 p.m.

Ballroom C, Monona Terrace

Gems in Number Theory

Sarah Mabrouk, Framingham State College

Thomas Koshy, Framingham State College

Saturday, August 2 | 3:15 p.m. – 5:15 p.m.

Ballroom B, Monona Terrace

Contributed Paper Sessions

Interesting Topics in History of Mathematics that Enhance the Teaching and Learning of Mathematics

Daniel Curtin, Northern Kentucky University

Amy Shell-Gellasch, Pacific Lutheran University

Thursday, July 31 | 8:30 a.m. – 10:30 a.m. | Part I

Hall Ideas F, Monona Terrace

Friday, August 1 | 1:00 p.m. – 3:00 p.m. | Part II

Hall Ideas H, Monona Terrace

Teaching Mathematics and Statistics Through Current Civic Issues

Rikki Wagstrom, Metropolitan State University

Cynthia Kaus, Metropolitan State University

Thursday, July 31 | 9:30 a.m. – 10:30 a.m.

Hall Ideas I, Monona Terrace

Thursday, July 31 | 1:00 p.m. – 3:00 p.m.

Hall Ideas F, Monona Terrace

Advances in Recreational Mathematics

Paul R. Coe, Dominican University

Kristen Schemmerhorn, Dominican University

Thursday, July 31 | 1:00 p.m. – 3:00 p.m.

Friday, August 1 | 4:15 p.m. – 5:15 p.m.

Hall Ideas E, Monona Terrace (both sessions)

Integrating Biology and Mathematics

James Fulton, Suffolk County Community College

Timothy Comar, Benedictine University

Thursday, July 31 | 1:00 p.m. – 3:00 p.m.

Ballroom D, Monona Terrace

Actual Problems, Actual Mathematics — Applied Mathematics in Science and the Classroom

William Stone, New Mexico Institute of Mining and Technology

Stephen Davis, Davidson College

Thursday, July 31 | 3:15 p.m. – 6:15 p.m.

Hall Ideas I, Monona Terrace

Saturday, August 2 | 8:30 a.m. – 10:30 a.m.

Hall Ideas E, Monona Terrace

Incorporating Humanities and the Arts into the Mathematics Classroom (and Vice Versa)

Michelle Ghrist, U.S. Air Force Academy

Thursday, July 31 | 3:15 p.m. – 6:15 p.m.

Hall Ideas F, Monona Terrace

Friday, August 1 | 8:30 a.m. – 10:30 a.m.

Hall Ideas I, Monona Terrace

Saturday, August 2 | 8:30 a.m. – 10:30 a.m.

Meeting Room Q, Monona Terrace

Creative Uses of Emerging Technologies for Mathematics Teaching

Lila F. Roberts, Clayton State University

David R. Hill, Temple University

Friday, August 1 | 8:30 a.m. – 10:30 a.m. AND

1:00 p.m. – 4:00 p.m.

Hall Ideas F, Monona Terrace

Projects and Demonstrations That Enhance a Differential Equations Course

Shawnee L. McMurrin, California State University at San Bernardino

Richard Marchand, Slippery Rock University

Friday, August 1 | 1:00 p.m. – 3:20 p.m.

Hall Ideas E, Monona Terrace

How to Get Students to Read the Text and Does This Matter?

Mike Axtell, Wabash College

Joe A. Stickles, Jr., Millikin University

Paula R. Stickles, Millikin University

Friday, August 1 | 3:30 p.m. – 5:30 p.m.

Hall Ideas E, Monona Terrace

Saturday, August 2 | 8:30 a.m. – 10:30 a.m.

Meeting Room N, Monona Terrace

Projects, Applications and Demonstrations to Enhance a Numerical Analysis or Computational Mathematics Course

Olga Brezhneva, Miami University

David Coulliette, Asbury College

Friday, August 1 | 3:15 p.m. – 6:15 p.m.

Hall Ideas H, Monona Terrace

Interesting Topics in History of Mathematics that Enhance the Teaching and Learning of Mathematics

Daniel Curtin, Northern Kentucky University

Amy Shell-Gellasch, Pacific Lutheran University

Friday, August 1 | 1:00 p.m. – 3:00 p.m.

Hall Ideas H, Monona Terrace

Saturday, August 2 | 8:30 a.m. – 10:30 a.m.

Meeting Room R, Monona Terrace

Fascinating Examples from Combinatorics, Discrete Mathematics, and Graph Theory

Suzanne Dorée, Augsburg College

Nancy Ann Neudauer, Pacific University

Thursday, July 31 | 8:30 a.m. – 10:30 a.m.

Hall Ideas E, Monona Terrace

Friday, August 1 | 8:30 a.m. – 10:30 a.m.

Hall Ideas E, Monona Terrace

Saturday, August 2 | 8:30 a.m. – 10:30 a.m.

Meeting Room M, Monona Terrace

Saturday, August 2 | 1:00 p.m. – 4:15 p.m.

Hall Ideas E, Monona Terrace

Innovations in Mathematics Education I

Nancy Leveille, University of Houston-Downtown

Carol Vobach, University of Houston-Downtown

Saturday, August 2 | 1:00 p.m. – 3:00 p.m.

Hall Ideas F, Monona Terrace

Innovations in Mathematics Education II

Nancy Leveille, University of Houston-Downtown

Carol Vobach, University of Houston-Downtown

Saturday, August 2 | 3:15 pm – 5:15 pm

Hall Ideas E, Monona Terrace

General Contributed Paper Sessions

Sarah Mabrouk, Framingham State College

Thursday, July 31 AND Friday, August 1

Meeting Room O, Monona Terrace

Saturday, August 2

Hall Ideas I, Monona Terrace

Each day—

8:30–10:30 a.m. | 1:00–3:00 p.m. | 3:15–5:15 p.m.

The Role of Quantitative Literacy Centers in Supporting Students and Faculty

Maura Mast, University of Massachusetts–Boston

Cinnamon Hillyard, University of Washington–Bothell

Thursday, July 31 | 9:00 a.m.–10:20 a.m.

Ballroom C, Monona Terrace

This panel will present a diversity of models for QL centers, based on the growing number of such centers. Panelists will discuss factors that have been important for success as well as lessons learned. Panelists will include: **Caren Diefenderfer**, Hollins University; **Corrine Taylor**, Wellesley College; **Nicole Hoover**, University of Washington–Bothell; **Judith Moran**, Trinity College, and **Cinnamon Hillyard**.

Writing for MAA Periodicals

Lowell Beineke, Indiana University–Purdue University,

Fort Wayne, Editor, *The College Mathematics Journal*

Ivars Peterson, MAA Director of Publications for Journals and Communications

Thursday, July 31 | 1:00 p.m.–2:20 p.m.

Lecture Hall, Monona Terrace

What does it take to get published in one of the MAA journals? in *Math Horizons*? in MAA FOCUS? In this panel discussion, editors will describe what they look for in manuscripts, and award-winning authors will describe the origins and journeys of their papers.

MAA Section Officers Meeting

Thursday, July 31 | 2:30 p.m.–5:00 p.m.

Ballroom B, Monona Terrace

This session will be moderated by Nancy L. Hagelgans, Ursinus College, chair of the MAA Committee on Sections.

SUMMA Special Session on MAA Summer Research Programs

William Hawkins, MAA and University of the District of Columbia

Robert Megginson, University of Michigan

Thursday, July 31 | 3:00 p.m.–4:20 p.m.

Lecture Hall, Monona Terrace

Two site directors will discuss their research programs. There will be ample time for questions and discussion. Some funding will be available for Summer 2009 and additional funds are being sought. More information can be found on the NREUP website [<http://www.maa.org/nreup>]. The session is sponsored by CPM and the MAA Office of Minority Participation.

Grand Unveiling and Reception

Amy Shell-Gellasch, Pacific Lutheran University

Thursday, July 31 | 4:00 p.m.–5:00 p.m.

Ballroom A, Monona Terrace

Please join the History of Math SIGMAA and the MAA at the presentation of two new MAA posters: The Women of Mathematics poster and the Ethnomathematics poster. Funding for the Modern Women poster is from the MAA and Sun Micro Systems. Funding for the Ethnomathematics poster is from the MAA and HOM SIGMAA.

MAA Prize Session

Friday, August 1 | 11:30 a.m.–Noon

Ballroom AB, Monona Terrace

This session will be moderated by Martha J. Siegel, Towson University, MAA Secretary.

MAA Alder Awards Session

Friday, August 1 | 2:00 p.m.–3:30 p.m.

Lecture Hall, Monona Terrace

In January, 2003, 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 whose teaching has been extraordinarily successful and whose effectiveness in teaching undergraduate mathematics is shown to have influence beyond their own classrooms.

This year's honorees are:

David Brown of Ithaca College | "Numbers, Trees and Secrets: Getting Students to Think About Questions"

Jacqueline A. Jensen of Sam Houston State University | "Engaging Our Majors Outside the Classroom"

Katherine Socha of St. Mary's College of Maryland | "What does it think it's doing running west/When all the other country brooks flow east/To reach the ocean?..."

Presentations will be given by the Award recipients.

Teachers for a New Era's Impact on Mathematics Education

Magnhild Lien, California State University, Northridge

Friday, August 1 | 2:15 p.m. – 3:35 p.m.

Ballroom A, Monona Terrace

In 2002 and 2003, 11 colleges and universities in the United States were designated "Teachers for a New Era Institutions" by the Carnegie Corporation of New York. The three TNE principles are 1) Decisions driven by evidence, 2) Engagements with the Arts and Sciences and 3) Teaching as an academically taught clinical practice profession. The panelists will discuss the impact of TNE on math education at their institutions; mathematical knowledge for teaching; changes that have been made in mathematics courses designed for prospective K-12 teachers; collaborations with (math) education faculty and research projects that are underway.

Using On-Line Homework in Mathematics Classes

Michael E. Gage, Arnold K. Pizer, and Vicki Roth
University of Rochester

Friday, August 1 | 2:15 p.m. – 3:35 p.m.

Ballroom B, Monona Terrace

This panel discussion will present some of the diverse ways that on-line mathematics homework is currently being used in college and university mathematics classes. Focus will be on the effects of on-line homework and related tools on classroom dynamics. We will discuss in what ways (if any) they change what and how we teach. Panelists will include: **Karen Clark**, The College of New Jersey; **Andrew Bennett**, Kansas State University; **Robin Cruz**, Albertson College of Idaho; and **Maria Andersen**, Muskegon Community College. The panel will be moderated by **Vicki Roth**.

How to Apply for Jobs

David Manderscheid, University of Nebraska - Lincoln

Friday, August 1 | 3:15 p.m. – 4:35 p.m.

Ballroom C, Monona Terrace

This session is aimed at Ph.D. students and at recent Ph.D.s. 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? What should you be doing now? Panelists will include: **Sharon Clarke**, Pepperdine University; **James Freeman**, Cornell College; **Sarah Ann Stewart**, Belmont University, and **David Manderscheid**. The session is co-sponsored by the MAA Committee on Graduate Students and the Young Mathematicians Network.

Movie: *Hard Problems*

Friday, August 1 | 4:00 p.m. – 5:45 p.m.

Lecture Hall, Monona Terrace

George Csicsery, Zala Films. An 85 minute documentary about the USA team's participation in the 2006 International Mathematical Olympiad in Slovenia. A question and answer session with Csicsery will follow the film. Other films by Csicsery are *N is a Number: A Portrait of Paul Erdos*, *porridge pulleys and Pi*, *Invitation to Discover*, *Julia Robinson* and *Hilbert's Tenth Problem*.

Workshop on Essential Reasoning Abilities and Conceptual Foundations for Calculus

Marilyn P. Carlson, Arizona State University

Part 1: Friday, August 1 | 9:00 a.m. – 10:30 a.m.

Hall Ideas F, Monona Terrace

Part 2: Saturday, August 2 | 9:00 a.m. – 10:30 a.m.

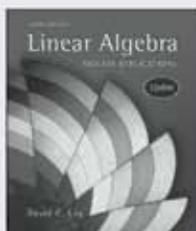
Meeting Room K, Monona Terrace

This workshop will engage participants in tasks that promote reflection about the mathematical development that is needed to prepare students for success in calculus. The research literature on knowing and learning precalculus and beginning calculus will be reviewed and discussed. Participants will view videos of students as they explain their thinking while responding to tasks designed to reveal their understandings and

Pearson Advanced Mathematics

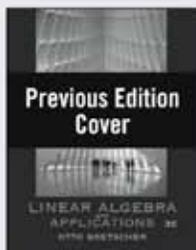
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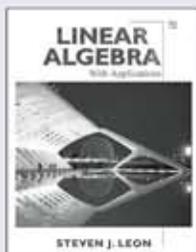
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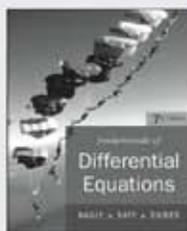
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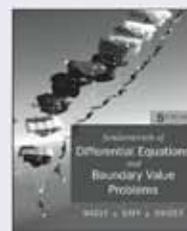
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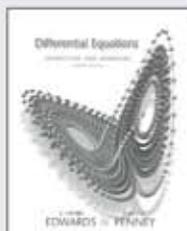
Fundamentals of Differential Equations, Seventh Edition

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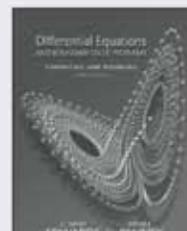
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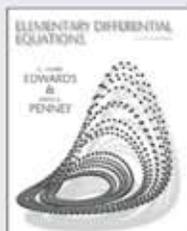
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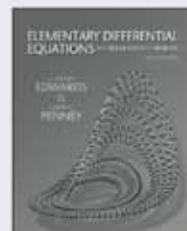
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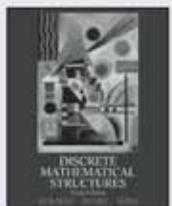
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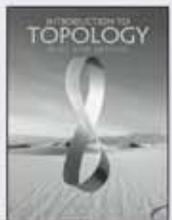
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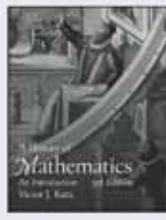
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misconception relative to foundational ideas of calculus (e.g., function, rate of change). Curricular modules that have been designed to promote the development of students' understanding and reasoning abilities will be shared. The Precalculus Concept Assessment Instrument, a research based tool that can be used to assess students' readiness for calculus will be shared

Finding a Good Fit in a Graduate Program

Abbe H. Herzig, SUNY at Albany

Saturday, August 2 | 9:00 a.m. - 10:20 a.m.

Hall Ideas H, Monona Terrace

This interactive panel discussion will give students an overview of why they should consider graduate school, and how to find graduate programs that are the best fit for them. Graduate programs vary broadly. In this session we will help students learn how to investigate which programs best suit their individual interests, needs, and talents. This session is sponsored by the MAA Committee on Graduate Students.

Math Matters: Numerate Approaches to Everyday Issues

Maura Mast, University of Massachusetts– Boston

Rob Root, Lafayette College

Andy Miller, Belmont University

Saturday, August 2 | 9:00 a.m. – 10:20 a.m.

Ballroom C, Monona Terrace

How can mathematics help the average citizen negotiate the world? Issues such as climate change, globalization, the credit and mortgage crisis, and electoral processes and politics have a large impact on our society. Mathematics and statistics are critical tools for appreciating the complexity and impact of these phenomena that affect individual lives and society at large. The panelists in this session, **Andy Miller** of Belmont University, **Donald Saari** of University of California Irvine, **Jonathan Hodge**, Grand Valley State University, and **Bernard Madison**, University of Arkansas, will present approaches to addressing these topics and equipping citizens with the knowledge and habits of mind necessary for understanding these issues and for making personal choices that incorporate this new understanding.

MAA Business Meeting

Saturday, August 2 | 11:30 a.m. – Noon

Ballroom AB, Monona Terrace

This session will be moderated by Martha J. Siegel, Towson University, MAA Secretary.

Flatland: The Movie

Thomas Banchoff, Brown University

Saturday, August 2 | 1:00 p.m. – 2:00 p.m.

Ballroom B, Monona Terrace

Flatland: The Movie is a half-hour animated film produced in 2007 inspired by Edwin A. Abbott's classic novel, *Flatland: A Romance of Many Dimensions*. Set in a world of only two dimensions inhabited by sentient geometrical shapes, the story follows Arthur Square and his ever-curious granddaughter Hex. When a mysterious visitor arrives from Spaceland, Arthur and Hex must come to terms with the truth of the third dimension, risking dire consequences from the evil Circles that have ruled Flatland for a thousand years. A discussion on the use of the film and accompanying materials for teaching at different levels will follow concerning its use in classroom teaching.

Creating a Post-Calculus Pre-Calculus Course for Advanced High School Students

Dan Teague, NC School of Science and Mathematics

Dan Lotesto, Milwaukee Public Schools

Saturday, August 2 | 1:00 p.m. – 2:20 p.m.

Lecture Hall, Monona Terrace

Post-Calculus Precalculus: What are the precalculus topics that it would be helpful to revisit and deepen after (or concurrently with) a high school calculus class and before students get to college? In the rush to calculus, what topics have been forgotten? How can this be done in a way that engages student interest and excites them about mathematics? Since students often select "brand name" courses to improve their college admissions chances, should the MAA create such a course to compete for the attention of post-calculus high school student with the "AP name" on other non-mathematical courses. Panelist will include Doug Kuhlman, Philips Andover; and Paul Zorn, Saint Olaf College. The session is sponsored by SIGMA TASHM.

First-Year Courses Designed to Attract Students to the Serious Study of Mathematics

Michael Starbird, University of Texas

James Sellers, Pennsylvania State University

Saturday, August 2 | 1:00 p.m. – 2:20 p.m.

Ballroom A, Monona Terrace

One of the keys to attracting students to either major or minor in mathematics is to offer them an interesting and engaging course in their first year at college. This session will give faculty from a wide variety of institutions an opportunity to explain what they are doing to “grab” students in this critical first year. Panelists will include: **Art Benjamin**, Harvey Mudd College; **Harriet Pollatsek**, Mt. Holyoke College; **Marilyn Repsher**, Jacksonville University; and **Michael Starbird**.

The Role of Open Source Math Projects in the Mathematics Community

Charles Weaver, University of Phoenix

Jason Aubrey, University of Missouri

Michael Scott, California State University

– Monterey Bay

Saturday, August 2 | 3:00 p.m. – 4:20 p.m.

Lecture Hall, Monona Terrace

Open source projects have assumed an important place in our society. Several academic mathematics projects including MathDL, WeBWorK, SAGE and the Math Forum follow open-source or open-source-like models. Several open source non-academic projects such as PlanetMath and Wikipedia have made mathematical information widely available to the general public. What open source projects exist and what are they doing? What other opportunities are there for open source projects in the mathematics community? How is open source work recognized in the university setting? These and other questions will be addressed in this session. Panelists will include **Aaron Krowne**, PlanetMath; **Michael Gage**, University of Rochester and WeBWorK; **Gene Klotz**, Swarthmore College and Math Forum; **Frank Wattenberg**, US Military Academy and MathDL; **Douglas Ensley**, Shippensburg University and MathDL (moderator). The session is sponsored by Web SIGMAA.

Author signings at the MAA Publications Booth!

Come to the MAA Publications booth for these special MathFest events.

Thursday, July 31 | 11:30 am - 12:00 pm

John dePillis will sign copies of *777 Mathematical Conversation Starters*

The author will do a (*FREE*) caricature of all those who buy the book.

Friday, August 1 | - 11:30 am - 12:00 pm

Art Benjamin will be on hand to share his “secrets” and sign copies of *Secrets of Mental Math*.

Friday, August 1 | 12:00 pm – 12:30 pm

Keith Kendig will sign copies of his new book, *Sink or Float: Thought Problems in Math and Physics*.



Loaded down with exhibitor materials and publications?

Don't want the hassle of traveling with extra weight?

We have the solution!

Exhibit Hall

Friday, August 1 | 9:00 a.m. – Noon

Saturday, August 2 | 9:00 a.m. – 1:00 pm

Undergraduate Student Activities

Wednesday, July 30th

MAA-PME Student Reception

4:30 p.m. – 5:30 p.m.

Senate Rooms AB, Concourse Hotel

Math JEOPARDY

John Harris, Furman University

Mike Berry, University of Tennessee

Mike Mossinghoff, Davidson College

5:30 p.m. – 6:45 p.m.

Wisconsin Ballroom, Concourse Hotel

Answer | A fun undergraduate mathematics contest to lead off MathFest.

Question | What is Math Jeopardy?

Thursday, July 31st

Student Hospitality Center

Coordinated by Richard and Araceli Neal

Hosted by the MAA Committee on Undergraduate Student Activities and Chapters

9:00 a.m. – 5:00 p.m.

Exhibit Hall B, Level 1, Monona Terrace

MAA Lecture for Students

Sudoku: Questions, Variations and Research

Laura Taalman, James Madison University

1:00 p.m. – 1:50 p.m.

Ballroom A, Monona Terrace

Sudoku puzzles and their variants are linked to many mathematical problems involving combinatorics, Latin squares, magic squares, polyominoes, symmetries, computer algorithms, the rook problem, graph colorings, and permutation group theory. In this talk we will explore variations of Sudoku and the many open problems and new results in this new field of recreational mathematics. Many of the problems we will discuss are suitable for undergraduate research projects. Puzzle handouts will be available for all to enjoy!

MAA Student Paper Sessions

J. Lyn Miller, Slippery Rock University

John Hamman, Montgomery College

8:30 a.m. – 10:30 a.m., 2:00 p.m. – 3:55 p.m.,

AND 4:20 p.m. – 6:15 p.m.

Meeting Rooms L, M, N, Q, and R, Monona Terrace

Pi Mu Epsilon Student Paper Sessions

Angela Spalsbury, Youngstown State University

2:00 p.m. – 3:55 p.m. AND 4:20 p.m. – 6:15 p.m.

Meeting Rooms L and M, Monona Terrace

Friday, August 1st

Student Hospitality Center

Coordinated by Richard and Araceli Neal

Hosted by the MAA Committee on Undergraduate Student Activities and Chapters

9:00 a.m. – 5:00 p.m.

Exhibit Hall B, Level 1, Monona Terrace

MAA Student Paper Sessions

J. Lyn Miller, Slippery Rock University

John Hamman, Montgomery College

8:30 a.m. – 10:30 a.m. AND 2:00 p.m. – 4:55 p.m.

Meeting Rooms L, M, N, Q, and R, Monona Terrace

Pi Mu Epsilon Student Paper Sessions

Angela Spalsbury, Youngstown State University

2:00 p.m. – 4:55 p.m.

Meeting Rooms L, M and N, Monona Terrace

MAA Undergraduate Student Activities Session

What is the Color of My Hat?

Ezra (Bud) Brown, Virginia Tech

1:00 p.m. – 1:50 p.m.

Ballroom A, Monona Terrace

Games involving hats are all the rage these days. In these games, hats of specified colors are placed on players' heads. You can see the colors of some or all of the other player's hats, but not your own. In general, the object is to guess your own hat color. In some games, you may only mention a color. In some games you may pass. Wrong guesses may or may not be penalized. Sometimes the players are

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not allowed to communicate with each other during the game. In each case, players meet in advance and plan a strategy that will allow some maximal number of players to correctly guess the colors of their hats. During this session we will describe several Hat Games and the participants will act them out. Hats will be provided!

MAA Undergraduate Student Activities Session

Mathematics in Forensics

Dan Russell, Oklahoma State Bureau of Investigation

1:00 p.m.–1:50 p.m.

Ballroom B, Monona Terrace

When people think of forensic science, most people don't immediately think of the ever increasing role that mathematics plays in solving crimes. This presentation will focus on the many ways that mathematics impacts the forensic community and its ability to aid law enforcement in determining the actual events of a suspected criminal act.

Pi Mu Epsilon Student Banquet and Awards Ceremony

Friday, August 1, 6:00 p.m.–7:45 p.m.

Grand Terrace, Monona Terrace

Pi Mu Epsilon J. Sutherland Frame Lecture: The Symmetries of Things

John H. Conway, Princeton University

8:00 p.m.–8:50 p.m.

Ballroom AB, Monona Terrace

“Thurston’s Commandment,” namely that “Thou shalt not understand the symmetries of a geometrical object save by studying its orbifold” was first used (in fact before Thurston) by Murray MacBeath to enumerate the distinct finite symmetry groups that are possible for objects in space of at most three dimensions (which had been enumerated in another way by Fedorov in the 19th century). The first part of the lecture will describe the resulting groups in terms of a notation I devised some time ago, that also applies to the celebrated 17 crystallographic plane groups. The second part will describe their three-dimensional analogs, the 219 crystallographic space groups, which were re-enumerated recently by a new method due to Conway, Delgado-Friedrichs, Huson and Thurston. It’s all easy, and there will be lots of pictures!

MAA Ice Cream Social

9:00 p.m.–10:00 p.m.

Grand Terrace, Monona Terrace

Besides cake and ice cream, we will recognize all students who gave talks in the MAA Student Paper Sessions, and award prizes for the best of them. Following last year’s success, a performance by Robert Schneider of the indie rock group Apples in Stereo is expected. All are invited.

Saturday, August 2nd

Student Hospitality Center

Coordinated by Richard and Araceli Neal

Hosted by the MAA Committee on Undergraduate Student Activities and Chapters

9:00 a.m.–2:00 p.m.

Exhibit Hall B, Level 1, Monona Terrace

MAA Mathematical Contest in Modeling (MCM) Winners

Ben Fusaro, Florida State University

9:00 a.m.–10:30 a.m.

Hall Ideas E, Monona Terrace

About 500 teams, each consisting of three undergraduates, took part in the 2008 MCM in February. The contest consists of two real(istic) scenarios (one discrete, one continuous) that call for analysis and resolution. MAA judges choose one continuous and one discrete winner from the top contenders and subsidize the teams’ travel to MathFest, where they will present the results of their four-day challenge.

Math Horizons - Meet the Editors

Steve Abbott, Middlebury College

Bruce Torrence, Randolph-Macon College

9:30 a.m.–10:30 a.m.

Lecture Hall, Monona Terrace

In this informal session the co-editors elect of *Math Horizons* will be on hand to answer your questions and solicit your input regarding future directions for *Math Horizons*.

Meet Elvis, Live and In-Person

Do Dogs Know Calculus? Bifurcations at the Beach

Tim Pennings, Hope College

2:00 p.m.–3:15 p.m.

Meeting Room R, Monona Terrace

We will show that dogs — at least my dog, Elvis — knows calculus. That is, Elvis can find the optimal —fastest — route to a ball thrown into the water some distance down the beach.

But what happens when Elvis is positioned in the water and retrieves a ball that is also in the water? When should he swim straight to the ball, and when should he swim in to the shore, run along the shore, and then swim back out to the ball? What is the bifurcation point for the change in optimal strategy? Does Elvis bifurcate? Does his fur bicate?

Dr. Elvis (he has an honorary doctorate degree) will be in the building demonstrating that he's indeed the King of Calculus — and much more than a hound dog.

Student Problem Solving Competition

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

2:30 p.m.–3:45 p.m.

Ballroom A, Monona Terrace

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 second through sixth place winners will be named.

Placement Testing with Maplesoft & the MAA

What type of reporting do you want from your placement test – a cumulative score, scores for individual questions, scores by topic area, information on which distracters were chosen most often? The Maplesoft-MAA Placement Test Suite can provide all of these and more. Come to this



session to discover the reporting capabilities and what information the different reports provide.

Presenter: Louise Krmptotic
Friday, August 1 | 1:00 p.m. – 2:30 p.m.
Monona Terrace, Meeting Room K – Level 4

Graduate Student Activities

Wednesday, July 30th

Math JEOPARDY

John Harris, Furman University

Mike Berry, University of Tennessee

Mike Mossinghoff, Davidson College

5:30 p.m.–6:45 p.m.

Wisconsin Ballroom, Concourse Hotel

Answer | A fun undergraduate mathematics contest to lead off MathFest.

Question | What is Math Jeopardy?

Thursday, July 31st

MAA Lecture for Students Sudoku: Questions, Variations and Research

Laura Taalman, James Madison University

1:00 p.m.–1:50 p.m.

Ballroom A, Monona Terrace

See the description in the Undergraduate Student Activities section on page 50.

Writing for MAA Periodicals

Lowell Beineke, Indiana University– Purdue University

Fort Wayne ; Editor, *The College Mathematics Journal*

**Ivars Peterson, MAA Director of Publications for Journals and
Communications**

1:00 p.m.–2:20 p.m.

Lecture Hall, Monona Terrace

Graduate Student Poster Session

James Freeman, Cornell College

3:30 p.m.–5:00 p.m.

Exhibit Hall B, Monona Terrace

Graduate Student Reception

David Manderscheid, University of Nebraska-Lincoln

James Freeman, Cornell College

5:00 p.m.– 6:00 p.m.

Senate AB, Concourse Hotel

Friday, August 1st

How to Apply for Jobs

David Manderscheid, University of Nebraska-Lincoln

3:15 p.m. – 4:35 p.m.

Ballroom C, Monona Terrace

The session is co-sponsored by the MAA Committee on Graduate Students and the Young Mathematicians Network.

Pi Mu Epsilon J. Sutherland Frame Lecture: The Symmetries of Things

John H. Conway, Princeton University

8:00 p.m. – 8:50 p.m.

Ballroom AB, Monona Terrace

Saturday, August 2nd

Finding a Good Fit in a Graduate Program | Panel Discussion

Abbe Herzig, SUNY at Albany

9:00 a.m. – 10:20 a.m.

Hall Ideas H, Monona Terrace

This interactive panel discussion will give students an overview of why they should consider graduate school, and how to find graduate programs that are the best fit for them. Graduate programs vary broadly, in terms of their mathematical specializations, departmental cultures, size, funding opportunities, demographics, and course and other requirements. While there is no single “best” graduate program, in this session we will help students learn how to investigate which programs best suit their individual interests, needs, and talents. This session is sponsored by the MAA Committee on Graduate Students.

Panel 1 | Career opportunities with an advanced degree.

Jennifer Szydlik, University of Wisconsin-Oshkosh

Abbe Herzig, University at Albany

Jordan Ellenberg, University of Wisconsin-Madison

Stephen Hartke, University of Nebraska-Lincoln

Mark Ward, Purdue University

Panel 2 | How to find a good fit in a graduate program.

Berit Nilsen Givens, CSU Pomona

Heidi Feller, University of Nebraska

Paulette Willis, University of Iowa

Panel 3 | What graduate faculty look for in applicants.

Philip Kutzko, University of Iowa

Stephen Hartke, University of Nebraska-Lincoln

Jordan Ellenberg, University of Wisconsin-Madison

Mark Ward, Purdue University

Math Horizons - Meet the Editors

Steve Abbott, Middlebury College

Bruce Torrence, Randolph-Macon College

9:30 a.m. – 10:30 a.m.

Lecture Hall, Monona Terrace

In this informal session the co-editors elect of *Math Horizons* will be on hand to answer your questions and solicit your input regarding future directions for *Math Horizons*.

Graduate Student Paper Session

James Freeman, Cornell College

1:00 p.m. – 3:00 p.m. AND 3:15 p.m. – 5:15 p.m.

Meeting Room M, Monona Terrace

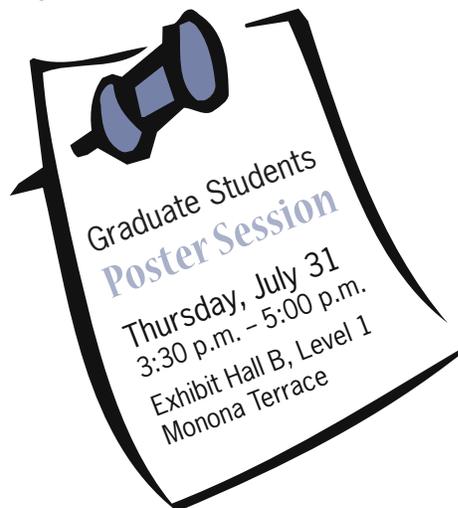
Meet Elvis, Live and In-Person

Do Dogs Know Calculus? Bifurcations at the Beach

Tim Pennings, Hope College

2:00 p.m. – 3:15 p.m.

Meeting Room R, Monona Terrace



Minicourse | 1

A GAME THEORY PATH TO QUANTITATIVE LITERACY

Rick Gillman, Valparaiso University

David Housman, Goshen College

Thursday, July 31 | 1:00 p.m.–3:00 p.m.

Friday, August 1 | 1:00 p.m.–3:00 p.m.

Hall Ideas G, Monona Terrace (both sessions)

Game Theory, defined in the broadest sense, can be used to model many real-world scenarios of decision making in situations involving conflict and cooperation. Further, mastering the basic concepts and tools of game theory require only an understanding of basic algebra, probability, and formal reasoning. These two features of game theory make it an ideal path to developing habits of quantitative literacy among our students. This audience participation minicourse develops some of the material used by the presenters in their general education courses on game theory and encourages participants to develop their own, similar, courses.

Minicourse | 2

THE UBIQUITOUS CATALAN NUMBERS AND THEIR APPLICATIONS

Thomas Koshy, Framingham State College

Thursday, July 31 | 1:00 p.m.–3:00 p.m.

Friday, August 1 | 1:00 p.m.–3:00 p.m.

Hall Ideas J, Monona Terrace (both sessions)

Catalan numbers are both fascinating and ubiquitous. They pop up in quite unexpected places, such as triangulations of convex polygons, correctly parenthesized algebraic expressions, rooted trees, binary trees, full binary trees, trivalent binary trees, lattice-walking, Bertrand's ballot problem, abstract algebra, linear algebra, chess, and the World Series, to name a few. Beginning with a brief history of Catalan numbers, this minicourse presents numerous examples from different areas. We will develop a number of combinatorial formulas for computing them, investigate their parity and their primality-link to Mersenne numbers, and present the various ways they can be extracted from Pascal's triangle and several Pascal-like triangles. As a bonus, we will investigate trinomial coefficients and extract Catalan numbers from them.

Minicourse | 3

TEACHING A PROOF BASED COURSE AS THE GATEWAY TO THE MATHEMATICS MAJOR

James Sandefur, Georgetown University

Connie Campbell, Millsaps College

Thursday, July 31 | 3:30 p.m.–5:30 p.m.

Saturday, August 2 | 1:00 p.m.–3:00 p.m.

Hall Ideas G, Monona Terrace (both sessions)

Many colleges and universities have a gateway course to help mathematics students make the transition to more theoretical courses, with a goal of helping students learn how to understand and construct proofs. The organizer of this course, guided by six years of videotaping his students doing their homework for a proof-based course, will lead participants in an exploration of effective approaches to teaching "proof." We will discuss appropriate types of problems, the wording of problems, effective hints and prompts, and a variety of pedagogical approaches. Suggestions and questions from participants will be encouraged.

Minicourse | 4

HOW TO RUN A SUCCESSFUL MATH CIRCLE

Matthias Beck, San Francisco State University

Tatiana Shubin, San Jose State University

Sam Vandervelde, Saint Lawrence University

Thursday, July 31 | 3:30 p.m.–5:30 p.m.

Saturday, August 2 | 1:00 p.m.–3:00 p.m.

Hall Ideas J, Monona Terrace (both sessions)

Mathematical circles are modeled after those in Eastern Europe and are as successful here as they have been there. Circles bring mathematicians into direct contact with middle or high school students who work together on problems that require deep thinking rather than rote solutions. Running a math circle is a rewarding activity but also presents many challenges. In this minicourse participants will be involved in two abbreviated math circles led by the organizers trying their hand at developing math circles of their own. In addition, there will be discussions of the history, goals, and achievements of existing math circles, as well as suggestions on how to start and maintain new circles.

Minicourse | 5

PERSPECTIVE VIEWING AND DRAWING MAKE GOOD MATH PROBLEMS

Marc Frantz, Indiana University

Annalisa Crannell, Franklin & Marshall College

Friday, August 1 | 3:30 p.m.–5:30 p.m.

Saturday, August 2 | 3:30 p.m.–5:30 p.m.

Hall Ideas G, Monona Terrace (both sessions)

The execution of the simplest line drawings in perspective can pose math problems that challenge the brightest of students. Nevertheless, the solutions are pleasingly easy to use and remember. The other side of the coin—viewing a work in perspective from the correct viewpoint—poses similarly interesting problems. When applied to viewing real artwork (or posters), these techniques lead to an astonishing experience of depth and realism that leaves a lasting impression on viewers. This minicourse conveys these techniques through hands-on activities, which the facilitators have taught to over 140 instructors in faculty development workshops. No artistic experience is required.

Minicourse | 6

MATHEMATICS AND THE GEOMETRY OF VOTING

Donald G. Saari, University of California Irvine

Friday, August 1 | 3:30 p.m.–5:30 p.m.

Saturday, August 2 | 3:30 p.m.–5:30 p.m.

Hall Ideas J, Monona Terrace (both sessions)

It is election year! But will we elect whom we really want? What raises a concern is that, by now, most of us know that voting rules can cause unexpected outcomes and delicious paradoxes. The standard plurality ranking, for instance, can be Alice > Barb > Connie even though the “vote for two” outcome is precisely the opposite. The mathematical issues—which constitute the theme of this course—are to identify everything that can possibly happen and explain why they occur, to describe how to construct any number of illustrating examples, to identify the “best” voting rule, and to learn how to convert some of these recent research results into rich course offerings for our undergraduates—particularly for Fall term of this coming year.

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To learn more, attend the presentation “Placement Testing with Maplesoft and the MAA” on Friday, August 1st from 1:00-2:30 pm, Level 4-Monona Terrace, Meeting Room K.

Visit Maplesoft at Booth #16. While you're at the booth, enter our draw to win a free home-use copy of Maple 12 and pick up your complimentary Math Matters poster. *With Maplesoft, math just clicks!*

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Two-Day Short Course

Game-Theoretic Modeling: Techniques and Applications

Michael A. Jones, Montclair State University

Part I: Tuesday, July 29, 9:00 a.m.–5:00 p.m.

Part II: Wednesday, July 30, 9:00 a.m.–5:00 p.m.

Capital Ballroom B, Concourse Hotel

The object of this short course is to learn about both the mathematical techniques that collectively can be called game theory and the range of applications that can be modeled using these techniques. Techniques will include simultaneous and sequential move games under different information assumptions, cooperative games, mechanism design, theory of moves — a dynamic extension of game theory, and a qualitative approach to evolutionary game theory. Applications will be drawn from biology, economics, environmental science, literature, political science, and popular culture.

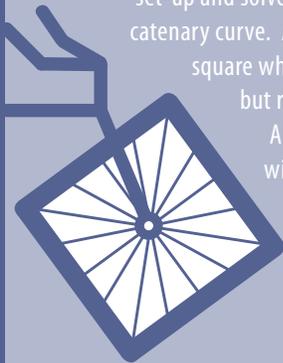
From Decision Theory to Game Theory: An Introduction and Overview to the Short Course

Michael A. Jones, Montclair State University

Square Bicycle Wheel Demonstration

Presented by St. Norbert College

As part of a *Special Topics: Mathematical Modeling* course taught by Dr. Terry Jo Leiterman at St. Norbert College, a class of twelve undergraduate students took on the task of building a square wheel bicycle. To fulfill the requirement of a smooth bike ride, the road was found as the solution to a differential equation, set-up and solved by the class, with the result being a catenary curve. At this exhibit, the St. Norbert College square wheel bicycle will not only be on display but rode - smoothly! In addition, students Alicia Brinkman and Stephanie Schauer will give related math talks in the Pi Mu Epsilon Student Session and Dr. Leiterman will give a lecture on the unique aspects of the course and project in the General Session.



**Exhibit Hall B, Monona Terrace |
Friday, August 1 | 11:30 a.m - 1:30 pm.**

Non-cooperative Game Theory with Applications to Popular Culture

Paul Coe, Dominican University

Extensive-Form Games

D. Marc Kilgour, Wilfrid Laurier University

Cooperative Game Theory

Jennifer Wilson, New School University

Modeling Auctions: Game Theory and Beyond

Michael Rothkopf, Penn State University

Game Theory and Emotions

Steven J. Brams, New York University

A Qualitative Approach to Evolutionary Game Theory

Donald G. Saari, University of California, Irvine

The program will conclude with a panel discussion, **Game Theory In and Out of the Classroom**. To view full abstracts of the Short Course lectures visit the MathFest website, www.maa.org/mathfest.

How to Motivate Students by Using Software

Discover the benefits of using interactive software in teaching and learning mathematics. Hawkes Learning Systems promotes grade improvement and motivates students to learn by providing tutorials, unlimited practice, helpful feedback provided by artificial intelligence, and mastery-based homework. Come see a demonstration of our state-of-the-art test generator, online grade book and student courseware!



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Presenter: Merideth Thomerson
Friday, August 1 | 3:30 p.m.–5:00 p.m.
Monona Terrace, Meeting Room K – Level 4

SIGMAA on Mathematics and the Arts

Art Exhibit

Thursday, Friday, and Saturday
Exhibit Hall B, Level 1, Monona Terrace

SIGMAA on Quantitative Literacy

The Role of Quantitative Literacy Centers in Supporting Students (and Faculty)

Thursday | 9:00 a.m.–10:20 a.m.
Ballroom C, Monona Terrace

Math Matters: Numerate Approaches to Everyday Issues

Saturday | 9:00 a.m.–10:30 a.m.
Ballroom C, Monona Terrace

SIGMAA on Mathematical and Computational Biology

Integrating Biology and Mathematics

Thursday | 1:00 p.m.–3:00 p.m.
Ballroom D, Monona Terrace

SIGMAA on the History of Mathematics

Grand Poster Unveiling and Reception

Thursday | 4:00 p.m.–5:00 p.m.
Ballroom A, Monona Terrace

Interesting Topics in History of Mathematics that Enhance the Teaching and Learning of Mathematics

Saturday | 8:30 a.m.–10:30 a.m.
Meeting Room R, Monona Terrace

Invited Paper Session on History of Mathematics

Saturday | 1:00 p.m.–3:00 p.m.
Ballroom D, Monona Terrace

SIGMAA on Teaching Advanced High School Mathematics

Business Meeting and Reception

Thursday | 5:00 p.m.–6:00 p.m.
Ballroom C, Monona Terrace

Creating a Post-Calculus Precalculus Course for Advanced High School Students

Saturday, August 2, 1:00 pm–2:20 pm
Lecture Hall, Monona Terrace

SIGMAA on Research in Undergraduate Mathematics Education

Workshop on Essential Reasoning Abilities and Conceptual Foundations for Calculus

Friday and Saturday | 9:00 a.m.–10:30 a.m.
Hall Ideas F, Monona Terrace (both sessions)

SIGMAA on the Philosophy of Mathematics

Guest Lecture and Reception

Friday | 4:00 p.m.–5:30 p.m.
Ballroom A, Monona Terrace

Mo Hirsch, UC Berkeley, will be the speaker.

SIGMAA on Environmental Mathematics

Guest Lecturer and Business Meeting

Friday | 4:30 p.m.–6:00 p.m.
Ballroom D, Monona Terrace

“Models for Managing Forested Landscapes”

Joseph Buongiorno, University of Wisconsin, Department of Forestry Ecology

Tour of Frank Lloyd Wright’s environmentally-oriented Madison Convention Center. A Saturday afternoon bus trip to Aldo Leopold’s research area in nearby Sand County, led by Joseph Buongiorno. Aldo Leopold is the father of biology-based forestry. He transformed forestry from a strictly extractive “woodlot” approach to the management of a living system. The trip will take approximately three hours.

Group Tours

Wednesday, July 30 | 8:30 a.m.–2:30 p.m.

Main Entrance, Concourse Hotel

The Madison Tour will be an overview of some of the significant gems of the Capital City. Included will be a tour of the Capital itself, Madison's Overture Center, home of Madison's artistic community, a tour through the University, the First Unitarian Society Meeting House, Frank Lloyd Wright's Gilmore House, Louis Sullivan's Bradley House, and a self-guided exploration through the Olbrich Gardens and Thai Pavilion. We will end our tour with an "on your own" lunch at Quivey's Grove, a four acre country estate featuring a fieldstone mansion and stable built in 1855, and on the National Register of Historic Places. Lunch prices range from \$7 to \$11. Join us for this limited attendance tour leaving from The Concourse Hotel. Most of the tour will be by bus, but some walking will be required. Join us for this five-hour tour.

Tickets are \$25 per person.

Math JEOPARDY

Wednesday, July 30 | 5:30 p.m.–6:45 p.m.

Wisconsin Ballroom, Concourse Hotel

Four teams of students will provide the questions to go with the mathematical answers in many categories. Come cheer for your favorite team. The session will be emceed by Mike Berry, University of Tennessee.

Opening Reception

Wednesday, July 30 | 6:30 p.m.–7:30 p.m.

Madison Ballroom, Monona Terrace

The Association is pleased to hold a reception with a cash bar for all MathFest participants immediately preceding the Opening Banquet.

Opening Banquet

Wednesday, July 30 | 7:30 p.m.–9:30 p.m.

Capital AB Ballroom, Monona Terrace

Continue the exciting evening by joining new and long-time friends and colleagues for a fine dinner. There will be an after-dinner presentation by Larry Lesser, University of Texas at El Paso, who will lead a "Non-Monotone Math Song Sing-Along!" To whet your appetite, you may sample some of Lesser's greater hits at: www.math.utep.edu/Faculty/lesser/Mathemusician.html.

Serving as mistress of ceremonies will be Jennifer Quinn, from the University of Washington at Tacoma. Tickets are \$45 per person. Choice of entrees available.

Jazz on the Terrace

Thursday, July 31 | 7:00 p.m.–10:00 p.m.

Rooftop, Monona Terrace

Join us on the rooftop of The Monona Terrace on Thursday evening where we will have an evening of Jazz in the gardens overlooking the Capitol and Lake Monona. This event will feature heavy hors d'oeuvres, and a cash bar.

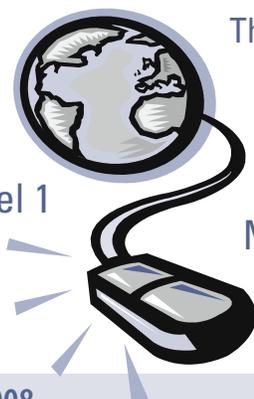
Music will be provided by SwingTime Music, a Madison based jazz combo headed by drummer John Lombardo. The group provides fun, danceable music which will make you smile and be the highlight of your evening.

You will recognize jazz standards, as well as adapted pop tunes from the fifties, sixties and seventies. Familiar tunes, like "Satin Doll," "Take the A Train," "Girl From Ipanema," and "Shadow of Your Smile" bring back the glamour of the swing era and jazz greats such as Count Basie, Duke Ellington, and Cole Porter. <http://www.swingtimemusic.net>.

Cash bar. Ticket price is \$45 per person.

Visit the Email Lab

Exhibit Hall B | Level 1



Thursday, July 31 | 9:00 am – 5:00 pm

Friday, August 1 | 9:00 am – 5:00 pm

Saturday, August 2 | 9:00 am – 1:45 pm

Monona Terrace and
Convention Center

UW-Madison Alumni Reunion

Friday, August 1 | 7:00pm–9:00pm

UW-Madison Campus, Van Vleck Hall | Rm. 911

Reunion for anybody with a connection to the UW-Madison Math Department. View interactive map online at <http://www.wisc.edu/map> for location and parking lots.

5K Fun Run/Walk

Saturday, August 2 | 7:00 a.m.–9:00 a.m.

Meet in the lobby, Monona Terrace

The Fun Run/Walk will be held on the Monona Terrace bike path on Saturday, August 2. Check-in is at 7:00 a.m. just outside the bike path doors; the run/walk will start at 7:30 a.m. Interested runners/walkers should sign up at the Registration Desk by Friday afternoon, August 1. There is a \$15 registration fee and all registrants receive a free T-shirt.

Aldo Leopold Legacy Center Trip

Saturday, August 2 | 1:30 p.m.–5:00 p.m.

Meet in the lobby, Monona Terrace

The Environmental Mathematics SIG will sponsor a bus trip to the Aldo Leopold Legacy Center in nearby Sand County. Leopold is the father of biology-based forestry. He transformed forestry from a strictly extractive “woodlot” approach to the management of a living system. Leopold was a professor at the University of Wisconsin. The guide will be Professor Joseph Buongiorno, UW Department of Forest Ecology, the very department that Leopold molded into a world center for nature-oriented forestry.

The cost is \$20 (\$15 for EM SIG members).

<http://www.aldoleopold.org/LandEthicCampaign/campaign.htm>.

MAA Silver & Gold Reception and Banquet

Saturday, August 2 | 6:00 p.m.–9:00 p.m.

Grand Terrace, Monona Terrace

Our annual end-of-meeting banquet is a time to honor MAA dignitaries and have a very special conclusion to the meeting. Please join us in the Monona Terrace Grand Terrace for this ticketed event.

Paul Sally, University of Chicago, is the invited speaker. His talk will be “Roots to Research: A Vertical Development of Mathematical Problems.” Richard Askey, University of Wisconsin will be the emcee. Cash bar. Tickets are \$45 per person.

Monona Terrace Green Tours

Thursday, July 31 | 2:00 p.m.

Friday, August 1 | 11:30 a.m.

Saturday, August 2 | 11:00 a.m.

Registration, Lakeside Commons

Group Tours of our Conference Site, a Green Certified Convention Center will be conducted Thursday, Friday and Saturday. Join us for an in-depth look of the Frank Lloyd Wright inspired facility and discussion of practices and procedures in place on-site and in conjunction with The City of Madison that have led to this designation.

These tours are free to our registrants.

Taliesin Tour

Sunday, August 3 | 8:15 a.m.–12:15 p.m.

Meet in the lobby, Concourse Hotel

Visit Taliesin, Frank Lloyd Wright’s home and compound near Spring Green, WI. Wright used Taliesin as a laboratory where his ideas emerged, were tested and refined. We will spend two hours touring the home, viewing furnishings, art collections, and gardens. Along the way we will view the landscape that inspired Frank Lloyd Wright, making him one of America’s pre-eminent architects. We will take a bus to the estate, where a group tour will be conducted. We will return by 12:15. There will be a significant amount of standing and walking so wear comfortable shoes. Children under 12 will be unable to join this tour.

Tickets are \$50 per person.

<http://www.taliesinpreservation.org/>

Registration:

The on-site registration desk will be located in the Lakeside Commons on level one of the Monona Terrace Community and Convention Center. It will be open Wednesday, July 30 from 2:00 pm to 7:00 pm, Thursday, July 31 and Friday, August 1 from 8:00 am to 4:00 pm, and Saturday, August 2 from 8:00 am to 2:00 pm. You may pick up your registration materials, register on-site, and purchase event tickets, where available, at this location.

Shuttle times:

Date	Time	Between
Wednesday, July 30	5:00–10:00pm	Ogg Hall/Pyle Center Concourse Hotel
Thursday, July 31	7:15–11:15am 4:00–10:00pm	Ogg Hall - Monona Terrace Monona Terrace - Ogg Hall
Friday, August 1	7:15–11:15am 4:00–10:00pm	Ogg Hall - Monona Terrace Monona Terrace - Ogg Hall
Saturday, August 2	7:15–11:15am 4:00–10:00pm	Ogg Hall - Monona Terrace Monona Terrace - Ogg Hall

MathFest Housing

Hotels | The headquarters hotel for MathFest is the Madison Concourse Hotel, and Governor’s Club (608) 257-6000, at One West Dayton Street. Rooms may also be reserved at the Hilton Madison Monona Terrace (608) 260-2363, The Best Western Inn on the Park (800) 279-8811, or the University of Wisconsin, Madison Conference Housing.

Dorms | Ogg Hall, a University residence hall located at 835 West Dayton Street, is conveniently located within blocks of the conference sites. Rooms are available either as double or single occupancy, all with single/twin beds. Ogg Hall will be open to receive guests at the hall desk beginning on Wednesday, July 30 at 12:00 pm and will be available to check-in and out anytime through Sunday, August 3, by 12:00 pm.



Friday, August 1 | 9:00 a.m. – Noon
Saturday, August 2 | 9:00 a.m. – 1:00 pm

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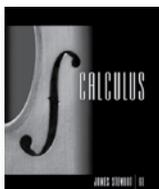
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Exhibit Hall

Be sure to schedule some time to visit this year's MathFest Exhibit Hall. MathFest attracts a wide variety of exhibitors, from some of the foremost publishers of mathematical and scientific books and journals, to purveyors of cutting-edge software and technology, to companies who provide support for those in the educational community. Whatever your interests may be, the MathFest Exhibit Hall is sure to have something for you. There are even booths where you can pick up gifts for the family!

Scavenger Hunt

Don't miss out on the MathFest Scavenger Hunt. Stop by exhibitor booths to get information that will help you to fill out the Scavenger Hunt form found in your registration packet. Return it with the correct answers, and you become eligible to win some really great prizes. The drawings will be held in the Exhibit Hall. Who knows? You could end up a winner!

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Location

Monona Terrace Community and Convention Center

Exhibit Hall B—Level 1

Exhibit Hours

Thursday, July 31 | 9:00 am–5:00 pm

Friday, August 1 | 9:00 am–5:00 pm

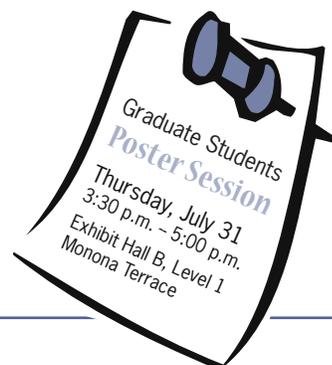
Saturday, August 2 | 9:00 am–2:00 pm

Email Lab Hours

Thursday, July 31 | 9:00 am–5:00 pm

Friday, August 1 | 9:00 am–5:00 pm

Saturday, August 2 | 9:00 am–2:00 pm



Join your colleagues in the Exhibit Hall for a

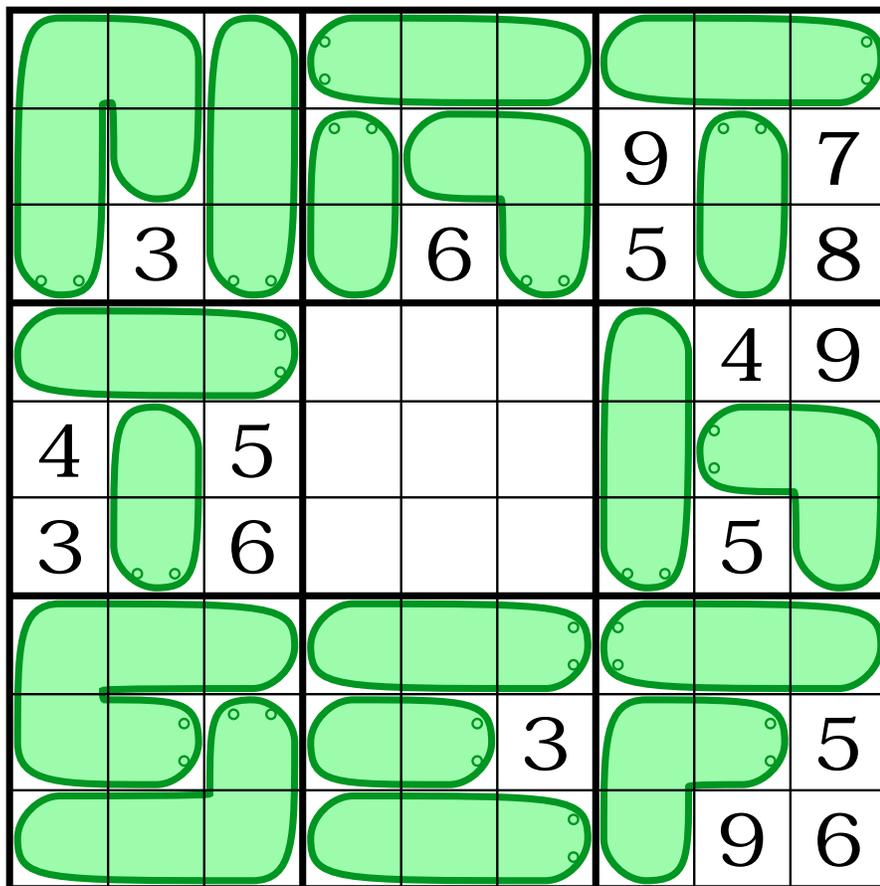
Wisconsin Cheese and Crackers Networking Hour

Thursday, July 31
 3:30 p.m. – 4:30 p.m.



Exhibit Hall B – Level 1
 Monona Terrace and Convention Center

Have fun with this puzzle during your breaks from the sessions.



Sudoku

See MAA Online next week for solutions.

Puzzle by Philip Riley and Laura Taalman of Brainfreeze Puzzles. For lots of free Sudoku variation puzzles go to brainfreezepuzzles.com.

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