



# FOCUS

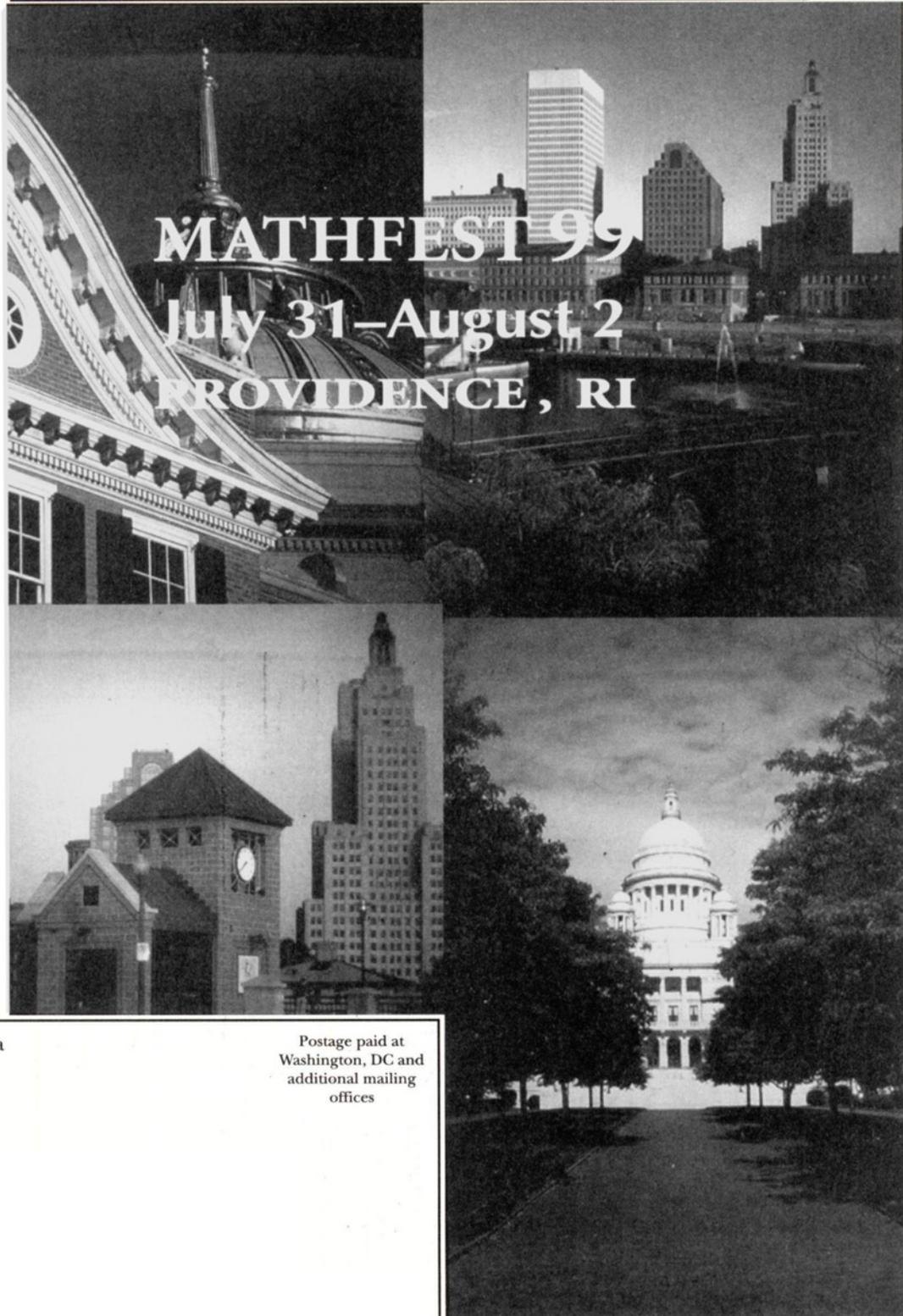
THE NEWSLETTER OF THE MATHEMATICAL ASSOCIATION OF AMERICA

**April 1999**

Volume 19, Number 4

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**MATHEMATICS FESTIVAL 99**  
**July 31–August 2**  
**PROVIDENCE, RI**

The Mathematical Association of America  
1529 Eighteenth St., NW  
Washington, DC 20036

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*Cover: clockwise from upper left : Joseph Brown House (foreground) Old Stone Bank (background), Providence skyline, the Rhode Island State House, and the Waterplace Clock Tower. Courtesy Providence/Warwick Convention & Visitors Bureau.*

## EXECUTIVE DIRECTOR OF MAA

The Mathematical Association of America seeks an Executive Director to begin on or about January 1, 2000. The Association, with 26,000 members, is dedicated to the advancement of mathematics, particularly at the collegiate level. Its activities include national and regional meetings, publication of journals and books, professional development programs, and mathematical competitions.

In cooperation with other mathematical organizations the Association is active in publicizing and explaining to the public and the government the importance of mathematics in meeting the needs of the country.

The Executive Director is the Chief Executive Officer of the Association, working for the Board of Governors under the immediate direction of the President and Treasurer, and assisted by directors for publications and electronic services, membership and marketing, development, and finance.

The Executive Director has ultimate responsibility for all programmatic and administrative activities of the Association, including supervision of the headquarters staff of 25, and, along with the elected officers, represents the Association in professional, governmental, and public affairs as an advocate on behalf of collegiate mathematics, as a fund raiser, and as a liaison with other organizations.

Candidates should hold a graduate degree in mathematics or science and have substantial professional experience as practitioners or educators in their field. Candidates from the academic world should have administrative experience at least at the level of department chair. Experience in personnel management, financial and budget management, fund raising, publishing, electronic services, marketing, and working with volunteers is desirable.

The Executive Director is based at the Washington, D.C. headquarters of the Association. The appointment is for a renewable five-year term. The salary will be competitive, and fringe benefits are liberal.

The Chairperson of the Search Committee is Kenneth A. Ross. Send applications (with resume and names of three references) and nominations to:

Professor Gerald L. Alexanderson  
Department of Mathematics  
Santa Clara University  
Santa Clara, CA 95053-0290  
email: [galexand@math.scu.edu](mailto:galexand@math.scu.edu)

The deadline for applications is May 20, 1999. For more information about the association, see MAA Online at [www.maa.org](http://www.maa.org).

The Mathematical Association of America is an Affirmative Action, Equal Opportunity Employer.

*The Mathematical Association of America Presents*

# MATHFEST99

July 31 - August 2

PROVIDENCE, RI

## MATHFEST99 Deadlines:

Early Bird Registration June 15

University Housing Reservations June 23

Regular Registration July 6

Short Course Registration July 6

Minicourse Registration July 6

Register for MATHFEST99  
online! [www.maa.org](http://www.maa.org)





## Welcome to Providence!

Mathfest 99 welcomes you to Rhode Island, the smallest state. Join 1,000 of your colleagues in Providence, July 31-August 2 for a lively and thought-provoking program guaranteed to reignite your passion for mathematics and teaching.

Recognized as the costume jewelry capital of the world, the historic city of Providence offers many cultural and architectural jewels. This summer, Mathfest 99 will provide you with a number of mathematical gems. **Carl Pomerance**, this year's Hedrick Lecturer, will discuss Numbers, Numbers, Numbers. The popular Pi Mu Epsilon/J. Sutherland Frame Lecture will be given by **V. Frederick Rickey**, speaking on The Creation of the Calculus: Who, What, When, Where, Why.

MAA is proud to introduce a new invited address in honor of the late Dr. James R. C. Leitzel. The first Leitzel Lecturer is **Thomas Banchoff**, MAA President and a professor at Providence's own Brown University. Dr. Banchoff inaugurates this annual address with a discussion of Teaching Stages.

From the Athenaeum on College Hill to the Italian restaurants of Federal Hill, Providence offers variety. Similarly, Mathfest 99 will engage you through traditional lectures or the more interactive Special Sessions, Contributed Paper Sessions, Minicourses, and the popular Short Course. Running two days prior to the meeting, this year's Short Course delves into Recent Developments in the Teaching of Differential Equations.

And of course, whether it's on a Newport excursion, between sessions, or at an old-fashioned Rhode Island clambake, you'll find many opportunities to chat and compare meeting notes with your colleagues.

*See you at Mathfest 99.*

## Invited Addresses

### MAA Invited Address

THE MANDELBROT SET, THE FAREY TREE,  
AND THE FIBONACCI SEQUENCE

**Robert L. Devaney**, BOSTON UNIVERSITY

Saturday, July 31: 8:30 am - 9:20 am

### Hedrick-Lecture Series

NUMBERS, NUMBERS, NUMBERS

**Carl Pomerance**, UNIVERSITY OF GEORGIA

Lecture 1: Prime Numbers

Saturday, July 31: 9:30 am - 10:20 am

Lecture 2: Carmichael Numbers

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

Lecture 3: Smooth Numbers

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

### MAA Invited Address

WHAT TO DO IN K-12

**Judith Roitman**, UNIVERSITY OF KANSAS

Saturday, July 31: 10:30 am - 11:20 am

### James R. C. Leitzel Lecture

TEACHING STAGES

**Thomas Banchoff**, BROWN UNIVERSITY

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

### MAA Invited Address

QUEUES WITH TIME VARYING RATES AND  
THEIR APPLICATIONS

**William A. Massey**, BELL LABORATORIES LUCENT TECHNOLOGIES

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

### NAM-MAA David Blackwell Lecture

WIDE OPEN SPACES

**Melvin Currie**, NATIONAL SECURITY AGENCY

Sunday, August 1: 3:05 pm - 3:55 pm

### Pi Mu Epsilon/J. Sutherland Frame Lecture

THE CREATION OF THE CALCULUS: WHO, WHAT,  
WHEN, WHERE, WHY.

**V. Frederick Rickey**, U.S.M.A. AT WEST POINT

Sunday, August 1: 8:00 pm - 9:00 pm

### AWM-MAA Invited Address

GEOMETRY AND VISUALIZATION OF SURFACES

**Chuu-Lian Terng**, NORTHEASTERN UNIVERSITY

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

### MAA Invited Address

100 YEARS OF HILBERT'S PROBLEMS

**Jeremy Gray**, THE OPEN UNIVERSITY

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

### MAA Student Lecture

A SQUARE PIE FOR THE SIMPSONS,  
AND OTHER MATHEMATICAL DIVERSIONS

**Dan Kalman**, AMERICAN UNIVERSITY

Monday, August 2: 3:05 pm - 3:55 pm

## Special Sessions

Special Sessions feature presentations or panel discussions. The speakers are invited by the organizers and selected because of their knowledge and accomplishments in the focal area of the session.

### SPECIAL PRESENTATION FOR CHAIRS OF MATHEMATICS DEPARTMENTS IN COMPREHENSIVE UNIVERSITIES, 4-YEAR LIBERAL ARTS AND 2-YEAR COLLEGES

*Gerald L. Alexanderson,*  
SANTA CLARA UNIVERSITY

**Saturday, July 31**  
1:00 pm - 2:50 pm

This session will consist mainly of breakouts into discussion groups organized around the three types of institutions.

### MAT-MAA PANEL ON NCTM STANDARDS

*Joan Ferrini-Mundy,*  
UNIVERSITY OF NEW HAMPSHIRE

**Saturday, July 31**  
1:00 pm - 2:50 pm

### HOW TO GET PUBLISHED: A WORKSHOP ON WRITING A WINNING PAPER FOR AN MAA JOURNAL

*Carolyn C. Connell,*  
WESTMINSTER COLLEGE

**Saturday, July 31**  
4:00 pm - 6:00 pm

The Committee on the Participation of Women would like to increase the number of articles by women published in MAA journals. This workshop is offered as guide to prospective authors. Two people whose papers have appeared in MAA journals will discuss stages of paper preparation: getting a good idea, deciding on the appropriate journal, creating outlines, drafts, development, making revisions, handling reviewer's comments, and more. Participants should come prepared to write. Bring paper and pen or a laptop.

### ARUME SESSION

**Saturday, July 31**  
7:00 pm - 9:00 pm

The purpose of the Association for Research on Undergraduate Mathematics (ARUME) is to foster a professional atmosphere for quality research in the teaching and learning of undergraduate mathematics.

This session will include a presentation by Annie Selden of Tennessee Technological University entitled, "Questions from Math Ed Research We Might Ask Our Students," followed by a business meeting and reception.

### THE MATHEMATICAL EDUCATION OF TEACHERS

*Alan Tucker,*  
SUNY AT STONY BROOK.

**Sunday, August 1**  
1:00 pm - 2:50 pm

The Mathematical Education of Teachers project is preparing a report to the collegiate mathematics community about teacher preparation that will appear in parallel with the NCTM Standards 2000 report. Along with updating previous MAA recommendations on the mathematical preparation of teachers, this report seeks to promote greater involvement of mathematics faculty in the mathematical training of teachers. How future teachers should come to learn mathematics and mathematical themes that should be reinforced across all courses for teachers are some of the other issues to be addressed in this report. Panelists include Joan Ferrini-Mundy, University of New Hampshire, and Jim Lewis, University of Nebraska.

### STRATEGIES FOR SMALL DEPARTMENTS

*Robert Talbot,*  
BETHEL COLLEGE  
*Lanette Poteete-Young,*  
JUDSON COLLEGE.

**Sunday, August 1**  
1:00 pm - 2:50 pm

Colleges with small math departments face unique challenges. The pedagogy emerging from the reform movement as well as day-to-day operations are often difficult to implement because of restrictions on time, personnel, and finances. At this session, we discuss issues such as implementation of reform pedagogy, procurement of financial resources, the handling of adjunct faculty, departmental expansion, and finding a niche within the campus community. The approach taken will be active, discussing how issues have been addressed within small departments and then brainstorming ideas for handling such issues within the participants' own departments.

### STRATEGIES TO SOLVE POTENTIAL CLASSROOM CHALLENGES

*K. Renee Fister,*  
MURRAY STATE UNIVERSITY  
*Jennifer Beineke,*  
TRINITY COLLEGE

*Lisa Lister,*  
BLOOMSBURG UNIVERSITY  
**Sunday, August 1**  
4:10 pm - 6:00 pm

Suppose you have placed your students in groups to work on a project and one group refuses to work together. What course of action should you take? How do you help a student who seems to be falling behind the rest of the class? How should you handle an unruly student or a threatening situation? In this workshop, several challenging situations that could arise in the classroom will be investigated. Participants will be divided into groups and given classroom scenarios. The groups will discuss the situations, develop ideas for solutions, and provide a synopsis of the conclusion to all participants. Members of a panel will give further suggestions based on their experience and expertise.

## Exhibit Hall Hours

**Saturday and Sunday**

9:00 am — 5:00 pm,

**Monday**

9:00 am — 3:00 pm.

*Located in  
Rhode Island  
Convention  
Center's  
Exhibit Hall D & E*

Shop for new publications and products and revisit your old favorites at the **Mathfest 99 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'll find the popular **MAA Bookstore**. There you can select from MAA's extensive collection of books on mathematics, mathematics education, and related topics. Schedule time to browse through the new titles premiering at Mathfest 99. Purchase books at the meeting and you'll save money with a special discount!

## MAA Contributed Paper Sessions

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

### GREAT THEOREMS OF MATHEMATICS

**Doug Ensley**, SHIPPENSBURG UNIVERSITY

**Cheryl Olsen**, SHIPPENSBURG UNIVERSITY

Part 1: Saturday, July 31 1:00 pm - 2:50 pm

Part 2: Sunday, August 1 1:00 pm - 2:50 pm

This session will feature expository talks on important theorems from a variety of mathematical disciplines. The talks might address history and applications as time permits, but will primarily focus on showing a general mathematics audience the flavor of the proof (or proofs) of the result. These talks should be in the spirit of "coffee room conversations" where mathematicians from different fields discuss the most significant or interesting theorems in some area.

### MATHEMATICS ACROSS THE DISCIPLINES

**Maya Kiehl**, U.S.M.A. AT WEST POINT

**Ethan Berkove**, U.S.M.A. AT WEST POINT

**Rich Marchand**, U.S.M.A. AT WEST POINT

Part 1: Saturday, July 31 1:00 pm - 2:50 pm

Part 2: Sunday, August 1 1:00 pm - 2:50 pm

Over the last several years there has been a growing interest in interdisciplinary applications of mathematics. This has been demonstrated at a variety of levels ranging from interdisciplinary projects and activities in the classroom to team teaching of entire courses. This session invites papers describing interdisciplinary activities which integrate mathematics with one or more partner disciplines. We are particularly interested in applications that have been successful and which can be transported to curricula at other schools. Examples may include, but are not limited to: one activity; one class; one project; one section; one course; or an entire curriculum. We welcome participation of colleagues from partner disciplines.

### RESEARCH IN UNDERGRADUATE MATHEMATICS EDUCATION

**Julie Clark**, EMORY AND HENRY COLLEGE

**Mickey McDonald**, OCCIDENTAL COLLEGE

Part 1: Saturday, July 31 1:00 pm - 2:50 pm

Part 2: Saturday, July 31 4:10 pm - 6:00 pm

Research papers that address issues concerning the teaching and learning of undergraduate mathematics are invited. Both theoretical and empirical investigations using qualitative or quantitative methodologies are appropriate. Whenever possible, these should be set within a theoretical frameworks and should build on existing research. Reports on completed studies are especially welcome. This session is sponsored by The Association for Research on Undergraduate Mathematics (ARUME).

### Call for Papers

The deadline for submissions for Mathfest 99 is Thursday May 6, 1999. Submission of proposals via e-mail is preferred. Early submissions are encouraged. The organizers will acknowledge receipt of all summaries. You will receive acceptance notification from the organizers by May 27. Please note that there will be no published abstracts for the meeting. Do not forward summaries to the MAA. Send the name(s) and address(es) of the author(s) and a one-page outline of proposed talks to: Julie Clark, Department of Mathematics, Emory and Henry College, Emory, VA 24327; fax: 540.944.6223; e-mail: juclark@ehc.edu.

Each session room contains an overhead projector and screen; black/white boards will not be available. Persons needing additional equipment should contact, as soon as possible, James J. Tattersall, Department of Mathematics and Computer Science, Providence College, Providence, RI 02918, e-mail: tat@providence.edu.

### GRADUATE STUDENT PAPER SESSION

**Jeffrey Hoag**, PROVIDENCE COLLEGE

**Liam Donohoe**, PROVIDENCE COLLEGE

Saturday, July 31 1:00 pm - 2:50 pm

### INNOVATIVE USES OF TECHNOLOGY IN THE TEACHING OF GEOMETRY

**Mary L. Platt**, SALEM STATE COLLEGE

Saturday, July 31 4:10 pm - 6:00 pm

The teaching of geometry has been influenced by the introduction of interactive and dynamic visualization. Various software applications (such as Geometer's Sketchpad and Cabri Geometry) have made it possible to add an experimentation component to traditional geometry courses. This session invites presentations illustrating novel ways to use technology in the teaching and learning of geometric concepts at all levels of mathematics. Of particular interest are experimental components to geometry courses, examples of independent and collaborative learning projects that utilize technology, and interactive use of the Web in teaching geometry courses. This session is organized on behalf of the MAA Committee on Computers in Mathematics Education.

### COMPUTATIONAL BIOLOGY IN THE UNDERGRADUATE DISCRETE MATHEMATICS CURRICULUM

**Rochelle Leibowitz**, WHEATON COLLEGE

**Connie Yu**, PENN STATE UNIVERSITY and ALTOONA COLLEGE

Saturday, July 31 4:10 pm - 6:00 pm

This session is intended for four- and two-year college faculty who are interested in using new teaching materials which reflect current research in computational molecular biology. The session invites papers which (1) describe modules that are motivated by the emerging research problems of computational molecular biology like DNA sequencing and phylogenic tree building, (2) describe classroom teaching experiences using any such modules, or (3) report on models of how to connect teaching faculty with current research development. Materials for any level of undergraduate discrete mathematics or introductory computer science courses are considered.

### GENERAL CONTRIBUTED PAPER SESSION

**Francis P. Ford**, PROVIDENCE COLLEGE

**Ann O'Connell**, PROVIDENCE COLLEGE

**John O'Connell**, ROGER WILLIAMS COLLEGE

Saturday, July 31 4:10 pm - 6:00 pm

### THE USE OF TECHNOLOGY IN THE TEACHING OF APPLICATIONS IN UNDERGRADUATE MATHEMATICS

**Howard Lewis Penn**, U.S. NAVAL ACADEMY

Part 1: Sunday, August 1 4:10 pm - 6:00 pm

Part 2: Monday, August 2 1:00 pm - 2:50 pm

The use of computer programs and calculators have made it much easier to study real world applications in courses ranging from precalculus through senior level mathematics courses. In this session, papers will highlight how the innovative use of technology can be used to aid in the teaching of applications. Papers may cover applications to any subject as well as any level mathematics course.

## MAA Contributed Sessions (cont.)

## CONVERSATIONS ABOUT MATHEMATICS EDUCATION RESEARCH

*Richard Grassl*, UNIVERSITY OF NORTHERN COLORADO  
*Tabitha T.Y. Mings*, WESTERN MICHIGAN UNIVERSITY  
**Part 1: Sunday, August 1** 4:10 pm - 6:00 pm  
**Part 2: Monday, August 2** 1:00 pm - 2:50 pm

Over the past few decades, interest in research conducted in the field of mathematics education has grown. As this activity expands, the need to clarify, evaluate and apply this research becomes increasingly more important. This session invites papers addressing: research paradigms in mathematics education, descriptions of ongoing projects, how such research affects curriculum design and the teaching of our undergraduate core mathematics courses, history of research in mathematics education, current issues and trends in mathematics education research from an editor's point of view. Our focus will be on research conducted in the post-secondary arena.

## THE USE OF CREATIVE WRITING IN TEACHING MATHEMATICS

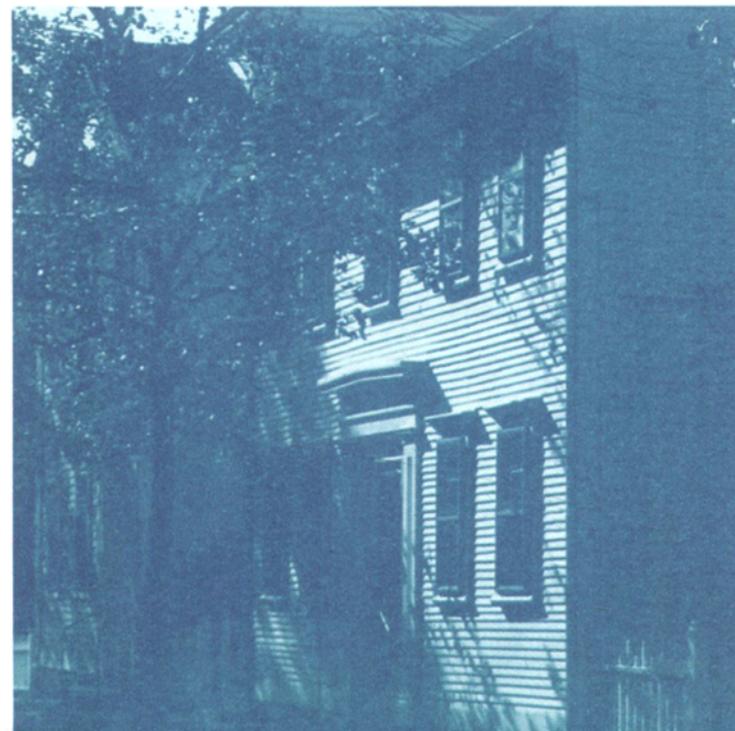
*Sarah L. Mabrouk*, BOSTON UNIVERSITY  
**Monday, August 2** 4:10 pm - 6:00 pm

Student comments such as "I can't do the algebra but if you asked me to write about the problem then I could do it" and "I'd rather write a story than solve a bunch of math problems" have caused many of us to consider how creative writing can be used to test the student's understanding of course concepts and to demonstrate the student's problem solving ability. In this session, presenters will discuss the assignments/projects requiring creative writing that they have used, how these assignments have helped/hindered the student in demonstrating an understanding of mathematics, the difficulty of using these assignments, the development/assessment of writing assignments, and the affect of writing assignments on the student's attitude toward mathematics.

## DISTANCE LEARNING

*Marcelle Bessman*, JACKSONVILLE UNIVERSITY  
**Monday, August 2** 4:10 pm - 6:00 pm

This session will focus on the use of technology and other strategies to provide effective mathematical instruction in a distance learning environment. This includes the use of videoconferencing and/or the Internet and other synchronous or asynchronous formats.



## Minicourses

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

## THE CURVES AND SURFACES OF THE DIGITAL AGE

*Colm Mulcahy*, SPELMAN COLLEGE  
*Jeffrey Ehme*, SPELMAN COLLEGE

**Part A: Saturday, July 31**  
 1:00 pm - 2:50 pm  
**Part B: Sunday, August 1**  
 1:00 pm - 2:50 pm

We will consider a wide class of piecewise-polynomial curves and surfaces with a general goal of data fitting, whether exact or approximate. We will show how MAPLE can be used to explore interpolation, Bezier and spline methods. Applications in the digital age include computer-aided geometric design, image processing, font design, computer graphics, and video/film (both traditional and animated).

## CONSTRUCTION PROJECTS AND THE IMAGINATION

*Ray Tennant*, EASTERN KENTUCKY UNIVERSITY  
**Part A: Saturday, July 31**  
 1:00 pm - 2:50 pm  
**Part B: Sunday, August 1**  
 4:10 pm - 6:00 pm

Construction projects can be useful for introducing abstract mathematical ideas to students and helping them gain deeper insight. This hands-on minicourse will discuss projects that can be used in the mathematics classes ranging from liberal arts classes to abstract algebra courses and senior thesis projects. The projects involve sketching and building models to describe ideas in group theory, geometry, topology, and hyperspace. Participants will design constructions for incorporation into their own classes.

## DISCRETE DYNAMICAL SYSTEMS: MATHEMATICS, METHODS, AND MODELS.

*David Arney*, U.S.M.A. AT WEST POINT  
*Frank Giordano*, COMAP

*John Robertson*, GEORGIA COLLEGE AND STATE UNIVERSITY  
**Part A: Sunday, August 1**  
 1:00 pm - 2:50 pm  
**Part B: Monday, August 2**  
 1:00 pm - 2:50 pm

Discrete dynamical systems describe changing behavior in the forms of growth, decay, oscillation, velocity, acceleration, and accumulation. Studying and analyzing these changing phenomena is important for undergraduates. In this minicourse, the concepts of dynamical systems are explored and used to solve problems that connect mathematics to other subjects. Important mathematical concepts such as equilibria, stability, and long term behavior are covered along with an introduction to numerical, graphical, and analytical solution methods.

## GENERATING FUNCTIONS: TECHNIQUES AND TRICKS

*Lou Shapiro*, HOWARD UNIVERSITY  
**Part A: Sunday, August 1**  
 4:10 pm - 6:00 pm  
**Part B: Monday, August 2**  
 1:00 pm - 2:50 pm

Generating functions occur in many parts of mathematics and provide a powerful unifying point of view as well as important problem-solving techniques. This course is designed for a non-specialist who wants to learn something about the basic techniques, see a few of the various applications, and to get a little exposure to some more advanced (tricks) techniques. The applications include calculus, differential equations, linear algebra, number theory, and probability.

## Special Events

### The 2-Day Short Course

#### RECENT DEVELOPMENTS IN THE TEACHING OF DIFFERENTIAL EQUATIONS

Organized by **Paul Blanchard**, BOSTON UNIVERSITY AND BENTLEY COLLEGE  
**Thursday, July 29 and Friday, July 30**, 8:30 am – 4:00 pm

During the last decade many colleges and universities have made significant revisions to the traditional sophomore-level differential equations course. These changes are a response to a number of recent developments including easy access to significant computational power, changes in calculus courses that precede this course, and a greater emphasis on modeling within the course. This short course will survey these developments. There will be a number of one-hour presentations as well as hands-on sessions conducted by a wide range of mathematicians who are active in this revision. The speakers will include Paul Blanchard, William Boyce (Rensselaer Polytechnic Institute), Glen R. Hall (Boston University), Michael Moody (Harvey Mudd College), John Polking (Rice University), Michael Ruane (Boston University, College of Engineering) and Beverly West (Cornell University). Topics will include the role of computation in the course, the introduction of qualitative/geometric techniques into the course, group projects, and the use of animation.

### Teaching Workshop

#### TEACHING WORKSHOP FOR GRADUATE STUDENTS AND NEW FACULTY

**Thomas W. Rishel**, CORNELL UNIVERSITY  
**Friday, July 30**, Noon - 2:00 p.m. and 4:00 pm - 6:00 pm

This workshop is aimed primarily at 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 on to advice on how to construct reasonable quizzes and exams, and how to decide on grading policy. We will also discuss crisis situations that can occur. For instance, what can we do if a student cheats, behaves bizarrely in class, accuses us of something, etc.

### CCH Conference

The Seventh Annual Conference on the Teaching of Mathematics, sponsored by the Calculus Consortium based at Harvard University and John Wiley and Sons, Inc., will be held the day before Mathfest. The program emphasizes innovative teaching and relationships with client disciplines.

**Friday, July 30**

- 10:00 am – 10:15 am:** Introduction
- 10:15 am – 11:45 am:** Videotapes from the Third International Mathematics and Science Study (TIMSS)
- 11:45 am – 12:30 pm:** Implications of TIMSS for the NCTM Standards
- 12:30 pm – 2:00 pm:** Lunch
- 2:00 pm – 3:30 pm:** Panel, "Literate Guest or Barbarian at the Gates: CAS in Every Student's Palm"
- 3:30 pm – 4:00 pm:** Break
- 4:00 pm – 5:30 pm:** Panel, "To See Our Courses as Others Do: The View from Different Disciplines"

Please use the Mathfest form for conference registration and university housing. Contact hotels directly for reservations. All CCH sessions will take place in the Rhode Island Convention Center.

## Student Activities

Students and faculty will be interested in presentations of student work in sessions sponsored by the MAA and PME, and in the invited lectures developed with students in mind. Starting with a student reception on Friday night, Mathfest 99 includes a rich array of activities for students. At the Student Hospitality Center – open Saturday through Monday – 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).

**MAA/PI MU EPSILON STUDENT RECEPTION**  
**Friday, July 30**  
 5:30 pm - 6:30 pm

**GRADUATE STUDENT RECEPTION**  
**Friday July 30**  
 5:30 pm – 6:30 pm

**MAA STUDENT WORKSHOP**  
**Robert L. Devaney**  
 BOSTON UNIVERSITY  
**Saturday, July 31**  
 11:30 am - 1:30 pm  
 Chaos, Fractals, and more...

**MAA/PI MU EPSILON STUDENT PAPER SESSIONS**  
**Saturday, July 31**  
 1:00 pm - 5:00 pm  
**Sunday, August 1**  
 1:00 pm - 5:00 pm

**PME BANQUET**  
**Sunday, August 1**  
 6:00 pm - 7:45 pm

See the Mathfest Registration Form for ticket information

**PI MU EPSILON/J. SUTHERLAND FRAME LECTURE**

**V. Frederick Rickey**,  
 U.S.M.A. AT WEST POINT  
**Sunday, August 1**  
 8:00 pm-9:00 pm

The Creation of the Calculus: Who, What, When, Where, Why.

**MAA STUDENT LECTURE**

**Dan Kalman**,  
 AMERICAN UNIVERSITY  
**Monday, August 2**  
 3:05 pm-3:50 pm

A Square Pie for the Simpsons, and Other Mathematical Diversions

**STUDENT PROBLEM SOLVING COMPETITION**

**Richard Neal**,  
 UNIVERSITY OF OKLAHOMA  
**Monday, August 2**  
 4:10 pm – 5:00 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 mathematics problems. Based upon the outcome, a champion and runner-up will be named.

**MAA MATHEMATICAL CONTEST IN MODELING (MCM) WINNERS**  
**Monday, August 2**  
 5:10 pm-6:00 pm

## Call for Student Papers

Students who wish to present a paper at Mathfest 99 must be nominated by a faculty advisor familiar with the work to be presented. Students who make presentations at Mathfest 99, and who are also members of MAA Student Chapters, are eligible for partial travel reimbursement pending support from the Exxon Education Foundation.

To propose a paper for presentation, students must complete a form and obtain the signature of a faculty sponsor. Nomination forms are located on MAA Online at [www.maa.org](http://www.maa.org) under STUDENTS, or can be obtained from Dr. Charles Diminnie via email at [charles.diminnie@angelo.edu](mailto:charles.diminnie@angelo.edu) or by phone at (915) 942-2317, ext. 238. Deadline for receipt of papers is June 25, 1999.

## Social Events

### NEWPORT EXCURSION

**Friday, July 30,** 9:00 am - 5:00 pm

Leave the Convention Center at 9:00 am on a narrated driving tour of Newport's landmarks and scenery. Arrive at the Newport Visitors Center at 11:00 am. Have lunch on your own and spend the afternoon sightseeing, shopping, and enjoying all that this world famous and historical city has to offer. Depart from the Visitor Center at 4:00 pm and return to the Convention Center in time for the evening festivities. Tickets are \$22 and are available through advance registration only. (A minimum of 40 participants is required to offer this event)

### OPENING RECEPTION

**Friday, July 30,** 6:30 pm - 7:30 pm

The American Mathematical Society is pleased to host a reception for all attendees from 6:30 pm to 7:30 pm on Friday, July 30, just prior to the Opening Banquet. The Society welcomes the Association to its hometown and extends best wishes for an enjoyable and successful meeting.

### OPENING BANQUET: "THE NUMBER HALL OF FAME AWARDS CEREMONY"

*Master of Ceremonies: Colin Adams, WILLIAMS COLLEGE*

**Friday, July 30,** 7:30 pm - 9:30 pm

Continue this exciting evening by joining new and long-time friends and colleagues for a poached salmon dinner (vegetarian option available) and the entertainment of the Number Hall of Fame Awards Ceremony! Rational and irrational, algebraic and transcendental, whole, natural, positive, negative, even, odd, prime, cardinal, ordinal, yes even  $p$ -adic numbers. The newest inductee in the Number Hall of Fame will be announced and feted. Don't miss this once-in-a-lifetime event! (Formal attire unnecessary.) Tickets are \$30 and are available through advance registration only.

### PME BANQUET

**Sunday, August 1,** 6:00 pm - 7:45 pm

Tickets are \$12 for PME members and their families, for MAA Student Chapter members, and students giving talks in MAA Student Paper Sessions. Tickets are \$20 for nonmembers. After the banquet, attend the popular PME/J. Sutherland Frame lecture, given this year by V. Frederick Rickey of the U.S. Military Academy at West Point on "The Creation of the Calculus: Who, What, When, Where, Why." (8:00 pm)

### MAA 25-YEAR MEMBER BANQUET

*Speaker: Andrew Gleason, HARVARD UNIVERSITY*

**Sunday, August 1,** 7:00 pm - 9:30 pm

The 22nd annual banquet honors those individuals who have been members of MAA for 25 years or more. The moderator will be John Ewing, Executive Director of the AMS. There will be a cash-bar reception prior to the banquet at the Brown Faculty Club. Tickets are \$27. Purchasing tickets through advance registration is recommended, since only a limited number will be available for sale onsite.

### AWM RECEPTION

**Sunday, August 1,** 9:15 pm - 11:15 pm

Plan to attend this cooperative party with the Association for Women in Mathematics following the PME/J. Sutherland Frame lecture. All supporters of women in mathematics are encouraged to attend and meet AWM members.

### AMS OPEN HOUSE

**Monday, August 2,** Noon - 2:00 pm

The Society cordially invites all Mathfest 99 participants to visit the AMS headquarters at 201 Charles Street in Providence. After a tour of the building, light refreshments will be served. Transportation to and from the convention center provided.

### RHODE ISLAND CLAM BAKE

**Monday, August 2,** 6:15 pm - 9:00 pm

*Rhode Island Convention Center*

Come one, come all to our authentic Rhode Island Clambake! End your great stay in the Ocean State with Rhode Island clam chowder, clam cakes, steamers, chourico and Italian sausage, corn on the cob, a 1 pound lobster, topped off with desserts of watermelon wedges and strawberry shortcake. Entertainment by authentic Rhode Island artists. Cash bar, beer, wine and soft drinks. Tickets are \$35 adults, \$12 for children 14 and under. Purchasing tickets through advance registration is recommended, since only a limited number will be available for sale onsite.

## Registration Information

### How to Register

**Early Bird Registration:** Register by June 15 to take advantage of the early bird savings and receive your registration packet before the meeting. Registration packets will be mailed on July 6 and there will be no need to register once you arrive.

**Regular Registration:** Advance Registration/Housing Forms received between June 16 and July 6 must include the regular registration fee. 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 and for dormitory housing. Go to [www.maa.org](http://www.maa.org) and click on "Register for Mathfest 99". Credit card payment is required for internet registration. Payment is accepted by the following credit cards only: MasterCard, Visa, American Express, and Discover.

**Mathfest Cancellations** must be received by July 23, 1999 to receive a 50% refund for registration. If your registration packet was mailed before your cancellation, you must return your badge to the address listed below to receive your refund.

**Minicourse/Short Course Registration:** Advance Registration/Housing Forms must be received by July 6. 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.

**CCH Conference:** Advance Registration/Housing Forms must be received by July 6.

**Registration Desk:** The registration desk will be located in the Rhode Island Convention Center on the fifth floor.

The registration desk will be open Friday, July 30 from 12:00 pm-7:00 pm, Saturday, July 31, and Sunday, August 1, from 8:00 a.m. to 4:00 pm, and Monday from 8:00 am to 2:00 pm. You may pick up your registration materials, register onsite, and purchase event tickets at this location.

### Mathfest Housing

Rooms may be reserved at the Westin Hotel, the Holiday Inn, the Days Hotel, or at Brown University.

**Hotels:** You must contact these hotels directly for reservations. All rates are subject to a 12% sales/occupancy tax. Rooms will fill quickly at these properties so participants are advised to reserve rooms as early as possible.

**Westin Hotel**  
One West Exchange Street  
Providence, RI 02903  
**401-598-8000**  
\$130 single/double  
Located across the street from Rhode Island Convention Center (R.I.C.C.)

**Holiday Inn-Providence**  
1-95 at Atwells Avenue  
Providence, RI 02903  
**401-831-3900**  
\$105 single/double  
Located .2 mile from R.I.C.C.

**Days Hotel**  
220 India Point  
Providence, RI 02903  
**401-272-5577**  
\$89 single/double  
Located 1 mile from R.I.C.C.

**University Housing:**  
Located 1.5 miles from Rhode Island Convention Center

To make reservations at Brown University, you must complete an Advance Registration/ Housing Form. Reservations cannot be made directly with the university. Rooms will be available at Gregorian Quad (single, air-conditioned rooms, \$46.25 per person), and at Wriston Quad (single or double rooms, not air-conditioned, \$38.25 per person/single, \$35 per person/double). There are no special rates for children. Air-conditioned single rooms will be assigned on a space-available basis. Rates include breakfast. Individual tickets may be purchased for dinner. Detailed room and meal rates may be found on the Advance Registration/Housing Forms. Rates will be different for Project NEXt participants. Please note that a small portion of your housing fee is used to support general meeting activities.

To reserve university housing, your registration/housing form must be received by June 23, 1999. Changes may be accepted by the MMSB through June 29, 1999. After this date, changes will be taken by the university based on availability and cannot be guaranteed. A 10%

cancellation fee will be charged for all university housing cancellations made at any time. There will be no refunds issued for changes and cancellations of university housing or dinner tickets after June 29, 1999.

A number of low-cost eateries are available near Thayer Street for purchasing lunch. Meals will be served at the Sharpe Refectory located at George and Thayer Streets. Operation hours and meal prices (for cash basis only) are - Monday and Friday: Breakfast 7:30 am to 9:00 am (door price \$6.10), Lunch 11:30 am to 2:00 pm (door price \$8.70), and Dinner 5:00 pm to 6:45 pm (door price \$10.05). On Saturday and Sunday, hours and prices are: Brunch 11:00 am to 2:00 pm (door price \$8.70) and Dinner 5:00 pm to 6:45 pm (dinner price \$10.05).

### Payment/Mailing Address

The MAA has contracted with the American Mathematical Society as its meeting planner. The Mathematics Meetings Service Bureau (M.M.S.B.) will coordinate registration and housing. Make checks available to the M.M.S.B. Checks drawn on foreign banks must be in equivalent foreign currency at current exchange rates. Mail/fax forms to:

**Mathematics Meetings Service Bureau (MMSB)**  
P. O. Box 6887  
Providence, RI 02940-6887  
Fax: 401-455-4004  
**Questions/changes:**  
**1-800-321-4267, ext. 4143 or 4144.**  
Email: [mmsb@ams.org](mailto:mmsb@ams.org)

### General Information

Providence is bisected by I-95 and I-195 and is located 185 miles from New York and 45 miles from Boston. T. F. Green Airport is only a 12-minute drive from downtown Providence. The train station is a five-minute walk from the Convention Center and provides Amtrack service throughout the Northeast Corridor as well as the commuter rail to Boston. Bus service is also available to the downtown area. Most major car rental companies are available at the airport.

### Airline Travel Information:

The official airline for Mathfest 99 is Delta. For reservations, call Delta Meeting Network Reservations at 800-241-6760 weekdays between 7:30 am and 11:00 pm or between 8:30 am - 11:00 pm on weekends, Eastern Standard Time. Refer to file number 117809A.

**Airport Shuttle:** The shuttle office is located outside the baggage claim area. No advance reservation services are available. Shuttles depart from the airport on the hour from 5:00 am until 7:00 pm. After 7:00 pm, pickup can be arranged at the Airport Shuttle office. Shuttles depart from the Westin at quarter past the hour every hour from 5:00 am to 7:00 pm. Cost is \$9 one way either from the airport or from the hotel. No round trip discount is offered. This shuttle does not service Holiday Inn or the Days Hotel. For more information, contact the shuttle service directly at (401)736-1900. The Days Hotel has an airport shuttle. Participants with reservations may call the Days Hotel for pickup when they arrive at the airport.

**Taxi:** One way taxi service from the airport to the Providence hotels is approximately \$22-\$25.

### Directions to the R.I. Convention Center

**R.I. Convention Center**  
One Sabin Street  
Providence, R.I. 02903  
Take exit 22 off I-95 and head toward "Providence Downtown". At the traffic light at the end of the ramp, take a right and proceed to the next light. At the traffic light take a right. The Convention Center is on your left, the parking lot is to the right.

**Parking:** Parking at the university can be provided in a University owned lot. Parking permits can be purchased at check-in for \$3.00 per car per night.

Current parking rates at hotels are: Holiday Inn - \$5.00 per car per night with in/out privileges, and Westin - \$7.00 per car per day for day parking only and \$10.00 per car per day for self parking and valet with in/out privileges. Parking is free at the Days Hotel. Current parking rate at the Rhode Island Convention Center \$6.00 per car per day on show days, no in/out privileges.

**Shuttlebuses:** The shuttle will operate on a continuous basis between the R.I.C.C., the Days Hotel, and Brown University, Friday through Monday.

# MATHFEST99 Providence Advance Registration/Housing Form

Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

Telephone \_\_\_\_\_ Fax \_\_\_\_\_

Email Address \_\_\_\_\_

**Badge Information**

Name to appear on badge \_\_\_\_\_

Affiliation for badge \_\_\_\_\_

Non-mathematician guest badge \_\_\_\_\_

I DO NOT want my program and badge to be mailed to me on July 6, 1999; I will pick it up at the registration desk.

I want acknowledgment of this registration sent by U.S. mail, not email.

**Deadlines:**

Early Bird Registration:  
June 15, 1999

University Housing Reservations:  
June 23, 1999

Regular Registration:  
July 6, 1999

Short Course & Minicourse  
Registration: July 6, 1999

University Housing Cancellations/  
Changes: June 29, 1999

90% refund on all dorm cancellations; 50% refund on all registrations: July 23, 1999 (no refunds after this date).

## Registration Fees

Mathfest	by 6/15	after 6/15
Member <input type="checkbox"/> MAA <input type="checkbox"/> AMS <input type="checkbox"/> both	\$ 160	\$ 210
Nonmember	\$ 250	\$ 325
Graduate Student	\$ 40	\$ 50
Undergraduate Student	\$ 25	\$ 30
Unemployed	\$ 40	\$ 50
Individuals from		
Developing Countries	\$ 40	\$ 50
K-12 Teachers	\$ 40	\$ 50
Emeritus Member	\$ 40	\$ 50
One-day <input type="checkbox"/> Sat <input type="checkbox"/> Sun <input type="checkbox"/> Mon	\$ 99	\$ 99
Guest	\$ 10	\$ 10

Subtotal for Mathfest \$ \_\_\_\_\_

Minicourses	by 6/15	after 6/15
<input type="checkbox"/> #1 The Curves and Surfaces of the Digital Age	\$ 55	\$ 60
<input type="checkbox"/> #2 Discrete Dynamical Systems: Mathematics, Methods & Models	\$ 55	\$ 60
<input type="checkbox"/> #3 Construction Projects and the Imagination	\$ 55	\$ 60
<input type="checkbox"/> #4 Generating Functions: Techniques and Tricks	\$ 55	\$ 60

Minicourses: Enroll me in # \_\_\_\_\_ and/or # \_\_\_\_\_  
My alternatives are # \_\_\_\_\_ and/or # \_\_\_\_\_

Registration for Mathfest is required to attend the Minicourses.

Subtotal for Minicourses \$ \_\_\_\_\_

I am attending Mathfest only to participate in the Minicourse(s). If those requested are filled, I request a full refund of the Mathfest registration fee.

Short Course	by 6/15	after 6/15
MAA Member/ Mathfest Participant	\$ 125	\$ 140
Nonmember/ Mathfest Nonparticipant	\$ 175	\$ 190
Students	\$ 50	\$ 60

Registration for Mathfest is not required for the Short Course

Subtotal for Short Course \$ \_\_\_\_\_

I am attending the Teaching Workshop  
 yes  no

Event	Veg	#	Tix	Price	Total
Opening Banquet	<input type="checkbox"/>	_____	_____	\$30.00	_____
PME Banquet					
Member and Family		_____	_____	\$12.00	_____
MAA Student Chapter Member		_____	_____	\$12.00	_____
MAA Student Paper Presenter		_____	_____	\$12.00	_____
Nonmember & all others		_____	_____	\$20.00	_____
MAA 25-year Banquet		_____	_____	\$27.00	_____
<input type="checkbox"/> beef <input type="checkbox"/> scrod <input type="checkbox"/> veg					
Clambake	<input type="checkbox"/>	_____	_____	Adult \$35.00 Child \$12.00	_____
Newport Tour		_____	_____	\$22.00	_____

Subtotal for Event Tickets \$ \_\_\_\_\_

CCH Conference	by 6/15	after 6/15
Mathfest Participant	\$ 20	\$ 20
Mathfest Nonparticipant	\$ 25	\$ 25

Registration for Mathfest is not required for the CCH Conference

Subtotal for CCH Conference \$ \_\_\_\_\_

## Total Payment

Subtotal from Registration fees

\$ \_\_\_\_\_

Subtotal from Housing Registration (other side)

\$ \_\_\_\_\_

Total Amount to be paid:

\$ \_\_\_\_\_

Check. Make checks payable to the MMSB. Checks drawn on foreign banks must be in equivalent foreign currency at current exchange rates.

Charge my:  
 VISA  MasterCard  
 AMEX  Discover

Card Number: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Name on Card: \_\_\_\_\_

Zip Code of your credit card billing address: \_\_\_\_\_

(Please note that a \$5 processing fee will be applied for each returned check or invalid credit card.)

Purchase order # \_\_\_\_\_

(please enclose copy)

## Return this form to:

Mathematics Meetings Service Bureau (MMSB)  
P. O. Box 6887  
Providence, Rhode Island 02940

Questions/changes call  
401-455-4143 OR  
1-800-321-4267 x 4143  
FAX 401-455-4004

**MATHFEST99 Providence Advance Registration/Housing Form (cont.)**

**Brown University Housing**

Full prepayment for university housing is required. Mathfest participants may occupy the residence halls from 7/28/99 to 8/2/99. Rooms will be available at Gregorian Quad (single, air-conditioned rooms) and at Wriston Quad (single or double rooms, not air-conditioned). There are no special rates for children. Air-conditioned single rooms will be assigned on a space-available basis. Rates quoted include breakfast, which is mandatory, except on 7/28, when no meals are offered. Individual tickets may be purchased for dinner. There is a 10% non-refundable cancellation fee.

**Hotels**

You must contact these hotels directly for reservations. All rates are subject to a 12% sales/occupancy tax. Rooms will fill quickly at these properties so participants are advised to reserve rooms as early as possible.

**Westin Hotel**  
401-598-8000  
\$130 single/double

**Holiday Inn-Providence**  
401-831-3900  
\$105 single/double

**Days Hotel**  
401-272-5577  
\$89 single/double

Name \_\_\_\_\_

Date and time of arrival \_\_\_\_\_ Date and time of Departure \_\_\_\_\_

Please check all that apply:

Male  Female  Mixed Couple  Smoking  Nonsmoking

Housing		Price		# Days	Total
Gregorian Single	(7/28 only)	\$40.50	x	_____	= _____
Gregorian Single	(after 7/28)	\$46.25	x	_____	= _____
Wriston Single	(7/28 only)	\$32.50	x	_____	= _____
Wriston Single	(after 7/28)	\$38.25	x	_____	= _____
Wriston 1/2 Double	(7/28 only)*	\$29.25	x	_____	= _____
Wriston 1/2 Double	(after 7/28)*	\$35.00	x	_____	= _____
Wriston Full Double-2 persons	(7/28 only)*	\$58.50	x	_____	= _____
Wriston Full Double-2 persons	(after 7/28)*	\$70.00	x	_____	= _____

**# Tickets**

University Housing Dinner Tickets: \$9.20 x \_\_\_\_\_ = \_\_\_\_\_  
 7/29  7/30  7/31  8/1  8/2

*"If you select a double or "half double" room, please indicate the name of your roommate. If you select a "half double room" and do not indicate a roommate, you will be charged the single rate.*

Roommate's name \_\_\_\_\_ Arrival \_\_\_\_\_ Departure \_\_\_\_\_  
 Male  Female

I have disabilities as defined by the ADA that require a sleeping room that is accessible to the physically challenged. My needs are \_\_\_\_\_

I would like to be housed near \_\_\_\_\_ (person or group).

Other special requests: \_\_\_\_\_

**Downtown Providence**



- 1 R.I. Convention Center
- 2 Westin Hotel
- 3 Holiday Inn Downtown
- 4 Brown University Housing
- 5 Days Hotel

## Program-at-a-Glance

	Invited Addresses	Special Sessions	Contributed Paper Sessions	Minicourses	Student Activities	General Activities
<b>7/30</b> <b>Friday</b>		12:00 pm – 2:00 pm & 4:00 pm – 6:00 pm: Teaching Workshop for Graduate Students & New Faculty; <i>Thomas W. Rishel</i>			5:30 pm – 6:30 pm: MAA/Pi Mu Epsilon Student Reception 5:30 pm – 6:30 pm: Graduate Student Reception	9:00 am – 5:00 pm: Newport Excursion 10:00 am – 5:30 pm CCH Conference 6:30 pm – 7:30 pm: Opening Reception 7:30 pm – 9:30 pm: Opening Banquet
<b>7/31</b> <b>Saturday</b>	8:30 am – 9:20 am: Mandelbrot Set, the Farey Tree, & the Fibonacci Square; <i>Robert L. Devaney</i> 9:30 am – 10:20 am: Hedrick Lecture 1: Prime Numbers; <i>Carl Pomerance</i> 10:30 am – 11:20 am: What to Do in K-12; <i>Judith Reitman</i>	1:00 pm – 2:50 pm: Special Session for Chairs of Mathematics Departments in Comprehensive Universities, 4-year Liberal Arts, & 2-year Colleges; <i>Gerald L. Alexanderson</i> 1:00 pm – 2:50 pm: MAT-MAA Panel on NCTM Standards; <i>Joan Ferrini-Mundy</i> 4:00 pm – 6:00 pm: How to Get Published: A Workshop on Writing a Winning Paper for an MAA Journal; <i>Carolyn C. Connell</i> 7:00 pm – 9:00 pm: ARUME Session	1:00 pm – 2:50 pm: Great Theorems of Mathematics (Part 1); <i>Doug Ensley &amp; Cheryl Olsen</i> 1:00 pm – 2:50 pm: Mathematics across the Disciplines (Part 1); <i>Maya Kiehl, Ethan Berkove, &amp; Rick Marehand</i> 1:00 pm – 2:50 pm (part 1) 4:10 pm – 6:00 pm (part 2): Research in Undergraduate Mathematics Education; <i>Julie Clark &amp; Mickey McDonald</i> 1:00 pm – 2:50 pm: Graduate Student Paper Session; <i>Jeffrey Hoag &amp; Liam Donohoe</i> 4:10 pm – 6:00 pm: Innovative Uses of Technology in the Teaching of Geometry; <i>Mary L. Platt</i> 4:10 pm – 6:00 pm: Computational Biology in the Undergraduate Discrete Mathematics Curriculum; <i>Rochelle Leibowitz &amp; Connie Yu</i> 4:10 pm – 6:00 pm: General Contributed Paper Session; <i>Francis P. Ford, Ann O'Connell, &amp; John O'Connell</i>	1:00 pm – 2:50 pm: The Curves & Surfaces of the Digital Age (Part A); <i>Colm Mulcahy &amp; Jeffrey Ehme</i> 1:00 pm – 2:50 pm: Construction Projects & the Imagination (Part A); <i>Ray Tennant</i>	11:30 am – 1:30 pm: MAA Student Workshop: Chaos, Fractals, and more; <i>Robert L. Devaney</i> 1:00 – 5:00 pm: MAA/Pi Mu Epsilon Student Paper Sessions	
<b>8/1</b> <b>Sunday</b>	8:30 am – 9:20 am: James R. C. Leitzel Lecture: Teaching Stages; <i>Thomas Banchoff</i> 9:30 am – 10:20 am: Hendrick Lecture 2: Carmichael Numbers; <i>Carl Pomerance</i> 10:30 am – 11:20 am: Queues with Time Varying Rates & Their Applications; <i>William A. Massey</i> 3:05 pm – 3:55 pm: NAM-MAA David Blackwell Lecture: Wide Open Spaces <i>Melvin Currie</i> 8:00 pm – 9:00 pm: Pi Mu Epsilon/J. Sutherland Frame Lecture: The Creation of the Calculus: Who, What, When, Where, Why; <i>V. Frederick Rickey</i>	1:00 pm – 2:50 pm: The Mathematics Education of Teachers; <i>Alan Tucker</i> 1:00 pm – 2:50 pm: Strategies for Small Departments; <i>Robert Talbot &amp; Lanette Poteete-Young</i> 4:10 pm – 6:00 pm: Strategies to Solve Potential Classroom Challenges; <i>K. Renee Fister, Jennifer Beineke, Lisa Lister</i>	1:00 pm – 2:50 pm: Great Theorems of Mathematics (Part 2); <i>Doug Ensley &amp; Cheryl Olsen</i> 1:00 pm – 2:50 pm: Mathematics Across the Disciplines (Part 2); <i>Maya Kiehl, Ethan Berkove, &amp; Rich Marehand</i> 4:10 pm – 6:00 pm: The Use of Technology in the Teaching of Applications in Undergraduate Mathematics (Part 1); <i>Howard Lewis Penn</i> 4:10 pm – 6:00 pm: Conversations About Mathematics Education Research (Part 1); <i>Richard Grassl &amp; Tabitha T.J. Mingsus</i>	1:00 pm – 2:50 pm: The Curves & Surfaces of the Digital Age (Part B); <i>Colm Mulcahy &amp; Jeffrey Ehme</i> 1:00 pm – 2:50 pm: Discrete Dynamical Systems: Mathematics, Methods, & Models (Part A); <i>David Arney, Frank Giordano, &amp; John Robertson</i> 4:10 pm – 6:00 pm: Construction Projects & the Imagination (Part B); <i>Ray Tennant</i> 4:10 pm – 6:00 pm: Generating Functions: Techniques & Tricks (Part A); <i>Lou Shapiro</i>	1:00 pm – 5:00 pm: MAA/Pi Mu Epsilon Student Paper Session 6:00 pm – 7:45 pm: PME Banquet 8:00 pm – 9:00 pm: Pi Mu Epsilon/J. Sutherland Frame Lecture: The Creation of the Calculus: Who, What, When, Where, Why. <i>V. Frederick Rickey</i>	6:00 pm – 7:45 pm: PME Banquet 7:00 pm – 9:30 pm: MAA 25-Year Member Banquet 9:15 pm – 11:15 pm: AWM Reception
<b>8/2</b> <b>Monday</b>	8:30 am – 9:20 am: AWM-MAA Invited Address: Geometry & Visualization of Surfaces; <i>Chuu-Lian Terng</i> 9:30 am – 10:20 am: Hendrick Lecture 3: Smooth Numbers; <i>Carl Pomerance</i> 10:30 am – 11:20 am: 100 Years of Hilbert's Problems; <i>Jeremy Gray</i> 3:05 pm – 3:55 pm: MAA Student Lecture: A Square Pie for the Simpsons, & Other Mathematical Diversions; <i>Dan Kalman</i>		1:00 pm – 2:50 pm: The Use of Technology in the Teaching of Applications in Undergraduate Mathematics (Part 2); <i>Howard Lewis Penn</i> 1:00 pm – 2:50 pm: Conversations about Mathematics Education Research (Part 2); <i>Richard Grassl &amp; Tabitha T.J. Mingsus</i> 4:10 pm – 6:00 pm: The Use of Creative Writing in Teaching Mathematics; <i>Sarah L. Mabrouk</i> 4:10 pm – 6:00 pm: Distance Learning; <i>Marcelle Bessman</i>	1:00 pm – 2:50 pm: Discrete Dynamical Systems: Mathematics, Methods, & Models (Part B); <i>David Arney, Frank Giordano, &amp; John Robertson</i> 1:00 pm – 2:50 pm: Generating Functions: Techniques & Tricks (Part B); <i>Lou Shapiro</i>	3:05 pm – 3:55 pm: MAA Student Lecture: A Square Pie for the Simpsons, & Other Mathematical Diversions; <i>Dan Kalman</i> 4:10 pm – 5:00 pm: Student Problem Solving Competition <i>Richard Neal</i> 5:20 pm – 6:00 pm: MAA Mathematical Contest in Modeling (MCM) Winners	11:30 am – Noon: MAA Business Meeting Noon – 2:00 pm: AMS Open House 6:15 pm – 9:00 pm: Rhode Island Clam Bake

# Register for Mathfest99 Online!

## Here's how to do it:

1. Go to MAA ONLINE at [www.maa.org](http://www.maa.org)
2. Click on Register for Mathfest 99
3. Complete the form and payment information

## *It's that simple!*

No phone call needed or form to mail.  
Receipt of your registration form will be  
acknowledged online.

## Deadlines:

Early Bird Registration: June 15, 1999

University Housing Reservations: June 23, 1999

Regular Registration: July 6, 1999

Short Course & Minicourse Registration: July 6, 1999

University Housing Cancellations/Changes: June 29, 1999

**EMPLOYMENT OPPORTUNITIES****PENNSYLVANIA****PENN STATE ABINGTON COLLEGE**

## Faculty Positions

Penn State Abington College seeks applications for a one year sabbatical leave replacement in Mathematics starting in August 1999. A.M.S. and a record of innovative college level teaching is required. A Ph.D. is preferred. Abington College is located in the northern suburbs of Philadelphia, has 2300 full-time students, supports all of Penn State's degree programs at the lower division, and currently offers six of its own baccalaureate degrees in selected areas. Several strictly part-time positions are also available in these disciplines. Send resume to: Dr. Paul Hutta (phutta@psu.edu) Division Head for Science and Engineering, Penn State Abington, 1600 Woodland Road, Abington, PA 19001. AA/EOE.

**National Meetings**

July 31-August 2, 1999, MathFest, Providence, RI  
January 19-22, 2000 83<sup>rd</sup> Annual Meeting, Washington, DC; Board of Governors January 18, 2000

**Section Meetings**

**Allegheny Mountain** April 9-10, 1999, Allegheny College, Meadville, PA

**Eastern PA & Delaware** April 10, 1999, Villanova University, Villanova, PA

**Illinois** April 9-10, 1999, Augustana College, Rock Island, IL

**Iowa** April 16-17, 1999, University of Iowa, Iowa City, IA

**MD-DC-VA** April 9-10, 1999, James Madison University, Harrisonburg, VA

**Metropolitan New York** May 1, 1999, Hofstra University, Hempstead, NY

**Michigan** May 7-8, 1999, Eastern Michigan University, Ypsilanti, MI

**Missouri** April 8-10, 1999, Rockhurst College, Kansas City, MO

**Nebraska-Southeast South Dakota** April 9-10 1999, Hastings College, Hastings, NE

**New Jersey** April 10, 1999, College of New Jersey, Trenton, NJ

**North Central** April 16-17, 1999 Carleton College, Northfield, MN

**Northeastern** June 11-12, 1999, Colby College, Waterville, ME

**Rocky Mountain** April 30-May 1, 1999, Adams State College, Alamosa, CO

**Seaway** April 23-24, 1999, Syracuse University, Syracuse, NY

**Southwestern** April 9-10, 1999, Western New Mexico University, Silver City, NM

**Texas** April 8-10, 1999, Southwest Texas State University, San Marcos, TX

**Wisconsin** April 23-24, 1999, University of Wisconsin-La Crosse, WI

**CALIFORNIA****CALIFORNIA STATE UNIVERSITY MONTEREY BAY****Faculty Director (Associate Professor or Professor, tenure track)**

Institute for Mathematical Sciences and Applications (#MBIMSA-9911)

The Institute for Mathematical Sciences and Applications in the Center for Science, Technology and Information Resources seeks an energetic and innovative director for appointment effective Fall 1999. Responsibilities include teaching mathematics and courses which integrate math into teacher ed. and other disciplines; designing and implementing outcomes-based interdisciplinary curriculum in a collaborative setting; integrating modern teaching technologies into the curriculum; providing leadership re: strategies for enabling underserved students to be successful in the study of mathematics; developing a math concentration to serve a variety of populations, including prospective secondary math teachers; and overseeing the day-to-day operations of an academic department.

Minimum qualifications: earned doctorate in mathematics; evidence of university-level teaching effectiveness; record of achievement in scholarship and funded research. Preferred qualifications include interest in teaching

math at undergraduate level; ability to articulate vision for undergraduate math education compatible with K-12 NCTM Standards; appreciation for interdisciplinary applications of math; and knowledge of strategies for addressing needs of historically underserved students to insure their success in the study of math. Prior experience in academic administration and collaborative leadership skills helpful. Priority Screening Date: Friday, April 2, 1999. Position open until filled.

For complete position announcement and CSUMB Vision Statement call (831) 582-3569 or see CSUMB web posting at <http://www.monterey.edu>. To apply, send two copies of letter summarizing qualifications, teaching experience and research interest, and stating how background and experience address required/preferred quals. and provide for fulfillment of CSUMB vision. Also send two copies of curriculum vitae, three letters of recommendation, and list of five references (pls. include phone nos. & e-mail addresses; list may include names of authors of letters of recommendation) to: Recruitment/Office of Academic Personnel, CSUMB, 100 Campus Center, Seaside, CA, 93955-8001. Send e-mail applications to:

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**M**ATHEMATICS AND ITS  
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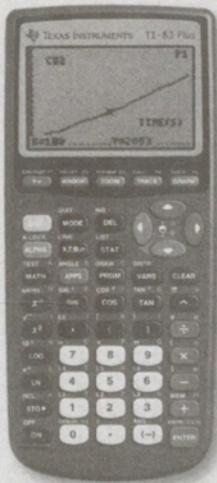
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*For more information, see*

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Or contact: Pam Harnett; Department of Mathematics, Swain Hall, Indiana University, Bloomington, IN 47405; [pharnett@indiana.edu](mailto:pharnett@indiana.edu)



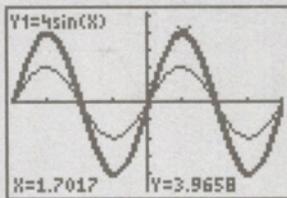
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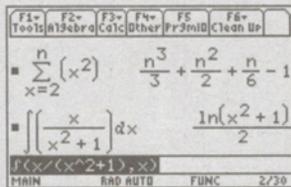


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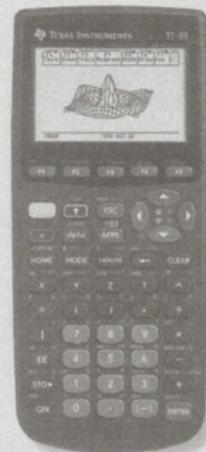


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