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# Program at a Glance

This document provides a thumbnail sketch of all scientific and social events so you can easily see which events may overlap and better plan your time.



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## Tuesday, January 04

- 9:00 a.m.–5:00 p.m.    **AMS SHORT COURSE ON EVOLUTIONARY GAME DYNAMICS, PART I**
- 9:00 a.m.–5:00 p.m.    **AMS SHORT COURSE ON COMPUTATIONAL TOPOLOGY, PART I**
- 9:00 a.m.–5:00 p.m.    **MAA SHORT COURSE ON WHAT IS A MATROID? THEORY AND APPLICATIONS, FROM THE GROUND UP, PART I**

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## Wednesday, January 05

- 8:00 a.m.–6:00 p.m.    **AMS DEPARTMENT CHAIRS WORKSHOP**
- 9:00 a.m.–5:00 p.m.    **AMS SHORT COURSE ON EVOLUTIONARY GAME DYNAMICS, PART II**
- 9:00 a.m.–5:00 p.m.    **AMS SHORT COURSE ON COMPUTATIONAL TOPOLOGY, PART II**
- 9:00 a.m.–5:00 p.m.    **MAA SHORT COURSE ON WHAT IS A MATROID? THEORY AND APPLICATIONS, FROM THE GROUND UP, PART II**
- 9:00 a.m.–5:00 p.m.    **MAA BOARD OF GOVERNORS**
- 1:30 p.m.–10:00 p.m.    **AMS COUNCIL**
- 3:00 p.m.–7:00 p.m.    **JOINT MEETINGS REGISTRATION, La Galerie Foyer, 2nd Floor, Marriott**

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## Thursday, January 06

- 7:30 a.m.–4:00 p.m.    **JOINT MEETINGS REGISTRATION, La Galerie Foyer, 2nd Floor, Marriott**
- AMS SPECIAL SESSIONS**
- 8:00 a.m.–10:50 a.m.    *Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, I (AMS-MAA-SIAM)*
- 8:00 a.m.–10:50 a.m.    *History of Mathematics, I (AMS-MAA)*
- 8:00 a.m.–10:50 a.m.    *Mathematics of Computation: Differential Equations, Linear Algebra, and Applications, I (AMS-SIAM)*
- 8:00 a.m.–10:50 a.m.    *Nonlinear Waves and Integrable Systems, I (AMS-SIAM)*
- 8:00 a.m.–10:50 a.m.    *Quadratic Forms in Algebra and Geometry, I*
- 8:00 a.m.–10:50 a.m.    *Mathematical Techniques in Musical Analysis, I*
- 8:00 a.m.–10:50 a.m.    *Integral Geometry: Analysis and Applications, I*
- 8:00 a.m.–10:50 a.m.    *Theory and Application of Stochastic Differential Equations and Stochastic Partial Differential Equations, I*
- 8:00 a.m.–10:50 a.m.    *Transseries and Ordered Exponential Fields, I*
- 8:00 a.m.–10:50 a.m.    *Analytic and Geometric Methods in Representation Theory, I*
- 8:00 a.m.–10:50 a.m.    *Geometric Group Theory, I*
- 8:00 a.m.–10:50 a.m.    *Computational Algebraic and Analytic Geometry for Low-Dimensional Varieties, I*

- 8:00 a.m.–10:50 a.m. *Mathematical Modeling in Environmental Economics, I*  
 8:00 a.m.–10:50 a.m. *Expander Graphs in Pure and Applied Mathematics, I*
- MAA INVITED PAPER SESSION**  
 8:00 a.m.–10:50 a.m. *The Rebirth of Special Functions*
- MAA CONTRIBUTED PAPER SESSIONS**  
 8:00 a.m.–10:55 a.m. *Harnessing Mobile Communication Devices and Online Communication Tools for Mathematics Education*  
 8:00 a.m.–10:55 a.m. *The Scholarship of Teaching and Learning in Collegiate Mathematics*  
 8:00 a.m.–10:55 a.m. *Wavelets In Undergraduate Education*  
 8:00 a.m.–10:55 a.m. *General Contributed Paper Session, I*  
 8:00 a.m.–10:50 a.m. **SIAM MINISYMPOSIUM ON APPLICATIONS OF DIFFERENCE AND DIFFERENTIAL EQUATIONS IN ECOLOGY AND EPIDEMIOLOGY, I**
- 8:00 a.m.–7:00 p.m. **EMPLOYMENT CENTER**
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #4: PART A** *Getting students involved in undergraduate research.*  
 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #7: PART A** *The mathematics of Islam and its use in the teaching of mathematics.*  
 9:00 a.m.–11:00 a.m. **MAA MINICOURSE: #8: PART A** *The ubiquitous Catalan numbers and their applications.*  
 9:00 a.m.–10:20 a.m. **MAA PANEL DISCUSSION** *For MAA Student Chapter advisors: Dynamic answers to your questions.*  
 9:00 a.m.–11:00 a.m. **MAA COMMITTEE ON THE PARTICIPATION OF WOMEN/WOMEN IN MATHEMATICS NETWORK POSTER SESSION** *Mathematical outreach programs for underrepresented populations.*  
 9:00 a.m.–10:20 a.m. **MAA PANEL DISCUSSION** *National Science Foundation programs supporting learning and teaching in the mathematical sciences.*  
 9:30 a.m.–11:00 a.m. **MAA DEPARTMENT LIAISONS MEETING**
- 10:05 a.m.–10:55 a.m. **AMS INVITED ADDRESS** *The symplectic geometry of symmetric products and invariants of 3-manifolds with boundary. Denis Auroux*
- 11:10 a.m.–12:00 p.m. **AMS-MAA INVITED ADDRESS** *Curves, surfaces, and solitons. Chuu-Lian Terng*
- 1:00 p.m.–2:00 p.m. **AMS COLLOQUIUM LECTURES: LECTURE I** *Expander graphs in pure and applied mathematics, I. Alexander Lubotzky*
- 2:15 p.m.–3:05 p.m. **MAA INVITED ADDRESS** *Laplacian growth and the mystery of the abelian sandpile: A visual tour. Yuval Peres*
- AMS SPECIAL SESSIONS**  
 2:15 p.m.–6:05 p.m. *Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, II (AMS-MAA-SIAM)*  
 2:15 p.m.–6:05 p.m. *History of Mathematics, II (AMS-MAA)*  
 2:15 p.m.–6:05 p.m. *Mathematics of Computation: Differential Equations, Linear Algebra, and Applications, II (AMS-SIAM)*  
 2:15 p.m.–6:05 p.m. *Nonlinear Waves and Integrable Systems, II (AMS-SIAM)*  
 2:15 p.m.–6:05 p.m. *Quadratic Forms in Algebra and Geometry, II*  
 2:15 p.m.–6:05 p.m. *Mathematical Techniques in Musical Analysis, II*  
 2:15 p.m.–6:05 p.m. *Integral Geometry: Analysis and Applications, II*  
 2:15 p.m.–6:05 p.m. *Theory and Application of Stochastic Differential Equations and Stochastic Partial Differential Equations, II*  
 2:15 p.m.–6:05 p.m. *Transseries and Ordered Exponential Fields, I*  
 2:15 p.m.–6:05 p.m. *Analytic and Geometric Methods in Representation Theory, II*  
 2:15 p.m.–6:05 p.m. *Geometric Group Theory, II*  
 2:15 p.m.–6:05 p.m. *Computational Algebraic and Analytic Geometry for Low-Dimensional Varieties, II*  
 2:15 p.m.–6:05 p.m. *Mathematical Modeling in Environmental Economics, II*  
 2:15 p.m.–6:05 p.m. *Interactions of Inverse Problems, Signal Processing, and Imaging, I*

## Meetings & Conferences

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- 2:15 p.m.–4:15 p.m. **MAA MINICOURSE #1 1: PART A** *Using video case studies in teaching a proof-based gateway course to the mathematics major.*
- 2:15 p.m.–4:15 p.m. **MAA MINICOURSE #2: PART A** *Getting mathematics majors to think outside the book: Course activities that promote exploration, discovery, conjecture, and proof.*
- 2:15 p.m.–4:15 p.m. **MAA MINICOURSE #9: PART A** *Learning discrete mathematics via historical projects.*
- MAA CONTRIBUTED PAPER SESSIONS**
- 2:15 p.m.–6:00 p.m. *Cryptology for Undergraduates*
- 2:15 p.m.–6:00 p.m. *The Mathematics of Games and Puzzles*
- 2:15 p.m.–6:00 p.m. *Getting Students Involved in Writing Proofs*
- 2:15 p.m.–6:00 p.m. *Innovations in Service-Learning at All Levels*
- 2:15 p.m.–6:00 p.m. *General Contributed Paper Session, II*
- 2:15 p.m.–5:15 p.m. **SIAM MINISYMPOSIUM ON APPLICATIONS OF DIFFERENCE AND DIFFERENTIAL EQUATIONS IN ECOLOGY AND EPIDEMIOLOGY, II**
- 2:15 p.m.–3:35 p.m. **MAA COMMITTEE ON GRADUATE STUDENTS/YOUNG MATHEMATICIANS NETWORK PANEL DISCUSSION** *How to interview for a job in the mathematical sciences.*
- 2:15 p.m.–3:35 p.m. **MAA PANEL DISCUSSION** *Reporting progress: A minisymposium of projects from the NSF Course, Curriculum, and Laboratory Improvement Program.*
- 2:15 p.m.–2:45 p.m. **AWM BUSINESS MEETING**
- 2:30 p.m.–5:00 p.m. **MAA SECTION OFFICERS**
- 2:45 p.m.–6:15 p.m. **AWM SCHAFFER MINISYMPOSIUM**
- 3:20 p.m.–4:10 p.m. **MAA INVITED ADDRESS** *On the intersection of graphs and geometry.* Edward R. Scheinerman
- MAA INVITED PAPER SESSIONS**
- 3:30 p.m.–6:20 p.m. *Laplacian Growth: Visual Mathematics*
- 3:50 p.m.–5:10 p.m. **MAA-NCTM MUTUAL CONCERNS COMMITTEE PANEL DISCUSSION** *Transition from high school to college: Should there be an alternate to calculus?*
- 4:00 p.m.–6:00 p.m. **MAA PROJECT NEXT—YOUNG MATHEMATICIANS' NETWORK POSTER SESSION**
- 4:30 p.m.–6:00 p.m. **AMS COMMITTEE ON THE PROFESSION PANEL DISCUSSION** *What I wish I had known before applying for a job.*
- 5:00 p.m.–7:00 p.m. **MAA PANEL DISCUSSION** *Current issues in actuarial science education.*
- 5:30 p.m.–6:30 p.m. **SIGMAA ON THE HISTORY OF MATHEMATICS RECEPTION AND BUSINESS MEETING**
- 5:30 p.m.–6:00 p.m. **SIGMAA ON QUANTITATIVE LITERACY BUSINESS MEETING**
- 5:30 p.m.–8:00 p.m. **MATHEMATICAL INSTITUTES OPEN HOUSE**
- 6:00 p.m.–7:00 p.m. **SIGMAA ON QUANTITATIVE LITERACY RECEPTION AND PANEL DISCUSSION** *Mathematics and democracy ten years later.*
- 6:00 p.m.–7:00 p.m. **SIGMAA ON TEACHING ADVANCED HIGH SCHOOL MATHEMATICS BUSINESS MEETING**
- 6:00 p.m.–8:00 p.m. **PENNSYLVANIA STATE UNIVERSITY MATHEMATICS RECEPTION FOR ALUMNI AND FRIENDS**
- 6:30 p.m.–7:30 p.m. **SIGMAA ON THE HISTORY OF MATHEMATICS GUEST LECTURE**
- 8:30 p.m.–9:30 p.m. **AMS JOSIAH WILLARD GIBBS LECTURE** *Title to be announced.* George Papanicolaou
- 9:30 p.m.–11:00 p.m. **AWM RECEPTION**

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## Friday, January 07

- 7:30 a.m.–4:00 p.m. **JOINT MEETINGS REGISTRATION**, La Galerie Foyer, 2nd Floor, Marriott
- AMS SPECIAL SESSIONS**
- 8:00 a.m.–11:50 a.m. *Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, III (AMS-MAA-SIAM)*

- 8:00 a.m.–11:50 a.m. *Mathematics and Education Reform, I (AMS-MAA-MER)*
- 8:00 a.m.–11:50 a.m. *History of Mathematics, III (AMS-MAA)*
- 8:00 a.m.–11:50 a.m. *Mathematics of Computation: Algebra and Number Theory, I (AMS-SIAM)*
- 8:00 a.m.–11:50 a.m. *Logic and Analysis, I (AMS-ASL)*
- 8:00 a.m.–11:50 a.m. *Birational Geometry and Moduli Spaces (Mathematics Research Communities session), I*
- 8:00 a.m.–11:50 a.m. *Wavelets, Tilings, and Iterated Function Systems, I*
- 8:00 a.m.–11:50 a.m. *Stochastic Analysis and Random Phenomena, I*
- 8:00 a.m.–11:50 a.m. *Model Theory of Fields and Applications (Mathematics Research Communities session), I*
- 8:00 a.m.–11:50 a.m. *Commutative Algebra (Mathematics Research Communities session), I*
- 8:00 a.m.–11:50 a.m. *Structured Models in Ecology, Evolution, and Epidemiology: Periodicity, Extinction, and Chaos, I*
- 8:00 a.m.–11:50 a.m. *Boundary Control and Moving Interface in Coupled Systems of Partial Differential Equations, I*
- 8:00 a.m.–11:50 a.m. *Expander Graphs in Pure and Applied Mathematics, II*
- 8:00 a.m.–11:50 a.m. *Groups, Geometry, and Applications, I*
- 8:00 a.m.–10:00 a.m. **MAA MINICOURSE #3: PART A** *Geometry and algebra in mathematical music theory.*
- MAA CONTRIBUTED PAPER SESSIONS**
- 8:00 a.m.–12:00 p.m. *Cool Calculus: Lessons Learned Through Innovative and Effective Supplemental Projects, Activities, and Strategies for Teaching Calculus*
- 8:00 a.m.–12:00 p.m. *Innovative and Effective Ways to Teach Linear Algebra*
- 8:00 a.m.–12:00 p.m. *Modeling in the ODE Driver's Seat*
- 8:00 a.m.–12:00 p.m. *General Contributed Paper Session, III*
- 8:00 a.m.–10:50 a.m. **SIAM MINISYMPOSIUM ON COMBINATORIAL OPTIMIZATION, I**
- 8:00 a.m.–11:00 a.m. **AWM HAY MINISYMPOSIUM**
- 8:00 a.m.–10:55 a.m. **SIGMAA RUME SESSION ON RESEARCH ON THE TEACHING AND LEARNING OF UNDERGRADUATE MATHEMATICS, I**
- 8:00 a.m.–7:00 p.m. **EMPLOYMENT CENTER**
- 9:00 a.m.–9:50 a.m. **MAA INVITED ADDRESS** *Sea battles, Benjamin Franklin's oil lamp, and jellybellies.* Katherine Socha
- MAA INVITED PAPER SESSION**
- 9:00 a.m.–11:55 a.m. *The Beauty and Power of Number Theory*
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #12: PART A** *Concepts, data, and models: College algebra for the real world.*
- 9:00 a.m.–11:00 p.m. **MAA MINICOURSE #6: PART A** *Green linear optimization.*
- 9:00 a.m.–10:20 a.m. **MAA-YOUNG MATHEMATICIANS' NETWORK PANEL DISCUSSION** *Career options for undergraduate mathematics majors.*
- 9:00 a.m.–10:20 a.m. **MAA SESSION FOR CHAIRS** *The new MAA Curriculum Guide: What should it be?*
- 9:30 a.m.–11:00 a.m. **AMS SPECIAL PRESENTATION** *Who wants to be a mathematician—National contest.*
- 9:30 a.m.–5:30 p.m. **EXHIBITS AND BOOK SALES**
- 10:00 a.m.–12:00 p.m. **MAA COMMITTEE ON GRADUATE STUDENTS POSTER SESSION**
- 10:05 a.m.–10:55 a.m. **AWM EMMY NOETHER LECTURE** *Title to be announced.* M. Susan Montgomery
- 10:30 a.m.–12:30 p.m. **MAA MINICOURSE: #5: PART A** *A Game Theory path to quantitative literacy.*
- 10:30 a.m.–12:00 p.m. **SIGMAA OFFICERS MEETING**
- 10:35 a.m.–11:55 a.m. **MAA PANEL DISCUSSION** *Writing the history of the MAA's first 100 years.*
- 10:35 a.m.–11:55 a.m. **MAA COMMITTEE ON GRADUATE STUDENTS/YOUNG MATHEMATICIANS' NETWORK PANEL DISCUSSION** *Graduate school: Choosing one, getting in, staying in.*
- 10:35 a.m.–11:55 a.m. **MAA PANEL DISCUSSION** *Proposal writing workshop for grant applications to the NSF Division of Undergraduate Education.*
- 11:10 a.m.–12:00 p.m. **SIAM INVITED ADDRESS** *Title to be announced.* William Cook
- 1:00 p.m.–2:00 p.m. **AMS COLLOQUIUM LECTURES: LECTURE II** *Expander graphs in pure and applied mathematics, II.* Alexander Lubotzky

**AMS SPECIAL SESSIONS**

- 1:00 p.m.–3:50 p.m. *Research in Mathematics by Undergraduates and Students in Post-Baccalaureate Programs, IV (AMS-MAA-SIAM)*
- 1:00 p.m.–3:50 p.m. *Mathematics and Education Reform, II (AMS-MAA-MER)*
- 1:00 p.m.–3:50 p.m. *History of Mathematics, IV (AMS-MAA)*
- 1:00 p.m.–3:50 p.m. *Mathematics of Computation: Algebra and Number Theory, II (AMS-SIAM)*
- 1:00 p.m.–3:50 p.m. *Logic and Analysis, II (AMS-ASL)*
- 1:00 p.m.–3:50 p.m. *Birational Geometry and Moduli Spaces (Mathematics Research Communities session), II*
- 1:00 p.m.–3:50 p.m. *Lie Algebras, Algebraic Groups, and Related Topics, I*
- 1:00 p.m.–3:50 p.m. *Wavelets, Tilings, and Iterated Function Systems, II*
- 1:00 p.m.–3:50 p.m. *Stochastic Analysis and Random Phenomena, II*
- 1:00 p.m.–3:50 p.m. *Model Theory of Fields and Applications (Mathematics Research Communities session), II*
- 1:00 p.m.–3:50 p.m. *Commutative Algebra (Mathematics Research Communities session), II*
- 1:00 p.m.–3:50 p.m. *Knots, Links, 3-Manifolds, and Physics, I*
- 1:00 p.m.–3:50 p.m. *Structured Models in Ecology, Evolution, and Epidemiology: Periodicity, Extinction, and Chaos, II*
- 1:00 p.m.–3:50 p.m. *Interactions of Inverse Problems, Signal Processing, and Imaging, II*

**MAA INVITED PAPER SESSION**

- 1:00 p.m.–4:15 p.m. *Topics in Hopf Algebras*
- 1:00 p.m.–3:00 p.m. **MAA MINICOURSE #10: PART A** *Teaching introductory statistics (for instructors new to teaching intro stats).*
- 1:00 p.m.–3:00 p.m. **MAA MINICOURSE #13: PART A** *Creating demonstrations and guided explorations for multivariable calculus using CalcPlot3D.*
- 1:00 p.m.–3:00 p.m. **MAA MINICOURSE #1: PART A** *Special relativity through a linear algebraic lens.*

**MAA CONTRIBUTED PAPER SESSIONS**

- 1:00 p.m.–4:15 p.m. *Journals and Portfolios: Tools in Learning Mathematics?*
- 1:00 p.m.–4:15 p.m. *Treasures from the Past: Using Primary Sources in the Classroom*
- 1:00 p.m.–4:15 p.m. *The Mathematics of Sustainability*
- 1:00 p.m.–4:15 p.m. *General Contributed Paper Session, IV*

**SIAM MINISYMPOSIUM ON COMBINATORIAL OPTIMIZATION, II**

- 1:00 p.m.–4:00 p.m. **SIGMAA RUME SESSION ON RESEARCH ON THE TEACHING AND LEARNING OF UNDERGRADUATE MATHEMATICS, II**

- 1:00 p.m.–2:15 p.m. **AMS PANEL DISCUSSION** *Proving Hardy wrong: Math research with social justice applications.*

- 1:00 p.m.–3:00 p.m. **MAA PANEL DISCUSSION** *Good intentions are necessary but not sufficient: Steps toward best practices in mentoring underrepresented students.*

- 1:00 p.m.–2:20 p.m. **MAA PANEL DISCUSSION** *This could be YOUR graduate research!*

- 1:00 p.m.–2:20 p.m. **SIGMAA ON STATISTICS EDUCATION/ASA-MAA JOINT COMMITTEE ON UNDERGRADUATE STATISTICS PANEL DISCUSSION** *Report from the International Conference on Teaching Statistics: A world view of statistics education.*

- 1:00 p.m.–2:20 p.m. **MAA COMMITTEE ON TECHNOLOGIES IN MATHEMATICS AND EDUCATION/WEB SIGMAA PANEL DISCUSSION** *Assessment of learning in an age of technology.*

- 1:00 p.m.–4:00 p.m. **SUMMER PROGRAM FOR WOMEN IN MATHEMATICS (SPWM) REUNION**

- 2:00 p.m.–4:00 p.m. **MAA POSTER SESSION ON PROJECTS SUPPORTED BY THE NSF DIVISION OF UNDERGRADUATE EDUCATION**

- 2:00 p.m.–4:00 p.m. **MAA PANEL DISCUSSION** *Mathematical culture and mathematical life.*

- 2:15 p.m.–3:05 p.m. **AMS INVITED ADDRESS** *Self-organization in human, biological, and artificial systems.*  
Andrea L. Bertozzi

- 2:35 p.m.–3:55 p.m. **MAA COMMITTEE ON THE TEACHING OF UNDERGRADUATE MATHEMATICS PANEL DISCUSSION** *Calculus reform: 25 years later.*

- 2:35 p.m.–3:55 p.m. **MAA PANEL DISCUSSION** *Mathematicians and teachers: Professional development and outreach groups.*

2:35 p.m.–3:55 p.m.	<b>SIGMAA ON MATHEMATICAL AND COMPUTATIONAL BIOLOGY-SIGMAA ON STATISTICS EDUCATION-ASA/MAA JOINT COMMITTEE ON UNDERGRADUATE STATISTICS PANEL DISCUSSION</b> <i>Creating/improving the biomathematics/biostatistics course.</i>
3:20 p.m.–4:10 p.m.	<b>AMS INVITED ADDRESS</b> <i>Title to be announced.</i> Tatiana Toro
5:30 p.m.–7:00 p.m.	<b>HAWKES LEARNING SYSTEMS PRESENTATION</b>
5:30 p.m.–7:00 p.m.	<b>NEW MEXICO STATE UNIVERSITY RECEPTION</b>
5:45 p.m.–6:30 p.m.	<b>SIGMAA ON RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION BUSINESS MEETING</b>
5:45 p.m.–7:15 p.m.	<b>SIGMAA STATISTICS EDUCATION BUSINESS MEETING AND RECEPTION</b>
5:45 p.m.–7:15 p.m.	<b>UNIVERSITY OF KANSAS MATH ALUMNI AND FRIENDS RECEPTION</b>
6:00 p.m.–7:00 p.m.	<b>SIGMAA ON MATHEMATICAL AND COMPUTATIONAL BIOLOGY BUSINESS MEETING</b>
6:00 p.m.–8:00 p.m.	<b>NSA'S WOMEN IN MATHEMATICS SOCIETY NETWORKING SESSION</b>
6:00 p.m.–10:00 p.m.	<b>ASSOCIATION OF CHRISTIANS IN THE MATHEMATICAL SCIENCES BANQUET</b>
6:00 p.m.–8:00 p.m.	<b>ASSOCIATION OF LESBIAN, GAY, BISEXUAL, AND TRANSGENDERED MATHEMATICIANS RECEPTION</b>
6:30 p.m.–9:30 p.m.	<b>MER BANQUET</b>
7:00 p.m.–8:00 p.m.	<b>SIGMAA ON MATHEMATICAL AND COMPUTATIONAL BIOLOGY GUEST LECTURE</b>
7:00 p.m.–11:00 p.m.	<b>AWM 40TH ANNIVERSARY BANQUET AND JAZZ</b>
7:00 p.m.–9:00 p.m.	<b>CLAREMONT COLLEGES ALUMNI RECEPTION</b>
7:30 p.m.–8:30 p.m.	<b>YOUNG MATHEMATICIANS' NETWORK OPEN FORUM</b> <i>All meeting participants, including undergraduates and graduate students, are welcome to discuss topics and issues affecting young mathematicians.</i>
8:15 p.m.–9:45 p.m.	<b>KNITTING CIRCLE</b> <i>Bring a project (knitting/crochet/tatting/beading/etc.) and chat with other crafters.</i>

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## Saturday, January 08

7:30 a.m.–4:00 p.m.	<b>JOINT MEETINGS REGISTRATION</b> , La Galerie Foyer, 2nd Floor, Marriott
	<b>AMS SPECIAL SESSIONS</b>
8:00 a.m.–10:50 a.m.	<i>Mathematics of Computation: Algebra and Number Theory, III (AMS-SIAM)</i>
8:00 a.m.–10:50 a.m.	<i>Hopf Algebras and Their Representations, I (AMS-AWM)</i>
8:00 a.m.–10:50 a.m.	<i>Formal Mathematics for Mathematicians: Developing Large Repositories of Advanced Mathematics, I</i>
8:00 a.m.–10:50 a.m.	<i>Multivariable Operator Theory, I</i>
8:00 a.m.–10:50 a.m.	<i>Stochastic Analysis and Mathematical Physics: A Session in Honor of the 80th Birthday of Len Gross, I</i>
8:00 a.m.–10:50 a.m.	<i>Mathematics Related to Feynman Diagrams, I</i>
8:00 a.m.–10:50 a.m.	<i>Completely Integrable Systems, Random Matrices, and the Bispectral Problem, I</i>
8:00 a.m.–10:50 a.m.	<i>Nonlinear Evolution Equations, Analysis, and Geometry, I</i>
8:00 a.m.–10:50 a.m.	<i>Knots, Links, 3-Manifolds, and Physics, II</i>
8:00 a.m.–10:50 a.m.	<i>Boundary Control and Moving Interface in Coupled Systems of Partial Differential Equations, II</i>
8:00 a.m.–10:50 a.m.	<i>Self-Organization in Human, Biological, and Artificial Systems, I</i>
8:00 a.m.–10:50 a.m.	<i>Harmonic Analysis and Partial Differential Equations, I</i>
8:00 a.m.–10:50 a.m.	<i>Groups, Geometry, and Applications, II</i>
8:00 a.m.–10:50 a.m.	<i>New Topics in Graph Theory, I</i>
	<b>MAA CONTRIBUTED PAPER SESSIONS</b>
8:00 a.m.–10:55 a.m.	<i>New and Continuing Connections between Math and the Arts</i>
8:00 a.m.–10:55 a.m.	<i>Mathematics Experiences in Business, Industry, and Government</i>
8:00 a.m.–10:55 a.m.	<i>Fostering, Supporting, and Propagating Math Circles for Students and Teachers</i>

## Meetings & Conferences

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- 8:00 a.m.–10:55 a.m. *General Contributed Paper Session, V*
- 8:00 a.m.–11:00 a.m. **SIAM MINISYMPOSIUM ON EDUCATION**
- 8:00 a.m.–5:00 p.m. **ASL INVITED ADDRESSES AND CONTRIBUTED PAPER SESSIONS**
- 8:00 a.m.–11:00 a.m. **PME COUNCIL MEETING**
- 8:00 a.m.–7:00 p.m. **EMPLOYMENT CENTER**
- 8:30 a.m.–10:30 a.m. **AMS-MAA GRADUATE STUDENT FAIR** *Undergrads! Take this opportunity to meet representatives from mathematical science graduate programs.*
- 9:00 a.m.–9:50 a.m. **MAA RETIRING PRESIDENTIAL ADDRESS** *Issues of the transition to college mathematics.*  
**David M. Bressoud**
- MAA INVITED PAPER SESSION**  
*Fish Tales: Stories from Mathematical Fluid Dynamics*
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #4: PART B** *Getting students involved in undergraduate research.*
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #7: PART B** *The mathematics of Islam and its use in the teaching of mathematics.*
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE: #8: PART B** *The ubiquitous Catalan numbers and their applications.*
- 9:00 a.m.–10:20 a.m. **MAA PANEL DISCUSSION** *Utilizing NSF ADVANCE to promote the success of women faculty in mathematics.*
- 9:00 a.m.–10:20 a.m. **MAA COMMITTEE ON GRADUATE STUDENTS—YOUNG MATHEMATICIANS' NETWORK  
PANEL DISCUSSION** *Maximize your career potential!*
- 9:00 a.m.–10:20 a.m. **MAA PANEL DISCUSSION** *The benefits of hosting a regional undergraduate mathematics conference*
- 9:30 a.m.–5:30 p.m. **EXHIBITS AND BOOK SALES**
- 10:05 a.m.–10:55 a.m. **AMS INVITED ADDRESS** *Title to be announced.* **Akshay Venkatesh**
- 11:10 a.m.–12:00 p.m. **AMS-MAA INVITED ADDRESS** *To be announced.* **Kannan Soundararajan**
- 1:00 p.m.–1:50 p.m. **MAA LECTURE FOR STUDENTS** *Turning theorems into plays.* **Steve Abbott**
- 1:00 p.m.–5:00 p.m. **AMS CURRENT EVENTS BULLETIN**
- AMS SPECIAL SESSIONS**
- 1:00 p.m.–5:50 p.m. *Hopf Algebras and Their Representations, II (AMS-AWM)*
- 1:00 p.m.–5:50 p.m. *Stochastic Analysis and Mathematical Physics: A Session in Honor of the 80th Birthday of Len Gross, II*
- 1:00 p.m.–5:50 p.m. *Lie Algebras, Algebraic Groups, and Related Topics, II*
- 1:00 p.m.–5:50 p.m. *Completely Integrable Systems, Random Matrices, and the Bispectral Problem, II*
- 1:00 p.m.–5:50 p.m. *New Trends in Theory and Applications of Evolution Equations*
- 1:00 p.m.–5:50 p.m. *von Neumann Algebras*
- 1:00 p.m.–5:50 p.m. *Local Commutative Algebra*
- 1:00 p.m.–5:50 p.m. *Dirac Operators*
- 1:00 p.m.–5:50 p.m. *Set-Valued Optimization and Variational Problems*
- 1:00 p.m.–5:50 p.m. *Knot Theory, I*
- 1:00 p.m.–5:50 p.m. *Self-Organization in Human, Biological, and Artificial Systems, II*
- 1:00 p.m.–5:50 p.m. *Harmonic Analysis and Partial Differential Equations, II*
- 1:00 p.m.–5:50 p.m. *Difference Equations and Applications*
- 1:00 p.m.–5:50 p.m. *New Topics in Graph Theory, II*
- MAA CONTRIBUTED PAPER SESSIONS**
- 1:00 p.m.–6:00 p.m. *Developmental Mathematics Education: Helping Under-Prepared Students Transition to College-Level Mathematics*
- 1:00 p.m.–6:00 p.m. *Humanistic Mathematics*
- 1:00 p.m.–6:00 p.m. *Philosophy of Mathematics in Teaching and Learning*
- 1:00 p.m.–6:00 p.m. *General Contributed Paper Session, VI*
- 1:00 p.m.–6:00 p.m. **SIAM MINISYMPOSIUM ON FRONTIERS IN GEOMATHEMATICS**

- 1:00 p.m.–3:30 p.m. **NAM GRANVILLE-BROWN-HAYNES SESSION OF PRESENTATIONS BY RECENT DOCTORAL RECIPIENTS IN THE MATHEMATICAL SCIENCES**
- 1:00 p.m.–5:30 p.m. **AWM MICHLER AND MENTORING MINISYMPOSIUM**
- 1:00 p.m.–4:20 p.m. **SIGMAA ON ENVIRONMENTAL MATHEMATICS SESSION ON MODELING THE OIL SPILL DISASTER AND ITS CONSEQUENCES**
- 1:00 p.m.–2:20 p.m. **MAA COMMITTEE ON THE UNDERGRADUATE PROGRAM IN MATHEMATICS PANEL DISCUSSION** *Preparation and recruitment of future mathematics graduate students.*
- 1:00 p.m.–2:20 p.m. **SIGMAA ON STATISTICS EDUCATION PANEL DISCUSSION** *Teaching statistics online.*
- 1:10 p.m.–2:00 p.m. **AMS INVITED ADDRESS** *Title to be announced.* **Scott Sheffield**
- 2:15 p.m.–3:05 p.m. **MAA INVITED ADDRESS** *Binary quadratic forms: From Gauss to algebraic geometry.* **Melanie Matchett Wood**
- 2:15 p.m.–4:15 p.m. **MAA MINICOURSE #11: PART B** *Using video case studies in teaching a proof-based gateway course to the mathematics major.*
- 2:15 p.m.–4:15 p.m. **MAA MINICOURSE #2: PART B** *Getting mathematics majors to think outside the book: Course activities that promote exploration, discovery, conjecture, and proof.*
- 2:15 p.m.–4:15 p.m. **MAA MINICOURSE #9: PART B** *Learning discrete mathematics via historical projects.*
- 2:30 p.m.–4:00 p.m. **AMS COMMITTEE ON SCIENCE POLICY PANEL DISCUSSION** *Title to be announced.*
- 2:35 p.m.–3:55 p.m. **MAA PANEL DISCUSSION** *Inquiry-proof instructional techniques.*
- 2:35 p.m.–3:55 p.m. **MAA COMMITTEE ON MINORITY PARTICIPATION—SOCIETY FOR THE ADVANCEMENT OF CHICANOS AND NATIVE AMERICANS/N SCIENCE—NATIONAL ASSOCIATION OF MATHEMATICIANS** *The role of mentoring in undergraduate mathematics: Promising recruitment and retention strategies.*
- 3:20 p.m.–4:40 p.m. **MAA PRESENTATIONS BY TEACHING AWARD RECIPIENTS**
- 4:30 p.m.–5:20 p.m. **MATHEMATICAL SCIENCES IN 2025—A DISCUSSION**
- 4:30 p.m.–6:30 p.m. **AMS CONGRESSIONAL FELLOWSHIP SESSION**
- 4:30 p.m.–6:00 p.m. **SIGMAA ON MATHEMATICS INSTRUCTION USING THE WEB BUSINESS MEETING AND OPEN DISCUSSION** *Come share your interests in teaching and learning mathematics online and discuss the direction of future WEB SIGMAA activities.*
- 5:00 p.m.–6:00 p.m. **SIGMAA ON MATHEMATICIANS IN BUSINESS, INDUSTRY, AND GOVERNMENT GUEST LECTURE**
- 6:00 p.m.–7:00 p.m. **MAA DRAMATIC PRESENTATION** *Derivative vs. Integral: The final showdown*
- 6:00 p.m.–6:30 p.m. **SIGMAA ON THE PHILOSOPHY OF MATHEMATICS BUSINESS MEETING**
- 6:00 p.m.–7:00 p.m. **SIGMAA ON MATHEMATICS AND THE ARTS BUSINESS MEETING**
- 6:00 p.m.–7:00 p.m. **SIGMAA ON ENVIRONMENTAL MATHEMATICS DRAMATIC PRESENTATION** *The Oil Volcano: Truth and Consequences.*
- 6:00 p.m.–8:00 p.m. **BUDAPEST SEMESTERS IN MATHEMATICS REUNION**
- 6:00 p.m.–9:30 p.m. **NAM RECEPTION AND BANQUET**
- 6:15 p.m.–7:30 p.m. **SIGMAA ON MATHEMATICIANS IN BUSINESS, INDUSTRY, AND GOVERNMENT RECEPTION**
- 6:30 p.m.–7:30 p.m. **SIGMAA ON THE PHILOSOPHY OF MATHEMATICS GUEST LECTURE**
- 7:30 p.m.–8:15 p.m. **NAM COX-TALBOT ADDRESS** *Title to be announced.* **Robert Bozeman**
- 8:30 p.m.–10:30 p.m. **MAA/PROJECT NEXT RECEPTION** *All Project NExT Fellows, consultants, and other friends of Project NExT are invited.*

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## Sunday, January 09

- 7:00 a.m.–7:50 a.m. **ASSOCIATION FOR CHRISTIANS IN THE MATHEMATICAL SCIENCES WORSHIP SERVICE**
- 7:30 a.m.–2:00 p.m. **JOINT MEETINGS REGISTRATION**, La Galerie Foyer, 2nd Floor, Marriott



**AMS SPECIAL SESSIONS**

- 8:00 a.m.–10:50 a.m. *Applications of Stochastic Processes in Neuroscience, I (AMS-SIAM)*
- 8:00 a.m.–10:50 a.m. *Control and Inverse Problems for Partial Differential Equations, I (AMS-SIAM)*
- 8:00 a.m.–10:50 a.m. *Asymptotic Methods in Analysis with Applications, I*
- 8:00 a.m.–10:50 a.m. *Formal Mathematics for Mathematicians: Developing Large Repositories of Advanced Mathematics, II*
- 8:00 a.m.–10:50 a.m. *Multivariable Operator Theory, II*
- 8:00 a.m.–10:50 a.m. *Mathematics Related to Feynman Diagrams, II*
- 8:00 a.m.–10:50 a.m. *Analysis of Reaction-Diffusion Models, I*
- 8:00 a.m.–10:50 a.m. *Continued Fractions, I*
- 8:00 a.m.–10:50 a.m. *Noncommutative Harmonic Analysis and Dynamic Systems, I*
- 8:00 a.m.–10:50 a.m. *Combinatorial Algebraic Geometry, I*
- 8:00 a.m.–10:50 a.m. *Nonlinear Evolution Equations, Analysis, and Geometry, II*
- 8:00 a.m.–10:50 a.m. *Structure Theory for Matroids and Graphs, I*
- 8:00 a.m.–10:50 a.m. *Knot Theory, II*
- 8:00 a.m.–10:50 a.m. *Time Scales: Theory and Applications, I*

**MAA CONTRIBUTED PAPER SESSIONS**

- 8:00 a.m.–10:55 a.m. *Trends in Undergraduate Mathematical Biology Education*
- 8:00 a.m.–10:55 a.m. *Effective Teaching of Upper Level Mathematics to Secondary Education Mathematics Majors*
- 8:00 a.m.–10:55 a.m. *Influences of the Calculus Reform Movement on the Teaching of Mathematics*
- 8:00 a.m.–10:55 a.m. *General Contributed Paper Session, VII*

**SIAM MINISYMPOSIUM ON VISTAS IN APPLIED MATHEMATICS**

- 8:00 a.m.–4:00 p.m. **AWM WORKSHOP** *This session has several parts that will be listed separately by time in this program. All presentations are open to all JMM participants.*

**ASL INVITED ADDRESSES AND CONTRIBUTED PAPER SESSIONS**

- 8:00 a.m.–5:00 p.m. **ASL INVITED ADDRESSES AND CONTRIBUTED PAPER SESSIONS**
- 8:30 a.m.–10:30 a.m. **AWM WORKSHOP: RESEARCH PRESENTATIONS BY RECENT PH.D.S, I**
- 8:30 a.m.–10:00 a.m. **AMS COMMITTEE ON EDUCATION PANEL DISCUSSION** *Title to be announced.*
- 8:50 a.m.–9:50 a.m. **AMS COLLOQUIUM LECTURES: LECTURE III** *Expander graphs in pure and applied mathematics, III. Alexander Lubotzky*

**MAA INVITED PAPER SESSION**

- 9:00 a.m.–10:50 a.m. *The Intersection of Graphs and Geometry, I*
- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #12: PART B** *Concepts, data, and models: College algebra for the real world.*

- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #3: PART B** *Geometry and algebra in mathematical music theory.*

- 9:00 a.m.–11:00 a.m. **MAA MINICOURSE #6: PART B** *Green linear optimization.*

- 9:00 a.m.–10:20 a.m. **MAA COMMITTEE ON TECHNOLOGY IN MATH EDUCATION PANEL DISCUSSION** *Publishing mathematics on the Web.*

- 9:00 a.m.–11:00 a.m. **SIGMAA ON MATH CIRCLES FOR STUDENTS AND TEACHERS SPECIAL PRESENTATION** *Math Circles demonstration.*

- 9:00 a.m.–9:50 a.m. **NAM PANEL DISCUSSION** *Title to be announced.*

- 9:00 a.m.–12:00 p.m. **EXHIBITS AND BOOK SALES**

- 9:00 a.m.–12:00 p.m. **EMPLOYMENT CENTER**

- 10:00 a.m.–10:50 a.m. **NAM BUSINESS MEETING**

- 10:05 a.m.–10:55 a.m. **MAA INVITED ADDRESS** *Lessons from the Netflix Prize. Robert M. Bell*

- 10:30 a.m.–11:00 a.m. **AWM WORKSHOP: POSTER SESSION WITH PRESENTATIONS FROM WOMEN GRADUATE STUDENTS**

- 11:10 a.m.–11:40 a.m. **MAA BUSINESS MEETING**

- 11:45 a.m.–12:15 p.m. **AMS BUSINESS MEETING**

- 1:00 p.m.–1:50 p.m. **NAM CLAYTOR-WOODARD LECTURE** *Speaker and title to be announced*

- 1:00 p.m.–3:00 p.m. **MAA MINICOURSE: #1 PART B** *Special relativity through a linear algebraic lens.*
- AMS SPECIAL SESSIONS**
- 1:00 p.m.–5:50 p.m. *Centers for Teaching/Education/Outreach in Departments of Mathematics (AMS-MAA)*
- 1:00 p.m.–5:50 p.m. *Control and Inverse Problems for Partial Differential Equations, II (AMS-SIAM)*
- 1:00 p.m.–5:50 p.m. *Asymptotic Methods in Analysis with Applications, II*
- 1:00 p.m.–5:50 p.m. *Applied Optimization and Douglas-Rachford Splitting Methods for Convex Programming*
- 1:00 p.m.–5:50 p.m. *Stochastic, Fractional, and Hybrid Dynamic Systems with Applications*
- 1:00 p.m.–5:50 p.m. *Applications of Stochastic Processes in Neuroscience, II*
- 1:00 p.m.–5:50 p.m. *Analysis of Reaction-Diffusion Models, II*
- 1:00 p.m.–5:50 p.m. *Continued Fractions, II*
- 1:00 p.m.–5:50 p.m. *Noncommutative Harmonic Analysis and Dynamic Systems, II*
- 1:00 p.m.–5:50 p.m. *Combinatorial Algebraic Geometry, II*
- 1:00 p.m.–5:50 p.m. *Structure Theory for Matroids and Graphs, II*
- 1:00 p.m.–5:50 p.m. *The Mathematics of Modeling Multiscale Heterogeneous Media*
- 1:00 p.m.–5:50 p.m. *Global Dynamics of Discrete Dynamical Systems in the Plane with Applications*
- 1:00 p.m.–5:50 p.m. *Measures of Entanglement of Macromolecules and Their Applications*
- 1:00 p.m.–5:50 p.m. *Time Scales: Theory and Applications, II*
- MAA INVITED PAPER SESSION**
- 1:00 p.m.–3:20 p.m. *The Intersection of Graphs and Geometry, II*
- 1:00 p.m.–3:00 p.m. **MAA MINICOURSE #13: PART B** *Creating demonstrations and guided explorations for multivariable calculus using CalcPlot3D.*
- 1:00 p.m.–3:00 p.m. **MAA MINICOURSE: #5: PART B** *A Game Theory path to quantitative literacy.*
- MAA CONTRIBUTED PAPER SESSIONS**
- 1:00 p.m.–5:30 p.m. *Alternative Approaches to Traditional Introductory Statistics Courses*
- 1:00 p.m.–5:30 p.m. *Using Program Assessment to Improve Student Learning*
- 1:00 p.m.–5:30 p.m. *The Mathematical Foundations for the Quantitative Disciplines*
- 1:00 p.m.–5:30 p.m. *General Contributed Paper Session, VIII*
- 1:00 p.m.–6:00 p.m. **SIAM MINISYMPOSIUM ON GRAPH THEORY**
- 1:00 p.m.–2:15 p.m. **AWM WORKSHOP PANEL DISCUSSION** *Starting a career in mathematics.*
- 2:30 p.m.–4:30 p.m. **AWM WORKSHOP: RESEARCH PRESENTATIONS BY RECENT PH.D.S, II**
- 3:00 p.m.–4:00 p.m. **AMS-MAA-SIAM GERALD AND JUDITH PORTER PUBLIC LECTURE** *From flapping birds to space telescopes: The mathematics of origami. Robert J. Lang*
- 3:30 p.m.–5:30 p.m. **MAA MINICOURSE #10: PART B** *Teaching introductory statistics.*
- 6:30 p.m.–7:30 p.m. **AMS BANQUET RECEPTION**
- 7:30 p.m.–10:00 p.m. **AMS BANQUET**