

## FOCUS

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# Invited ADDRESSES

Several Invited Addresses are offered during MathFest. Each speaker is chosen for their expertise in their field. Besides pure and applied mathematics, topics normally include mathematics education and the history of mathematics.

## MAA-NAM DAVID BLACKWELL LECTURE

### RANDOM WALK, DIFFUSION, AND ENERGY DECAY

Isom Herron, Rensselaer Polytechnic Institute

Thursday, August 1, 8:30 am - 9:20 am

Random walk, a discrete process, has a striking connection to Brownian motion which is governed in the continuous limit by the diffusion equation. The energy is one property of a solution to this equation. The energy rate of decay will be examined as a means of characterizing solutions to the equation. The methods employed have important applications in continuum mechanics.

## HEDRICK LECTURE SERIES

### GRAPHS, EIGENVALUES, AND GEOMETRIC REPRESENTATIONS

László Lovász, Microsoft Research

#### LECTURE 1: GRAPHS AND EIGENVALUES

Thursday, August 1, 9:30 am - 10:20 am

A graph can be described by its adjacency matrix. This simple connection between graph theory and linear algebra becomes much deeper when we discover that purely graph-theoretic properties of graphs and purely linear algebraic properties of the matrix (like its eigenvalues) are closely connected.

#### LECTURE 2: GEOMETRIC REPRESENTATIONS OF GRAPHS

Friday, August 2, 9:30 am - 10:20 am

There is a third unexpected connection between eigenvalues and geometric representations: adjacency matrices lead to embeddings of graphs in Euclidean spaces, reflecting graph theoretic properties. For example, for planar graphs, this method gives representations as polytopes, and all polytopal representations can be obtained this way.

#### LECTURE 3: EIGENVALUES AND GEOMETRIC REPRESENTATIONS

Saturday, August 3, 9:30 am - 10:20 am

Various geometric representations of graphs have been studied and used in a variety of ways: for example, planar graphs can be represented by convex polyhedra. Other representations (like orthogonal representations) have applications to graph algorithms that test properties of graphs which have nothing to do with geometry.

## MAA INVITED ADDRESS

### WHY ARE RANDOM MATRICES COOL?

Alan Edelman, Massachusetts Institute of Technology

Thursday, August 1, 10:30 am - 11:20 am

Come and find out.

## MAA INVITED ADDRESS

### FUN AND GAMES FOR TEACHING STATISTICS

Robin Lock, St. Lawrence University

Friday, August 2, 8:30 am - 9:20 am

How can we capture the attention of students who thrive on video games and competitive sports? Perhaps by introducing a bit of gaming and competition into our regular classroom routines. While we can't expect to match the fascination of a sophisticated electronic game or the excitement of the conference playoffs, we might liven up a daily class hour and sneak in some important statistical ideas along the way. We describe several games and competitive activities that can be used to stimulate interest and help students understand concepts such as correlation, confidence intervals, least squares lines, properties of estimators and experimental design.

## JAMES R.C. LEITZEL LECTURE

### THE MATHEMATICS EDUCATION OF TEACHERS

Jim Lewis, University of Nebraska at Lincoln

Friday, August 2, 10:30 am - 11:20 am

One year ago, the Conference Board of the Mathematical Sciences (CBMS) released The Mathematical Education of Teachers. This report is the mathematics community's response to a series of reports that call for improving mathematics education in our K-12 schools and which argue that investing in good teachers is the key step in improving K-12 education in America. Are we making progress in the struggle to improve the mathematical education of teachers? We will consider this question from both a national and local point of view.

## PI MU EPSILON J. SUTHERLAND FRAME LECTURE

### SOAP BUBBLES: OPEN PROBLEMS

Frank Morgan, Williams College

Friday, August 2, 8:00 pm - 8:50 pm

Despite much recent progress by many mathematicians, including undergraduates, many simple open problems remain. This presentation will also include a little contest with demonstrations, explanations, and prizes. No prerequisites.

## **AWM-MAA INVITED ADDRESS**

### **TWO RESEARCH TRADITIONS SEPARATED BY A COMMON SUBJECT: MATHEMATICS AND MATHEMATICS EDUCATION**

Annie Selden, Tennessee Technical University

*Saturday, August 3, 8:30 am - 9:20 am*

"There are no proofs in mathematics education." While this is true, claims are made in mathematics education research and evidence is provided for them. In this talk, I will explore the nature of such research, the kinds of claims and evidence, and what such research might have to offer teachers of mathematics, especially at the undergraduate level. Along the way, I will point out differences between the ways research is done in the two fields.

## **MAA INVITED ADDRESS**

### **FERMAT'S ARITHMETIC IN SEVENTEENTH-CENTURY CONTEXT**

Catherine Goldstein, CNRS-University of Paris Sud

*Saturday, August 3, 10:30 am - 11:20 am*

Several enigmas surround the life and work of Pierre Fermat. Presented as a typical problem-solver by some, he is considered by others to be the founder of modern number theory. He is supposed to have had a disdain for proofs, but is best known for having claimed one. He was an amateur, but one who seemed at ease with all the mathematical issues of his time. Focusing on arithmetic, the talk will explain how a contextualization of Fermat's work within the mathematical craft and scientific milieu of his time can resolve these apparent paradoxes.

## *Call for Contributed Paper Session Organizers*

The MAA Committee on Sessions of Contributed Papers selects the topics and organizers for the contributed paper sessions at MathFest and at the national meeting. The committee would be delighted to hear from MAA members who are interested in organizing sessions or who have suggestions for topics.

Planning is now underway for the MathFest in Boulder, Colorado, July 31 - August 2, 2003, and for the AMS-MAA Joint Meeting in Phoenix, Arizona, January 7-10, 2004. The deadline for receipt of proposals from organizers for the Boulder MathFest is October 15, 2002 and for the Phoenix Joint Mathematics Meeting it is December 31, 2002.

Send (preferably by e-mail) proposal title, name(s) and address(es) of the organizer(s), and a one-page summary to the chair of the committee, Howard Penn at [hlp@usna.edu](mailto:hlp@usna.edu).

# Invited PAPER SESSION

*Invited Paper Sessions are focused on a particular topic normally in pure or applied mathematics. The speakers, chosen by the organizers, are invited for their expertise on the subject.*

## **INVITED PAPER SESSION ON DISCRETE METHODS IN GEOMETRY**

Dan Archdeacon, University of Vermont  
Jo Ellis-Monaghan, St. Michael's College and the University of Vermont

*Thursday, August 1, 4:00 pm - 6:00 pm*

Recent advances in discrete mathematics have led to new insights in geometry. Two areas of particular interest are polyhedra and knots. These topics are often visually fascinating and attractive to students. In this special session we explore the discrete aspects of these topics. Polyhedra have been the focus of study for thousands of years because of their aesthetic and intellectual appeal. Generalizations of the classical polyhedra include many different topics in geometry and graph theory. Applications range from circuit layouts to the construction of highly symmetric structures. Knot theory has a wealth of interesting problems that have a combinatorial description. It has applications to the structure of DNA. Knots and polyhedra are related through planar graphs. Speakers include Colin Adams, Williams College; Heather Johnston, Vassar College; Joel Foisley, SUNY Potsdam; and Brigitte Servatius, Worcester Polytechnic Institute.

## **INVITED PAPER SESSION ON HISTORY OF MATHEMATICS**

Paul Wolfson, West Chester University  
Roger Cooke, University of Vermont  
*Friday, August 2, 3:15 pm - 6:15 pm*

This session will consist of a collection of talks on a variety of topics in the history of mathematics. Speakers include June Barrow-Green, The Open University; Craig Fraser, University of Toronto; Hardy Grant, Ottawa; Ivor Grattan-Guinness, Middlesex University; Helena Pycior, University of Wisconsin-Milwaukee; Fred Rickey, USMA at West Point.

## *Call for Minicourse Organizers*

The MAA Committee on Minicourses is soliciting proposals for new minicourses to be given at MathFest 2003 in Boulder, Colorado, July 31 - August 2, 2003 and the Joint Mathematics Meeting in Phoenix, Arizona, January 7-10, 2004. Most minicourses are related to undergraduate curriculum, although any topic of interest to the MAA membership will be considered.

To find more information on how to submit a proposal see <http://www.maa.org/meetings/miniguide.htm>. The deadline for submissions for the Boulder MathFest is October 1, 2002 and for the Phoenix Joint Mathematics Meeting is December 3, 2002.

*MAA Sessions feature presentations and panel discussions. The speakers are selected and invited by the organizers because of their expertise and accomplishments in the focal area of the session.*

## **QUANTITATIVE LITERACY: A NATIONAL AGENDA**

Susan Ganter, Clemson University  
Bernard L. Madison, University of Arkansas  
*Thursday, August 1, 1:00 pm - 2:20 pm*

Quantitative Literacy (QL) is a critical skill in a technological society, yet one that is generally unappreciated and in low supply in the general public. Demands for QL are increasing in the workforce; and newspapers, political discourse, medical reports, and a host of other areas are filled with data. QL is hence a qualification for productive workers or responsible citizens. Recent efforts centered at the National Council on Education and the Disciplines focus on proactive solutions to the increasing need for QL education in the U.S. This panel will report on recent activities and to point to opportunities for mathematicians to participate. Activities include: National Forum on QL in December 2001. Development of a National Numeracy Network to promote QL through education, outreach, and the media; and Publications, including *Mathematics and Democracy*, volume of issue papers commissioned for the National Forum, and proceedings of the National Forum. This session is sponsored by the MAA Committee on Articulation and Placement, the MAA Committee on the Undergraduate Program in Mathematics (CUPM), the CUPM Subcommittee on Calculus Reform and the First Two Years (CRAFTY), and the CUPM Subcommittee on Quantitative Literacy.

## **CONVERSATIONS ABOUT MATHEMATICS AND THE ENVIRONMENT**

Patricia Clark Kenschaft, Montclair State University  
*Thursday, August 1, 1:00 pm - 2:20 pm*

Three mathematicians active in integrating environmental issues into mathematics teaching and mathematics into environmental issues will discuss with others their adventures and aspirations about these two activities. "Audience" participation encouraged. This session is sponsored by the MAA Committee on Mathematics and the Environment. Panelists include Pat Kenschaft, Ben Fusaro, Florida State University, and Michael Olinick, Middlebury College.

## **RETHINKING THE COURSES BEFORE CALCULUS**

Sheldon P. Gordon, SUNY at Farmingdale  
*Thursday, August 1, 2:30 pm - 3:50 pm*

Over the last several months, three important invited conferences have taken place to rethink each of the entry level mathematics experiences below calculus: College Algebra, Precalculus, and Quantitative Literacy. In this session, the panelists will provide an overview of each of the three special conferences and discuss the results and recommendations for the different courses that emerged from the conferences. They will also indicate the commonalities among the three movements, as well as any significant differences. Panelists include Bernard Madison, University of Arkansas; Mercedes McGowen of William Rainey Harper College; and Sheldon P. Gordon, SUNY at Farmingdale. The panel is sponsored by the Task Force on the First College Level Mathematics Course, the CUPM Subcommittee on Calculus Reform and the First Two Years (CRAFTY), and the CUPM Subcommittee on Quantitative Literacy.

## **ISSUES IN THE TRANSITIONS FROM SCHOOL TO COLLEGE AND FROM COLLEGE TO COLLEGE**

Susan L. Forman, Bronx Community College (CUNY)  
Bernard L. Madison, University of Arkansas  
*Friday, August 2, 1:00 pm - 2:20 pm*

Panelists from AMATYC, MAA, and NCTM will discuss various issues in the transition from school mathematics to college mathematics and in the transition from two-year colleges to four-year colleges. The issues include: overlapping programs; transition testing (exit, entrance, and placement); communicating expectations; and curricular and pedagogical articulation (vertical and horizontal). This panel is the first joint effort of AMATYC, NCTM, and the MAA Committee on Articulation and Placement. A version of this panel will be placed on the annual meetings of both AMATYC and NCTM in an effort to facilitate broader understanding of the shared issues of articulation in mathematics. The panel is sponsored by the MAA Committee on Articulation and Placement.

## **MORGAN PRIZE SESSION**

*Friday, August 2, 1:30 pm - 2:00 pm*

Ciprian Manolescu of Harvard University, winner of the 2001 AMS-MAA-SIAM Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student, will speak on "An algebraic-topologic approach to Floer homology."

## **CINEMATH: MATHEMATICS ON THE SILVER SCREEN**

**Charlie Smith, Park University**

*Friday, August 2, 2:30 pm - 3:50 pm*

The motion picture, a relatively recent technological development, can become a marvelous tool for engaging and teaching students about mathematical topics, ranging from the Pythagorean Theorem to the Twin Prime Conjecture. The presentation will consist of film excerpts with mathematical content, each followed by a rigorous analysis and explanation of the material. A list of movies that contain mathematical references will be provided.

## **E-LEARNING IN MATHEMATICS: THE GLOBAL CLASSROOM REVISITED**

**Marcelle Bessman, Jacksonville University**

**Douglas A. Quinney, University of Keele**

*Friday, August 2, 2:30 pm - 3:50 pm*

The Global Classroom is a "classroom without walls" that supports interaction between students and a "visiting" scholar and among students all gathered in a "classroom" on a virtual campus that resides on a server. It supports synchronous, collaborative use of common software packages including Mathematica®, Maple® and various commonly used software packages, such as word processors and spreadsheets via the web. Control of a software package opened on one machine can be passed to a person at another machine in another room or even another geographic location. This campus supports audio connectivity in a cooperative learning environment. Sessions can be recorded for review of the session by students or for study by students who missed the session. Presenters will discuss existing e-learning activity in mathematics and demonstrate the Global Classroom as a synchronous/asynchronous mode of course delivery.

## **IMPLEMENTING PREPARATION AND DEVELOPMENT PROGRAMS FOR COLLEGE MATHEMATICS INSTRUCTORS: INTERACTIVE ROUNDTABLES**

**Teri J. Murphy, University of Oklahoma**

*Friday, August 2, 4:00 pm - 6:00 pm*

An increasing number of institutions have experience with designing and implementing professional development opportunities for instructors. In an effort to learn from each other's efforts, during these sessions' audience members will be able to showcase their own programs as well as discuss their experiences, ideas, and goals with each other. Audience members will be the focus, with moderators facilitating the conversations. Topics will range from "brainstorming" about program logistics

to discussing research foundations for the success of certain models. These sessions are intended for participants from a range of settings: those whose programs target graduate teaching assistants, postdocs, adjuncts, and/or new tenure-track faculty; those whose programs target instructors teaching at or intending to teach at both two-year and four-year institutions; those new to designing and implementing programs as well as those who have experience. For more information, contact TJ Murphy at <tjmurphy@math.ou.edu>.

## **WEBWORK: A SESSION FOR USERS**

**Arnold K. Pizer, University of Rochester**

**Michael G. Gage, University of Rochester**

**Vicki Roth, University of Rochester**

*Friday, August 2, 4:00 pm - 6:00 pm*

WebWorK is an internet-based system delivering mathematics homework problems to students. The purpose of this session is to bring together people who are currently using or thinking about using WebWorK. Representatives of several groups who currently hold NSF CCLI A&I grants to adapt and implement WebWorK will be present, as will representatives from many of the universities and colleges currently using WebWorK. Major topics for discussion will be (1) setting up a national library of WebWorK problems and coordinating the various groups around the country that are writing WebWorK problems and code, (2) people's experience using WebWorK and suggestions for improvements, and (3) strategies and tools for assessment. Further information on WebWorK and this session can be found at <http://webwork.math.rochester.edu>.

## **ASSESSING ASSESSMENT ACTIVITIES**

**Bonnie Gold, Monmouth University**

**William Haver, Virginia Commonwealth University**

**Bernard L. Madison, University of Arkansas**

**William Marion, Jr., Valparaiso University**

*Saturday, August 3, 1:00 pm - 2:20 pm*

The NSF-funded three-year project, "Supporting Assessment in Undergraduate Mathematics," (SAUM) began January 2002. SAUM activities include workshops for college faculty, forums at MAA Section meetings, construction of a web site, and gathering and syntheses of case studies. Panelists drawn from SAUM workshops and project personnel will discuss various assessment activities, pointing toward resources and support for building programs of assessment that improve student learning. The discussion will include a report on SAUM during its first six months and how college faculty can participate in SAUM. The panel will consist of two of the organizers (senior personnel of the SAUM Project) and two SAUM Workshop Participants. The NSF-Funded Project "Supporting Assessment in

Undergraduate Mathematics (SAUM). SAUM is sponsored by the MAA Committee on the Undergraduate Program in Mathematics (CUPM).

## SUMMA SPECIAL PRESENTATION

William A. Hawkins, Jr., MAA and the University of the District of Columbia

*Saturday, August 3, 1:00 pm - 2:20 pm*

Panelists will discuss their programs for precollege students. The panel will be moderated by William A. Hawkins, Jr., director of the SUMMA Program and is sponsored by the MAA SUMMA (Strengthening Minority Participation in Mathematics Achievement) Program and the MAA Committee on Minority Participation in Mathematics. There will be ample time for discussion.

## NCATE AND THE MATHEMATICS COMMUNITY

Judith Covington, LSU-Shreveport

Marilyn Hala, NCTM

*Saturday, August 3, 2:30 pm - 3:50 pm*

The purpose of this session is to get feedback from the mathematics community on the proposed new mathematics guidelines for NCATE (National Council for Accreditation of Teacher Education) accreditation. Someone will be present to discuss the new changes and to get feedback from the audience. The panel is sponsored by the MAA Committee on the Mathematics Education of Teachers (COMET) and NCTM.



## PROFESSIONAL DEVELOPMENT SHORT COURSE Using the Web in Mathematics

*May 20-23, 2002*

SOUTH MOUNTAIN COMMUNITY COLLEGE

Phoenix, Arizona

HOSTED BY South Mountain Community College

*July 28-31, 2002*

UNIVERSITY OF VERMONT

Burlington, Vermont

HOSTED BY The MAA Summer MathFest

ICTCM is proud to announce two 4-day professional development short courses that will give educators the resources to integrate the Internet into their courses.

These short courses will provide collegiate mathematicians/educators an extensive hands-on opportunity to explore the panorama of Web options for mathematics courses.

For more information, check our website, [www.ictcm.org](http://www.ictcm.org) or contact [joanne.foster@aw.com](mailto:joanne.foster@aw.com)

# Contributed paper SESSIONS

*MAA Contributed Paper Sessions are normally organized around a predetermined topic. Presenters are selected by the paper organizers after reviewing responses to a call for papers.*

## **MAA CP A1 CREATIVE USE OF TECHNOLOGY IN TEACHING MATHEMATICS**

Mary L. Platt, Salem State College  
Marcelle Bessman, Jacksonville University  
*Thursday, August 1, 1:00 pm - 3:00 pm*

This session will focus on innovative uses of technology to support and enhance the learning of mathematics in all college courses. In particular, we are interested in the use of technology to support conceptual understanding and appreciation of the application of mathematical principles to solving real world problems. The session is sponsored by the MAA Committee on Computers in Mathematics Education (CCIME).

## **MAA CP C1 INDEPENDENT LEARNING EXPERIENCES FOR UNDERGRADUATES IN MATHEMATICS**

Donna L. Beers, Simmons College  
*Thursday, August 1, 1:00 pm - 3:00 pm*

Many colleges and universities require undergraduates to fulfill an independent learning requirement. This is a general education distribution requirement that is intended to prepare students for life-long learning and that emphasizes student initiative, planning, and implementation. One way mathematics majors can meet this graduation requirement is through independent study of an advanced topic, under the direction of a faculty member. Other options include senior thesis, integrative seminar, field work, and internship. In this session, presenters will describe exemplary independent learning experiences they have supervised, addressing their role as supervisor, how meeting time was structured, the nature of the student's work, and how the final grade was determined.

## **MAA CP B1 E-LEARNING MATHEMATICS COURSES**

Elias Deeba, University of Houston-Downtown  
Ananda Gunawardena, Carnegie-Mellon University  
*Thursday, August 1, 3:15 pm - 5:15 pm*

This session invites papers that describe e-learning mathematics courses. Papers that deal with methods of design, implementation, delivery, assessment and maintenance of complete e-learning environments, as well as experiences implementing such courses are welcome. This session is sponsored by the Committee on Computers in Mathematics Education (CCIME).

## **MAA CP D1 THE USE OF RECENT HISTORY OF MATHEMATICS IN TEACHING**

Dick Jardine, Keene State College  
Amy Shell, USMA at West Point  
*Thursday, August 1, 3:15 pm - 5:15 pm*

This session will discuss the use of recent (last 200 years) mathematics history, including the development of statistics, computers, programming, or other more recent topics, into undergraduate mathematics courses. Submissions may address ways to use recent history to motivate student involvement, student projects, ways to broaden and deepen student understanding of the subject matter, or alternative ways to present topics using recent history. This session is sponsored by the MAA Committee on the Teaching of Undergraduate Mathematics CTUM.

## **MAA CP E1 RECREATIONAL MATHEMATICS IN THE CLASSROOM**

Doug Ensley, Shippensburg University  
Charles Ashbacher, Charles Ashbacher Technologies  
Cheryl Olson, Shippensburg University  
*Friday, August 2, 1:00 pm - 3:00 pm*

Topics in recreational mathematics can effectively involve undergraduate students both in self-discovery of course concepts and in extracurricular research experiences. Papers in this session may be on any area of recreational mathematics, but preference will be given to those proposals that link a recreational topic through student-based discovery to some more traditional subjects within the mathematics curriculum. Submissions with interesting uses of technology are particularly encouraged. The goal for this session is to build a community of people who have innovative ways to tie the serious study of mathematics to the recreational aspects of our subject. More details can be found at <http://www.ship.edu/~dcensl/vtcps.html>.

## **MAA CP G1 RUME SIGMAA Session**

Jim Cottrill, Illinois State University  
*Friday, August 2, 1:00 pm - 3:00 pm*

This session will discuss how appearances of and references to mathematics in popular culture, including music, movies, television, artwork and other media, have been used creatively and effectively in mathematics and mathematics education courses. Of particular interest are descriptions of how the materials reduced math anxiety and motivated students to explore significant mathematics. Presentations detailing student reactions, educational benefits and difficulties encountered, and the effect of the pop culture math activities on teaching and learning are especially encouraged.



### **MAA CP F1 USING POPULAR CULTURE IN THE MATHEMATICS AND MATHEMATICS EDUCATION CLASSROOM**

Sarah J. Greenwald, Appalachian State University  
Andrew Nestler, Santa Monica College

*Friday, August 2, 3:15 pm - 5:15 pm*

The Special Interest Group of the MAA on Research in Undergraduate Mathematics Education aims to foster a professional atmosphere for quality research in the teaching and learning of undergraduate mathematics through contributed paper sessions for mathematics educators and mathematicians interested in research on undergraduate mathematics education. Research papers that address issues concerning the teaching and learning of undergraduate mathematics are invited. This session will be devoted to expositions of research results and uses of research (RUME) in teaching. Summaries of research results together with implications for the classroom or specific examples describing how research results have informed work in actual college classrooms are especially encouraged.

### **MAA CP H1 INNOVATIVE METHODS IN COURSES FOR NON-MAJORS**

Richard J. Maher, Loyola University Chicago

*Saturday, August 3, 1:00 pm - 3:00 pm*

There is a real need to develop courses that will attract students who do not major in mathematics. This session will allow those who have had success with such courses to share those experiences with others.

### **MAA CP H ENLIVENING MULTIVARIATE CALCULUS**

Sarah L. Mabrouk, Framingham State College

*Saturday, August 3, 3:15 pm - 5:15 pm*

This session will discuss the use of applications, unique proofs, projects/assignments, or demonstrations that enliven a Multivariate Calculus course, helping students to explore concepts, to understand the meaning of the mathematics that they study, and to develop an appreciation for mathematics. Each presenter is encouraged to discuss how to use the application, unique proof, project/assignment, or classroom demonstration fits into and enlivens the course, how its use helped/motivated students to learn course material, to explore course concepts, and/or to develop a greater appreciation of mathematics. Of particular interest are projects/assignments that continue in-class analysis, applications, demonstrations, or proofs, student reaction, and the instructor's impressions of how the use of such applications, proofs, demonstrations, and/or assignments/projects helped the students to gain a deeper understanding of Multivariate Calculus.

### **MAA CP J1 THE ROLE OF PROOF IN TEACHING MATHEMATICS**

Morris Orzech, Queen's University  
Olympia Nicodemi, SUNY Geneseo

*Saturday, August 3, 1:00 pm - 3:00 pm*

Recently, many colleges have instituted courses entitled, "Transition to Higher Mathematics," or "Introduction to Proofs." This proliferation has prompted questions that range from the efficacy of such courses to the content of such courses. We invite talks and papers on the role of proof and the teaching of proof as they pertain to the nature and efficacy of the "proof course" in the teaching of mathematics. Contributions from various perspectives, be they model courses, focused intervention strategies, pedagogical analyses, research- or experience-based accounts, etc. are welcome. We anticipate publishing selected contributions.

### **MAA CP K1 MATH & SOCIETY**

Stan Seltzer, Ithaca College

John Maceli, Ithaca College

*Saturday, August 3, 3:15 pm - 5:15 pm*

The last decade or so has witnessed enormous growth in non-skills based mathematics courses. Many of these are designed for non majors, possibly to address general education requirements or to enhance quantitative literacy. This session will focus on topics that have a political or social flavor such as social choice (weighted voting, voting methods, e.g.), mathematics of the Census, apportionment, fair division, equity, allocation, and others. This session will describe innovative ideas faculty have developed in conjunction with these courses: specific classroom activities, assignments, projects, use of original sources (historical and contemporary), etc.

### **MAA CP L1 GENERAL CONTRIBUTED PAPER SESSION**

Tony Julianelle, University of Vermont

Mizan Khan, Eastern Connecticut State University

Bob Wright, University of Vermont

*Part 1: Thursday, August 1, 1:00 pm - 5:00 pm*

*Part 2: Friday, August 2, 1:00 pm - 5:00 pm*

This session is designed for papers that do not fit into one of the other sessions. Papers may be presented on any mathematically related topic.

# MiniCOURSES

*Minicourses offer four hours of focused instruction. Enrollment is limited and a separate registration fee is required. Refer to registration information for details.*

## **MAKING LIBERAL ARTS MATHEMATICS THE MOST IMPORTANT COURSE STUDENTS TAKE TO LEARN EFFECTIVE THINKING**

Edward B. Burger, Williams College

Michael Starbird, University of Texas at Austin

*Part A: Thursday, August 1, 1:00 pm - 3:00 pm*

*Part B: Friday, August 2, 3:15 pm - 5:15 pm*

Mathematics contains great ideas and powerful methods of analysis that transcend mathematics. Topics such as infinity, the fourth dimension, probability, and chaos spark everyone's imagination. These ideas are comparable to masterpieces of art, philosophy, and literature. Our challenge is to convey the genuinely deep ideas of mathematics and the important strategies of analysis and thought in a lively, fun, and enticing manner. Here participants will experience hands-on methods for bringing deep mathematical results and general techniques of thought to life for those who are not math fans.

## **ETHNOMATHEMATICS AS A MATHEMATICS LITERACY OR TEACHER EDUCATION COURSE**

Delene Perley, Millikin University

*Part A: Thursday, August 1, 1:00 pm - 3:00 pm*

*Part B: Friday, August 2, 3:15 pm - 5:15 pm*

Indigenous peoples throughout the world supply us with a variety of ideas and activities which increase student interest and provide mathematical learning at various levels. The presenter will show applicable slides from travels in the U.S. and the rest of the world. An outline of a sample course will be made available along with associated activities, assessments, and a useful list of resources. Time will be provided for personal experience with some of the material, questions, and discussion. Such a course is appropriate for quantitative literacy or teacher education.

## **THE MATHEMATICS OF PRESIDENTIAL AND OTHER ELECTIONS**

Steven J. Brams, New York University

Alan D. Taylor, Union College

*Part A: Thursday, August 1, 3:15 pm - 5:15 pm*

*Part B: Saturday, August 3, 1:00 pm - 3:00 pm*

This course will be divided into two segments, the first emphasizing modeling presidential campaigns and elections, the second on more theoretical problems underlying voting and social choice. Topics in the first half will include modeling position-taking in two-candidate and multi-candidate races,

bandwagon and underdog effects in primaries, voting power in the Electoral College, and election reforms like approval voting. The second half will discuss May's theorem on majority rule, Arrow's impossibility theorem, the Gibbard-Satterthwaite theorem on manipulability, and conditions allowing one to show that a voting system like the U.S. federal system is not weighted.

## **INCORPORATING THE SOFTWARE GAP INTO AN ABSTRACT ALGEBRA COURSE**

Julianne G. Rainbolt, Saint Louis University

*Part A: Thursday, August 1, 3:15 pm - 5:15 pm*

*Part B: Saturday, August 3, 1:00 pm - 3:00 pm*

In this workshop, specific computer projects that incorporate the software GAP into an abstract algebra class will be distributed, examined and discussed. Many of the computer projects lead students to specific conjectures about the structure of a group or ring. Other computer projects provide the students with a rich source of examples illustrating algebraic structures or concepts. We will work through many computer project examples and discuss how they can be useful in helping the student comprehend basic abstract algebra concepts. No prior knowledge of GAP will be assumed.

## **A DYNAMICAL SYSTEMS APPROACH TO THE DIFFERENTIAL EQUATIONS COURSE**

Paul Blanchard, Boston University

*Part A: Friday, August 2, 1:00 pm - 3:00 pm*

*Part B: Saturday, August 3, 3:15 pm - 5:15 pm*

This minicourse will give an overview of the Boston University Differential Equations Project, originally funded by the National Science Foundation. The BU project involves a complete redesign of the sophomore-level ODE course. It includes more emphasis on qualitative and geometric methods as well as the incorporation of technology and numerical methods throughout. This minicourse will be useful to college instructors wishing to restructure their ODE courses.

## **MUSIC AND MATHEMATICS**

Leon Harkleroad, University of Maine, Farmington

*Part A: Friday, August 2, 1:00 pm - 3:00 pm*

*Part B: Saturday, August 3, 3:15 pm - 5:15 pm*

Over the years people have used mathematics in various ways to describe, analyze, and create music. This minicourse will explore the applications of mathematical areas such as number theory, probability, and group theory to musical topics like tuning systems, bell-ringing, and twentieth-century compositional technique. Emphasis will be placed on how minicourse participants can incorporate this material into their classes—or even design a service course on music and mathematics.

# Special PROGRAM

*Special Programs function as miniconferences. They are organized around relevant themes and are normally held in conjunction to MathFest. They may precede, follow, or be held during MathFest itself.*

## Two day pre-session sponsored by SIGMAA on RUME ANNUAL CONFERENCE ON RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION

*Tuesday, July 30, 8:00 am – 9:00 pm*

*Wednesday, July 31, 8:00 am – 6:00 pm*

The Special Interest Group of the MAA on Research in Undergraduate Mathematics Education (SIGMAA on RUME) will hold its annual conference as a two day pre-session to MathFest. The conference has previously been held in September/October since its inception in 1996. This year's conference will be held at the Clarion Hotel and Conference Center in Burlington.

This conference is a forum for researchers in collegiate mathematics education and includes the following themes: results of current research, contemporary theoretical perspectives and research paradigms, application of learning theory to teaching practice, technology in mathematics learning, and general issues in the psychology of mathematics education as it pertains to the study of undergraduate mathematics. The program will include plenary addresses, general paper sessions, panel discussions, and contributed paper sessions.

Features of the conference include a plenary address by Marilyn Carlson, Arizona State University and a panel presentation and discussion of Metaphor as a Theory of Learning. Panelists include Rafael Núñez, University of California, San Diego, Michele Zandieh, Arizona State University, and Ed Dubinsky. The two days will be packed with research talks and posters.

Information on registration and housing may be found at <http://www.math.ilstu.edu/~jfcot> or by contacting Jim Cottrill, Illinois State University, Campus Box 4520, Normal IL 61790-4520, <jfcottr@math.ilstu.edu>. Registration and room reservations for this pre-session must be made separately from MathFest.

## THE TWO-DAY SHORT COURSE THE MATHEMATICS OF CRYPTOLOGY

Carl Pomerance, Lucent Technologies, Bell Labs

*Part I: Tuesday, July 30, 9:00 am – 5:00 pm*

*Part II: Wednesday, July 31, 9:00 am – 5:00 pm*

For millennia cryptology and mathematics followed separate paths. Now they are intimately entwined, with cryptology influencing the development of mathematics and vice versa. In this short course we shall visit some of the mathematics that has been stimulated by cryptology, some of the cryptology that has arisen out of mathematical problems, and some of the real-world issues that arise when cryptosystems are actually implemented. Most talks will supplement what is usually found in an undergraduate text on cryptology. The following talks will be given at the short course. They are listed in alphabetical order by speaker. The actual order will be different. Sign up on the Advance Registration/Housing form. An additional fee is required.

### IMPLEMENTING PUBLIC KEY CRYPTOLOGY: THE DEVIL IS IN THE DETAILS

Daniel Bleichenbacher, Lucent Technologies, Bell Labs

### HOW HARD IS FACTORING?

Carl Pomerance, Lucent Technologies, Bell Labs

### HOW HARD ARE DISCRETE LOGARITHMS?

Carl Pomerance, Lucent Technologies, Bell Labs

### ELLIPTIC CURVES AND CRYPTOLOGY

Joe Silverman, Brown University and  
NTRU Cryptosystems, Inc.

### LATTICES AND CRYPTOLOGY

Joe Silverman, Brown University and  
NTRU Cryptosystems, Inc.

### THE GIVE AND TAKE OF MAKING AND BREAKING CRYPTOSYSTEMS

Mike Szydlo, RSA Security, Inc.

### TEXTBOOK CRYPTOGRAPHY AND THE REAL WORLD

Mike Szydlo, RSA Security, Inc.

### COMBINATORIAL CRYPTOGRAPHY AND THE 'TWO SHERIFFS PROBLEM'

Peter Winkler, Lucent Technologies, Bell Labs

### COMPARISON WITHOUT DISCLOSURE (OR AVOIDING CRYPTOGRAPHY FOR FUN AND PROFIT)

Peter Winkler, Lucent Technologies, Bell Labs

## TEACHING WORKSHOP FOR GRADUATE STUDENTS AND NEW FACULTY

Thomas W. Rishel, MAA and Cornell University

Maria Terrell, Cornell University

Solomon Friedberg, Boston College

Saturday, August 3, 12:15 pm - 2:15 pm  
and 3:30 pm - 5:30 pm

This workshop is aimed primarily for incoming graduate students who expect to begin their first teaching duties. It would also be useful for young faculty just beginning their teaching assignments, as well as people who have been designated as trainers of graduate students and mentors of junior faculty. We

will discuss the various types of TA jobs that schools offer, such as recitation instruction, paper grading, and classroom teaching. We will concentrate on such "nuts and bolts" items of teaching as where to get textbooks and syllabi, how to plan classes, how to grade quickly and accurately, and how to deal with class supervisors. We will then move onto advice on how to construct reasonable quizzes and exams, and how to decide on grading policy. We will also use Case Study methodologies to discuss crisis situations that can occur, for instance, what we can do if a student cheats, or behaves bizarrely in class, or accuses us of something, etc. Sign up on the Advance Registration/Housing form under "Other Events." No additional fee required.

## Exhibit Hall Information

Shop for new publications and products and revisit your old favorites at the MathFest 2002 Exhibit Hall. This is your opportunity to review the latest books, test innovative calculators and preview software. Meet company representatives and receive feedback that will assist you in making purchasing decisions.

In the Exhibit Hall, you will find the popular MAA Bookstore. There you can select from the MAA's extensive collection of books on mathematics education and related topics.

Schedule time to browse through the new titles premiering this year in the Exhibit Hall. Purchase books at the meeting and you'll save money with a special discount.

### LOCATION

Sheraton Burlington Hotel and Conference Center

### EXHIBIT HOURS

Thursday, August 1, 9:00 am – 5:00 pm

Friday, August 2, 9:00 am – 5:00 pm

Saturday, August 3, 9:00 am – 3:00 pm

# Student PROGRAMS

*MathFest includes a rich array of activities for students. Both students and faculty will be interested in presentations of student work, and the invited lectures developed with students in mind.*

## **MAA/PI MU EPSILON STUDENT RECEPTION**

*Wednesday, July 31, 5:30 pm - 6:30 pm*

## **STUDENT HOSPITALITY CENTER**

Richard and Araceli Neal, University of Oklahoma

*Thursday, August 1, 9:00 am - 5:00 pm*

*Friday, August 2, 9:00 am - 5:00 pm*

*Saturday, August 3, 9:00 am - 3:00 pm*

Students and other MathFest attendees can meet for informal conversation, refreshment, and mathematical diversions.

The Student Hospitality Center also provides programs for the student paper sessions, packets for student presenters, and information on MathFest activities of interest to students.

Special information for students can be found on MAA Online at [www.maa.org](http://www.maa.org) and at [www.pme-math.org](http://www.pme-math.org).

## **MAA STUDENT PAPER SESSIONS**

*Thursday, August 1, 1:00 pm - 5:00 pm*

*Friday, August 2, 1:00 pm - 5:00 pm*

## **PME STUDENT PAPER SESSIONS**

*Thursday, August 1, 1:00 pm - 5:00 pm*

*Friday, August 2, 1:00 pm - 5:00 pm*

## **MAA MATHEMATICAL CONTEST IN MODELING (MCM) WINNERS**

Ben Fusaro, Florida State University

*Thursday, August 1, 5:30 pm - 6:20 pm*

## **GRADUATE STUDENT RECEPTION**

*Thursday, August 1, 5:30 pm - 6:30 pm*

Sign up on the advance registration form under "Student Only Events." No additional fee required.

## **PME BANQUET**

*Friday, August 2, 6:00 pm - 7:45 pm*

See the MathFest Registration Form for ticket information.

## **PME J. SUTHERLAND FRAME LECTURE**

### **SOAP BUBBLES: OPEN PROBLEMS**

Frank Morgan, Williams College

*Friday, August 2, 8:00 pm - 9:00 pm*

## **STUDENT PROBLEM SOLVING COMPETITION**

Richard Neal, University of Oklahoma

*Saturday, August 3, 4:00 pm - 4:50 pm*

This 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 two contestants. Each contestant will be required to solve a series of mathematical problems. Based upon the outcome, a champion and runner-up will be named.

## **MAA STUDENT WORKSHOP**

### **TOPICS IN GRAPH THEORY**

Patti Frazer Lock, St. Lawrence University

*Saturday, August 3, 1:00 pm - 2:50 pm*

Graph Theory is a subject that offers obvious applications and beautiful open questions, all within a context that allows beginners to get up to speed quickly. The workshop should be interesting applications and open questions in graph theory to those with a solid background in the subject. Sign up on the advance registration form under "Student Only Events." No additional fee required.

## **MAA STUDENT LECTURE**

### **"BLOWN AWAY: WHAT KNOT TO DO WHEN SAILING" BY SIR RANDOLPH "SKIPPER" BACON III**

Colin Adams, Williams College

*Saturday, August 3, 3:00 pm - 3:50 pm*

Being a tale of adventure on the high seas involving great risk to the tale teller, and how an understanding of the mathematical theory of knots saved his bacon.

## **CALL FOR STUDENT PAPERS**

Students who wish to present a paper at MathFest 2002 in Burlington must be nominated by a faculty advisor familiar with the work to be presented. To propose a paper for presentation, the student must complete a nomination form and obtain the signature of a faculty sponsor.

Nomination forms for the MAA Student Paper Sessions are located on MAA Online at [www.maa.org](http://www.maa.org) under STUDENTS, or can be obtained from Dr. Thomas Kelley <[tkelley@hfcc.net](mailto:tkelley@hfcc.net)> at Henry Ford Community College or by phone at (313) 845-6492.

PME student speakers must be nominated by their chapter advisors. Application forms for PME student speakers can be found on the PME web site [www.pme-math.org](http://www.pme-math.org) or can be obtained from the PME Secretary-Treasurer, whose address is at that site. Students who make presentations at MathFest, and who are also members of MAA Student Chapters, are eligible for partial travel reimbursement. The deadline for receipt of applications is June 28, 2002.

REGISTER ONLINE at [WWW.MAA.ORG](http://WWW.MAA.ORG)

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# Social EVENTS

*There are social events planned for every evening of MathFest for all to enjoy. Participants and their guests are welcome to take part in one or all. Please make reservations early as some events have tickets which are only available through advance registration.*

## TOUR

### SHELburne MUSEUM

*Wednesday, July 31, 9:30 am – 3:00 pm*

The Shelburne Museum is located in Shelburne Vermont, approximately a 20-minute ride from the Burlington Sheraton and UVM. It was established in the late 40's by a Vermont eccentric to house her extensive Americana collections—including china, porcelain, quilts, cigar store Indians, weathervanes, assorted folk art, etc. The museum is a 45-acre complex of 37 historic buildings and sculpted gardens. Participants will arrive at the museum at approximately 10:00 am, eat lunch in the cafeteria on the property and leave at 2:30 pm. The bus will pick up and drop off at UVM, the Sheraton Burlington Hotel & Conference Center, and the Clarion Hotel.

Tickets for the tour, which includes lunch, are \$28 and are available ONLY through advance registration.

### OPENING RECEPTION

*Wednesday, July 31, 6:30 pm - 7:30 pm*

The Association is pleased to hold a reception for all MathFest participants just prior to the Opening banquet.

### OPENING BANQUET

*Wednesday, July 31, 7:30 pm - 9:30 pm*

Master of Ceremonies: Underwood Dudley, DePauw University. Continue this exciting evening by joining new and long-time friends and colleagues for a dinner of Chicken Carazella. There will be an after dinner presentation by Joe Gallian, University of Minnesota at Duluth, entitled "Who is the Greatest Hitter in the History of Baseball?" Tickets are \$28 and are available through advanced registration ONLY. A vegetarian substitution is available.

### LAKE CHAMPLAIN DINNER AND CRUISE Aboard the Spirit of Ethan Allen III

*Thursday, August 1, 6:30 pm - 9:00 pm*

Enjoy dinner and a cruise aboard the Spirit of Ethan Allen III in an atmosphere reminiscent of the days when steamboats churned Lake Champlain to bring entertainment and commerce to Burlington. You will find serenity in the midst of the Queen City while escaping to the lake for a relaxing cruise and dinner.

Dinner will be buffet style with entrées of beef, chicken and vegetable lasagna along with baked potatoes, steamed vegetables, family style salad and dessert.

Tickets are \$31 adults, \$15 for children 3-11. Tickets are available ONLY through advance registration. Ground transportation will be provided.

### PME BANQUET

*Friday, August 2, 6:00 pm - 7:45 pm*

Tickets are \$15 for PME members and their families as well as for MAA Student Chapter members and students giving talks in MAA Student Paper Sessions, and \$25 for others. Purchasing tickets through advanced registration is recommended, since only a limited number of tickets will be available for sale onsite. Dinner is chicken Mediterranean or a vegetarian substitution.

After the banquet, at 8:00 pm attend the popular PME J. Sutherland Frame lecture, given this year by Frank Morgan, Williams College who will speak on "SOAP BUBBLES: OPEN PROBLEMS."

### AWM RECEPTION

*Friday, August 2, 9:00 pm - 11:00 pm*

Plan to attend this cooperative party with the Association for Women in Mathematics on Friday evening at 9:00 pm following the Frame Lecture. All supporters of women in mathematics are encouraged to attend and to meet AWM members.

### SILVER AND GOLD BANQUET

*Saturday, August 3, 6:00 pm - 9:00 pm*

The event celebrates all members who have belonged to the MAA for 25 years or more with special recognition of those members on their 25-year and 50-year anniversaries. The moderator will be Frank Morgan of Williams College. Richard Anderson of Louisiana State University will speak on "Reflections on 61 Years of MAA Membership."

There will be a cash-bar reception beginning at 6:00 pm with the banquet following at 6:30 pm. Dinner is chicken Mediterranean or a vegetarian substitution. Tickets are \$30 and purchasing tickets through advance registration is recommended, since only a limited number of tickets will be available for sale onsite.

# General INFORMATION

## REGISTRATION INFORMATION

### REGISTRATION DESK:

The registration desk will be located in the Sheraton Conference Center Lobby, Sheraton Burlington Hotel. It will be open Wednesday, July 31 from noon to 7:00 p.m., Thursday, August 1 and Friday, August 2 from 8:00 am to 4:00 pm, and Saturday, August 3 from 8:00 am to 2:00 pm. You may pick up your registration materials, register on-site, and purchase event tickets, if available, at this location.

All sessions and talks will be held at the Sheraton Burlington Hotel. The Project NExT sessions will be held at the University of Vermont.

### REGISTRATION FEES

	<i>By 6/17</i>	<i>After 6/17</i>
MAA Member	\$175	\$230
Nonmember	\$260	\$335
Grad Student	\$ 40	\$ 50
Undergraduate Students	\$ 25	\$ 30
Unemployed	\$ 40	\$ 50
Individual from a		
Developing Country	\$ 40	\$ 50
K-12 Teacher	\$ 40	\$ 50
Emeritus member	\$ 40	\$ 50
One-day T F S	\$ 99	\$ 99
High School Student	\$ 10	\$ 10
Guest	\$ 10	\$ 10
Minicourses	\$ 60	\$ 65
Short Course		
MAA or AMS Member		
and MathFest Participant	\$125	\$140
Nonmember or		
MathFest Non-Participant	\$175	\$190
Students	\$ 50	\$ 60

### EARLY BIRD REGISTRATION:

Register by June 17 to take advantage of the early bird savings and receive your registration packet before the meeting. Registration packets will be mailed during the week of July 8 and there will be no need to pick up registration materials on-site.

### REGULAR REGISTRATION:

Advance Registration/Housing Forms received between June 17 and July 15 must include regular registration fees. Participants registering during this period must pick up their registration packets at the registration desk. Participants may also register on-site at the registration desk.

### ONLINE REGISTRATION:

Register on the internet for MathFest, university housing, and reservations at the Sheraton Burlington Hotel. Go to [www.maa.org](http://www.maa.org) and click on "Register for MathFest 2002." Credit card payment is required for internet registration. Payment is accepted with the following credit cards: MasterCard, Visa, American Express, and Discover.

### MINICOURSE/SHORT COURSE REGISTRATION:

Advance Registration/Housing Forms must be received by July 15. Enroll early; space is limited! If a course is full, you will be notified. On-site registration is allowed if enrollment permits. The MAA reserves the right to cancel courses due to low enrollment. Full refunds will be issued for cancelled courses. Otherwise, minicourse and/or short course cancellations must be received by July 30 to receive a 50% refund.

### MATHFEST CANCELLATIONS:

MathFest cancellations must be received by July 30 to receive a 50% refund for registration. If your registration packet was mailed before your cancellation, you must return your badge to the MMSB address below to receive your refund.

### PAYMENT/MAILING ADDRESS

The MAA has contracted with the American Mathematical Society as its meeting planner. The MMSB will coordinate registration and housing. Make checks payable to the MMSB. Checks drawn on foreign banks must be in equivalent foreign currency at current exchange rates. Mail/fax form to:

Mathematics Meetings Service Bureau (MMSB)  
P. O. Box 6887  
Providence, RI 02940-6887  
Fax: 401-455-4004

### Questions/Changes on Registration and Housing:

1-800-321-4267, ext. 4143 or 4144  
Email: [mmsb@ams.org](mailto:mmsb@ams.org)

### MATHFEST HOUSING

Rooms may be reserved at the Sheraton Burlington Hotel and Conference Center, Clarion Hotel and Conference Center, and University of Vermont. The Sheraton and the Clarion are both "green hotels" and have an environmentally friendly policy regarding linens.

## **MATHFEST HOUSING CONTINUED**

Reservations at the Sheraton Burlington & Conference Center must be made through the Mathematics Meetings Service Bureau (MMSB) by submitting an Advance Registration/Housing form or by registering on the internet at [www.maa.org](http://www.maa.org) and clicking on "Register for MathFest 2002." Reservations made with the hotel directly will be subject to a higher room rate. The MMSB can process reservations and changes until 4:00 p.m. on July 1, 2002. Afterwards, reservations and changes for the Sheraton Burlington can be made directly with the hotel starting on July 7, 2002. Rates include an administrative fee for the meeting.

Registrations at the University Residence Hall must be made through the Mathematics Meetings Service Bureau (MMSB). Reservations cannot be made directly with the university. Detailed room rates may be found on the Advance Registration/Housing Form. Rooms will be available from July 29 through August 3. To reserve university housing, please send a completed Registration/Housing Form to the Mathematics Meetings Service Bureau (MMSB). All completed forms must be received by the MMSB by 4:00 p.m. on July 1. Changes may be accepted by the MMSB until 4:00 p.m. on July 18. A 15% cancellation fee will be charged for all university housing cancellations made by July 18. Unfortunately, refunds for changes and cancellations of university housing after July 18 cannot be issued.

Reservations for the Clarion Hotel & Conference Center must be made directly with the hotel. Participants should mention MATHFEST 2002 to receive the MathFest rates. The hotel must receive all reservations by June 29, 2002. Please call 802-658-0250 to make reservations.

All rates are subject to a 9% state tax. Any reservations cancelled less than 48 hours prior to arrival will be subject to a cancellation fee equal to one night's stay. Rooms will fill quickly at these properties so participants are advised to reserve rooms as early as possible. After deadlines listed above, reservations can be made with the hotels based only on rate and space availability and at the hotels' discretion.

## **SHERATON BURLINGTON HOTEL AND CONFERENCE CENTER**

870 Williston Road  
South Burlington, VT 05403  
802-865-6600  
\$123 single/double, \$133 triple, \$143 quad [www.sheraton.com](http://www.sheraton.com)  
(Reservations through MMSB only until July 1, 2002)

Full service hotel, restaurant, English pub, fitness center with indoor pool, free parking for overnight guests, complimentary airport shuttle, physically challenged and nonsmoking rooms available; rooms include full amenities with data ports.

A credit card number or a check in the amount of one night stay is required to guarantee a room. Check-in: 3:00 pm. Checkout: Noon (Late check-outs may be subject to a late charge.)

**Hotel Shuttle Service:** For those staying at the Sheraton Burlington, the hotel provides courtesy van service from the Airport between the hours of 6:00 am - 11:00 pm. Should your flight be before or after these times, the hotel will reimburse cab fare if a receipt is presented at the front desk. There is a courtesy phone in the baggage claim area; dial "7" for the Sheraton Burlington Hotel & Conference Center's front desk.

## **DIRECTIONS from Burlington International Airport:**

**To: Sheraton Burlington Hotel & Conference Center:** From the airport grounds, turn left onto Airport Drive. At the next stoplight, turn right onto Williston Road/Route 2 West. While traveling on Williston Road you will cross over Interstate 89 (I-89). The Sheraton Burlington Hotel is located at 870 Williston Road, on the right as you cross over I-89.

## **CLARION HOTEL AND CONFERENCE CENTER**

See Directions to Sheraton Burlington Hotel & Conference Center

Located .5 miles from Sheraton  
1117 Williston Road  
South Burlington, VT 05403  
802-658-0250  
\$105 single/double, \$115 triple, \$125 quad  
[www.clarionvermont.com](http://www.clarionvermont.com)  
(Reservations made directly with hotel until June 29, 2002)

Full service hotel, restaurant, lounge, fitness center with indoor pool, free parking for overnight guests, complimentary airport shuttle, physically challenged and nonsmoking rooms available; rooms include full amenities with data ports and refrigerators.

A credit card number or a check in the amount of one night stay is required to guarantee a room. Check-in: 3:00 pm. Checkout: Noon (Late check-outs may be subject to a late charge.)

**Please call the hotel for further information on their airport shuttle.**



## **UNIVERSITY HOUSING**

### **Marsh/Austin/Tupper (MAT) Residence Hall**

.25 miles from Sheraton Burlington

University of Vermont

Marsh / Austin / Tupper

31 Spear Street

Burlington, VT 05405-0344

All rates for university housing include an administrative fee for the meeting, a daily meal plan of breakfast, and a linen pack provided at check-in consisting of sheets, blanket, pillow, towels, and linen exchange on 5th consecutive day, if appropriate. Costs per person occupying a bed are \$48 for a single and \$44 for a double.

The breakfast meal plan starts with breakfast on the day following arrival and ends with breakfast on day of departure. Unfortunately, refunds cannot be issued for meals missed at the meeting. Participants occupying a bed are eligible for the meal plan only. Children 3 years and younger may sleep and eat with their parents free of charge. Children over 3 years pay full adult rates for housing and meals. Maximum number of people in a room is 2 except for parents with children 3 years or younger.

MAT Residence hall has common lounges, a coin laundry and one community bathroom on each floor. Floors and bathrooms will be designated by gender. The hall is nonsmoking as is the entire campus. Pay phones for long distance calls are available in the common areas of the building. Rooms are not air-conditioned and participants are encouraged to bring their own fans. Each room has fluorescent lighting in the ceiling, a single bed or bunk beds, wardrobe closet, desk, chair, and internet access. Cots and cribs are not available. Sleeping bags may be brought in.

The check-in desk will be located in the front lobby of MAT. Participants will receive a meal pass and a key at check-in. A \$45 per key charge will be assessed to anyone that loses his or her key or does not return his or her key at checkout. All participants who will be residing on campus will receive an information sheet by mid July from the MMSB that will include hours of operation for the check-in desk and other pertinent information.

## **DINING**

Meals will be served at Marsh Dining Hall, located in the basement of MAT. Operation hours for breakfast are 7:00 am to 9:00 am. Hours subject to change. Meals are all-you-can-eat cafeteria-style breakfast. Sorry, Kosher meals are not offered. Participants must show their meal pass for admission to the

dining hall. Unfortunately, meals will not be available on a cash basis at this hall.

Meals will be available on a cash basis at Simpson Dining Hall (for breakfast and lunch) and at Billings Student Center (for dinner), weekdays only. In addition, there are many eateries and restaurants located 1 to 2 miles East and West of campus.

## **DIRECTIONS from Burlington International Airport:**

### **To: University of Vermont Marsh-Austin-Tupper Residence**

**Hall:** From the airport grounds, turn left onto Airport Drive. At the next stoplight, turn right onto Williston Road/Route 2 West. While traveling on Williston Road you will cross over Interstate 89. Continue west on Williston Road (which becomes Main Street) to the campus, located at the top of the hill. Just past the Sheraton and traffic light, bear right at the East Avenue/Spear Street exit, in the lane for Spear Street. Make an immediate left around the jug handle and go through the traffic light, which will take you onto Spear Street. Take the first right, then make another right down the drive to the parking lot. Marsh-Austin-Tupper Residence Hall is on the left, adjacent to the parking lot.

## **PARKING**

Participants may park in the parking lot directly outside of MAT and are required to purchase a parking permit for each day that they use this lot. Parking permits cost \$3.50 per day and may be purchased upon arrival at the check-in desk. Temporary parking without a permit will be allowed in this lot for a limited time while participants check in for housing. All parking fees and permits are the sole responsibility of each participant. Participants interested in obtaining parking permits should indicate on the Registration/Housing Form which days they plan to purchase permits upon arrival. Based on this information, an estimated count will be given to the university prior to the meeting to ensure that an adequate amount of permits will be available. Parking permits cannot be purchased through advance registration.

## **TRAVEL INFORMATION:**

**AIRLINE INFORMATION:** There are two official airlines for MathFest 2002: United Airlines and USAirways.

**United:** To obtain a discount fare on United Airlines make your reservations by calling 800-521-4041 between the hours of 7:00 am and 12:00 midnight, Eastern Time. Please be sure to refer to **United Airlines Meeting Plus ID Code 560HM**.

# General INFORMATION CONTINUED

**USAirways:** To obtain a discount fare on USAirways make your reservations by calling toll-free 877-874-7687 between the hours of 8:00 am and 9:30 pm, Eastern Time. Please be sure to refer to USAirways Gold File Number 92691981.

The nearest airport is the Burlington International Airport, located in Burlington, Vermont approximately one and a half miles from the Sheraton Burlington Hotel and the University of Vermont Marsh-Austin-Tupper residence halls.

**AMTRAK:** The Amtrak station is 15 minutes from the Sheraton Burlington Hotel & Conference Center. See <http://1-800-vermont.com/transportation/index.asp> for a link to the "Vermonter." For more information on Vermont transportation <http://1-800-vermont.com/transportation/index.asp>.

#### **CAR RENTAL INFORMATION:**

Avis is the official car rental company for MathFest 2002. When making your reservations you must use Avis Discount Number B159265 for the discounted meeting rate. Rates are available from July 25, 2002 to August 10, 2002. Reservations can be made by telephone (800) 331-1600 or online at [www.avis.com](http://www.avis.com).

Most of the other major car rental companies are located at the airport: Budget (802) 658-1211, Hertz (802) 864-7409, National (802) 864-7441.

**PUBLIC TRANSPORTATION:** Burlington International Airport: Chittenden County Transportation Authority (CCTA) provides bus service from the Burlington International Airport to the Sheraton Burlington Hotel & Conference Center and the University. For more information telephone 802-864-0211 or check out their website <http://www.cctaride.org/pages/firststop.html>.

**SHUTTLE BUS:** There will be round trip shuttle service between the University of Vermont, the Sheraton Burlington Hotel & Conference Center, and the Clarion Hotel mornings and late afternoons, schedule to be announced.

**HOTEL AIRPORT SHUTTLE:** For those staying at the Sheraton Burlington Hotel & Conference Center, the hotel provides courtesy van service from the Airport between the hours of 6:00 a.m. - 11:00 p.m. Should your flight be before or after these times, the hotel will reimburse taxi fare if a receipt is presented at the front desk. There is a courtesy phone in the baggage claim area; dial "7" for the Sheraton Burlington Hotel & Conference Center's front desk.

**TAXI INFORMATION:** There are independent taxis available at the airport outside the baggage claim area. The taxi fare is less than \$10 to either the hotel or the UVM Marsh-Austin-Tupper residence halls. If there are no taxis outside call Benway's Taxi 802-862-1010 or Everywhere Taxi 802-238-4121 upon arrival.

## DO YOU HAVE A REALLY CLEVER IDEA YOU USE WHEN YOU TEACH? SHARE IT WITH OTHERS!

**DEMOS with POSITIVE IMPACT** is an NSF-sponsored project that connects mathematics teachers with effective teaching tools. We are seeking instructional approaches/ideas/tools to build a Web-based database of instructional demos to help students understand and visualize concepts and ideas in mathematics.

*YOUR IDEA + DEMOS with POSITIVE IMPACT = STUDENT SUCCESS*

Every experienced mathematics instructor has a tool kit of great classroom demos. **JOIN** the mathematics instructors across the country who have already shared their ideas. For more information, sample demos, or to submit an idea, visit our Web site at <http://www2.gasou.edu/facstaff/lroberts/demos>

**DON'T DELAY, SUBMIT TODAY**

# Program AT A GLANCE

## INVITED ADDRESSES

## INVITED PAPERS

THURSDAY  
AUGUST 1

**MAA-NAM DAVID BLACKWELL LECTURE  
RANDOM WALK, DIFFUSION, AND ENERGY DECAY**  
Isom Herron, Rensselaer Polytechnic Institute  
8:30 am - 9:20 am

**HEDRICK LECTURE SERIES: GRAPHS, EIGENVALUES,  
AND GEOMETRIC REPRESENTATIONS  
LECTURE 1: GRAPHS AND EIGENVALUES**  
László Lovász, Microsoft Research  
9:30 am - 10:20 am

**MAA INVITED ADDRESS  
WHY ARE RANDOM MATRICES COOL?**  
Alan Edleman, Massachusetts Institute of Technology  
10:30 am - 11:20 am  
Come and find out.

**INVITED PAPER SESSION ON DISCRETE METHODS IN GEOMETRY**  
Dan Archdeacon, University of Vermont  
Jo Ellis-Monaghan, St. Michael's College and the University of Vermont  
4:00 pm - 6:00 pm

FRIDAY  
AUGUST 2

**MAA INVITED ADDRESS  
FUN AND GAMES FOR TEACHING STATISTICS**  
Robin Lock, St. Lawrence University  
8:30 am - 9:20 am

**HEDRICK LECTURE SERIES: GRAPHS, EIGENVALUES, AND  
GEOMETRIC REPRESENTATIONS  
LECTURE 2: GEOMETRIC REPRESENTATIONS OF GRAPHS**  
László Lovász, Microsoft Research  
9:30 am - 10:20 am

**JAMES R.C. LEITZEL LECTURE  
THE MATHEMATICS EDUCATION OF TEACHERS**  
Jim Lewis, University of Nebraska at Lincoln  
10:30 am - 11:20 am

**PI MU EPSILON J. SUTHERLAND FRAME LECTURE  
SOAP BUBBLES: OPEN PROBLEMS**  
Frank Morgan, Williams College  
8:00 pm - 8:50 pm

**INVITED PAPER SESSION ON HISTORY OF MATHEMATICS**  
Paul Wolfson, West Chester University  
Roger Cooke, University of Vermont  
3:15 pm - 6:15 pm

SATURDAY  
AUGUST 3

**AWM-MAA INVITED ADDRESS  
TWO RESEARCH TRADITIONS SEPARATED BY A COMMON  
SUBJECT: MATHEMATICS AND MATHEMATICS EDUCATION**  
Annie Selden, Tennessee Technical University  
8:30 am - 9:20 am

**HEDRICK LECTURE SERIES: GRAPHS, EIGENVALUES, AND  
GEOMETRIC REPRESENTATIONS  
LECTURE 3: EIGENVALUES AND GEOMETRIC  
REPRESENTATIONS**  
László Lovász, Microsoft Research  
9:30 am - 10:20 am

**MAA INVITED ADDRESS  
FERMAT'S ARITHMETIC IN SEVENTEENTH-CENTURY CONTEXT**  
Catherine Goldstein, CNRS-University of Paris Sud  
10:30 am - 11:20 am

**MAA SESSIONS****CONTRIBUTED  
PAPER SESSIONS****QUANTITATIVE LITERACY: A NATIONAL AGENDA**

Susan Ganter, Clemson University  
 Bernard L. Madison, University of Arkansas  
 1:00 pm - 2:20 pm

**CONVERSATIONS ABOUT MATHEMATICS AND THE ENVIRONMENT**

Patricia Clark Kenschaft, Montclair State University  
 1:00 pm - 2:20 pm

**RETHINKING THE COURSES BEFORE CALCULUS**

Sheldon P. Gordon, SUNY at Farmingdale  
 2:30 pm - 3:50 pm

**MAA CPS A1 CREATIVE USE OF TECHNOLOGY IN TEACHING MATHEMATICS**

Mary L. Platt, Salem State College  
 Marcelle Bessman, Jacksonville University  
 1:00 pm - 3:00 pm

**MAA CP C1 INDEPENDENT LEARNING EXPERIENCES FOR UNDERGRADUATES IN MATHEMATICS**

Donna L. Beers, Simmons College  
 1:00 pm - 3:00 pm

**MAA CP L1 GENERAL CONTRIBUTED PAPER SESSION**

Tony Julianelle, University of Vermont  
 Mizan Khan, Eastern Connecticut State University  
 Bob Wright, University of Vermont  
 Part 1: 1:00 pm - 5:00 pm

**MAA CP B1 E-LEARNING MATHEMATICS COURSES**

Elias Decba, University of Houston-Downtown  
 Ananda Gunawardena, Carnegie-Mellon University  
 3:15 pm - 5:15 pm

**MAA CP D1 THE USE OF RECENT HISTORY OF MATHEMATICS IN TEACHING**

Amy Shell, USMA at West Point Dick Jardine, Keene State College  
 3:15 pm - 5:15 pm

**ISSUES IN THE TRANSITIONS FROM SCHOOL TO COLLEGE AND FROM COLLEGE TO COLLEGE**

Susan L. Forman, Bronx Community College (CUNY)  
 Bernard L. Madison, University of Arkansas  
 1:00 pm - 2:20 pm

**MORGAN PRIZE SESSION**

1:30 pm - 2:00 pm

**CINEMATH: MATHEMATICS ON THE SILVER SCREEN**

Charlie Smith, Park University  
 2:30 pm - 3:50 pm

**E-LEARNING IN MATHEMATICS: THE GLOBAL CLASSROOM REVISITED**

Marcelle Bessman, Jacksonville University  
 Douglas A. Quinney, University of Keele  
 2:30 pm - 3:50 pm

**IMPLEMENTING PREPARATION AND DEVELOPMENT PROGRAMS FOR COLLEGE MATHEMATICS INSTRUCTORS: INTERACTIVE ROUNDTABLES**

Teri J. Murphy, University of Oklahoma  
 4:00 pm - 6:00 pm

**WEBWORK: A SESSION FOR USERS**

Arnold K. Pizer, University of Rochester  
 Michael G. Gage, University of Rochester  
 Vicki Roth, University of Rochester  
 4:00 pm - 6:00 pm

**ASSESSING ASSESSMENT ACTIVITIES**

Bonnie Gold, Monmouth University  
 William Haver, Virginia Commonwealth University  
 Bernard L. Madison, University of Arkansas  
 William Marion, Jr., Valparaiso University  
 1:00 pm - 2:20 pm

**SUMMA SPECIAL PRESENTATION**

William A. Hawkins, Jr., MAA and the University of the District of Columbia  
 1:00 pm - 2:20 pm

**NCATE AND THE MATHEMATICS COMMUNITY**

Judith Covington, LSU-Shreveport  
 Marilyn Hala, NCTM  
 2:30 pm - 3:50 pm

**MAA CP L1 GENERAL CONTRIBUTED PAPER SESSION**

Tony Julianelle, University of Vermont  
 Mizan Khan, Eastern Connecticut State University  
 Bob Wright, University of Vermont  
 Part 2: 1:00 pm - 5:00 pm

**MAA CP E1 RECREATIONAL MATHEMATICS IN THE CLASSROOM**

Doug Ensley, Shippensburg University  
 Charles Ashbacher, Charles Ashbacher Technologies  
 Cheryl Olson, Shippensburg University  
 1:00 pm - 3:00 pm

**MAA CP G1 RUME SIGMAA Session**

Jim Cottrill, Illinois State University  
 1:00 pm - 3:00 pm

**MAA CP F1 USING POPULAR CULTURE IN THE MATHEMATICS AND MATHEMATICS EDUCATION CLASSROOM**

Sarah J. Greenwald, Appalachian State University  
 Andrew Nestler, Santa Monica College  
 3:15 pm - 5:15 pm

**MAA CP H1 INNOVATIVE METHODS IN COURSES FOR NON-MAJORS**

Richard J. Maher, Loyola University Chicago  
 1:00 pm - 3:00 pm

**MAA CP J1 THE ROLE OF PROOF IN TEACHING MATHEMATICS**

Morris Orzech, Queen's University  
 Olympia Nicodemi, SUNY Geneseo  
 1:00 pm - 3:00 pm

**MAA CP I1 ENLIVENING MULTIVARIATE CALCULUS**

Sarah L. Mabrouk, Framingham State College  
 3:15 pm - 5:15 pm

**MAA CP K1 MATH & SOCIETY**

Stan Seltzer, Ithaca College  
 John Maceli, Ithaca College  
 3:15 pm - 5:15 pm

**THURSDAY  
AUGUST 1****FRIDAY  
AUGUST 2****SATURDAY  
AUGUST 3**

# Program AT A GLANCE

## MINICOURSES

## SPECIAL PROGRAMS

THURSDAY  
AUGUST 1

### MAKING LIBERAL ARTS MATHEMATICS THE MOST IMPORTANT COURSE STUDENTS TAKE TO LEARN EFFECTIVE THINKING

Edward B. Burger, Williams College  
Michael Starbird, University of Texas at Austin  
Part A: 1:00 pm - 3:00 pm

### ETHNOMATHEMATICS AS A MATHEMATICS LITERACY OR TEACHER EDUCATION COURSE

Delene Perley, Millikin University  
Part A: 1:00 pm - 3:00 pm

### THE MATHEMATICS OF PRESIDENTIAL AND OTHER ELECTIONS

Steven J. Brams, New York University  
Alan D. Taylor, Union College  
Part A: 3:15 pm - 5:15 pm

### INCORPORATING THE SOFTWARE GAP INTO AN ABSTRACT ALGEBRA COURSE

Julianne G. Rainbolt, Saint Louis University  
Part A: 3:15 pm - 5:15 pm

### A DYNAMICAL SYSTEMS APPROACH TO THE DIFFERENTIAL EQUATIONS COURSE

Paul Blanchard, Boston University  
Part A: 1:00 pm - 3:00 pm

### MUSIC AND MATHEMATICS

Leon Harkleroad, Wilton, ME  
Part A: 1:00 pm - 3:00 pm

### MAKING LIBERAL ARTS MATHEMATICS THE MOST IMPORTANT COURSE STUDENTS TAKE TO LEARN EFFECTIVE THINKING

Edward B. Burger, Williams College  
Michael Starbird, University of Texas at Austin  
Part B: 3:15 pm - 5:15 pm

### ETHNOMATHEMATICS AS A MATHEMATICS LITERACY OR TEACHER EDUCATION COURSE

Delene Perley, Millikin University  
Part B: 3:15 pm - 5:15 pm

### INCORPORATING THE SOFTWARE GAP INTO AN ABSTRACT ALGEBRA COURSE

Julianne G. Rainbolt, Saint Louis University  
Part B: 1:00 pm - 3:00 pm

### THE MATHEMATICS OF PRESIDENTIAL AND OTHER ELECTIONS

Steven J. Brams, New York University  
Alan D. Taylor, Union College  
Part B: 1:00 pm - 3:00 pm

### MUSIC AND MATHEMATICS

Leon Harkleroad, Wilton, ME  
Part B: 3:15 pm - 5:15 pm

### A DYNAMICAL SYSTEMS APPROACH TO THE DIFFERENTIAL EQUATIONS COURSE

Paul Blanchard, Boston University  
Part B: 3:15 pm - 5:15 pm

FRIDAY  
AUGUST 2

SATURDAY  
AUGUST 3

TUESDAY  
JULY 30

WEDNESDAY  
JULY 31

THURSDAY  
AUGUST 1

FRIDAY  
AUGUST 2

SATURDAY  
AUGUST 3

### THE TWO-DAY SHORT COURSE THE MATHEMATICS OF CRYPTOLOGY

Organized by Carl Pomerance  
Lucent Technologies, Bell Labs  
Part I: 9:00 am - 5:00 pm

### RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION (RUME)

Annual Conference on RUME (2-day pre-session)  
8:00 am - 9:00 pm

### THE TWO-DAY SHORT COURSE THE MATHEMATICS OF CRYPTOLOGY

Organized by Carl Pomerance  
Lucent Technologies, Bell Labs  
Part II: 9:00 am - 5:00 pm

### RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION (RUME)

Annual Conference on RUME (2-day pre-session)  
8:00 am - 6:00 pm

### TEACHING WORKSHOP FOR GRADUATE STUDENTS AND NEW FACULTY

Thomas W. Rishel, MAA and Cornell University  
Maria Terrell, Cornell University  
Solomon Friedberg, Boston College  
12:15 pm - 2:15 pm and 3:30 pm - 5:30 pm

**STUDENT PROGRAMS****GENERAL ACTIVITIES****WEDNESDAY  
JULY 31****MAA/PI MU EPSILON STUDENT RECEPTION**  
5:30 pm - 6:30 pm**TOUR**  
Shelburne Museum  
9:30 am - 3:00 pm**OPENING RECEPTION**  
6:30 pm - 7:30 pm**OPENING BANQUET**  
Joseph A. Gallian, University of Minnesota, Duluth  
7:30 pm - 9:30 pm**THURSDAY  
AUGUST 1****MAA STUDENT PAPER SESSIONS**  
1:00 pm - 5:00 pm**LAKE CHAMPLAIN DINNER AND CRUISE**  
6:30 pm - 9:00 pm**PME STUDENT PAPER SESSIONS**  
1:00 pm - 5:00 pm**EXHIBIT HALL**  
9:00 am - 5:00 pm**MAA MATHEMATICAL CONTEST IN MODELING (MCM) WINNERS**  
Ben Fusaro, Florida State University  
5:30 pm - 6:20 pm**GRADUATE STUDENT RECEPTION**  
5:30 pm - 6:30 pm**FRIDAY  
AUGUST 2****MAA STUDENT PAPER SESSIONS**  
1:00 pm - 5:00 pm**EXHIBIT HALL**  
9:00 am - 5:00 pm**PME STUDENT PAPER SESSIONS**  
1:00 pm - 5:00 pm**PME BANQUET**  
6:00 pm - 7:45 pm**PME BANQUET**  
6:00 pm - 7:45 pm**AWM RECEPTION**  
9:00 pm - 11:00 pm**PME J. SUTHERLAND FRAME LECTURE**  
**SOAP BUBBLES: OPEN PROBLEMS**  
Frank Morgan, Williams College  
8:00 pm - 9:00 pm**SATURDAY  
AUGUST 3****MAA STUDENT WORKSHOP**  
**TOPICS IN GRAPH THEORY**  
Patti Frazer Lock, St. Lawrence University  
1:00 pm - 2:50 pm**EXHIBIT HALL**  
9:00 am - 3:00 pm**MAA STUDENT LECTURE**  
**"BLOWN AWAY: WHAT KNOT TO DO WHEN SAILING" BY SIR**  
**RANDOLPH "SKIPPER" BACON III**  
Colin Adams, Williams College  
3:00 pm - 3:50 pm**MAA SILVER AND GOLD BANQUET**  
6:00 pm - 9:00 pm**STUDENT PROBLEM SOLVING COMPETITION**  
4:00 pm - 4:50 pm

# Map

